UTILIZATION OF INFORMATION AND COMMUNICATION TECHNOLOGIES (ICTs) IN PUBLIC LIBRARY SERVICES IN NIGERIA

BY

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A Ph.D THESIS SUBMITTED TO THE DEPARTMENT OF LIBRARY AND INFORMATION SCIENCE, UNIVERSITY OF NIGERIA NSUKKA IN FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF DOCTOR OF PHILOSOPHY (Ph.D) DEGREE IN LIBRARY AND INFORMATION SCIENCE.

DEPARTMENT OF LIBRARY AND INFORMATION SCIENCE, UNIVERSITY OF NIGERIA, NSUKKA

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APPROVAL PAGE

THIS THESIS HAS BEEN APPROVED FOR THE DEPARTMENT OF LIBRARY AND INFORMATION SCIENCE, UNIVERSITY OF NIGERIA, NSUKKA.

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This is to certify that Emmanuel Sambo Mamman, a postgraduate student in the Department of Library and Information Science, with Registration Number PG/Ph.D/05/40384 has satisfactorily completed the requirements for the research work for the degree of Doctor of Philosophy in Library and Information Science (Library Education). The work embodied in this thesis is original and has not been submitted in part or full for any other diploma or degree of this or any other University.

Emmanuel Sambo Mamman	**Prof. Virginia W. Dike**
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DEDICATION

This work is dedicated to my late parents - Simon Nyam Mamman (Father) and Lydia Anap Mamman (Mother). May their souls rest in perfect peace with the Lord. Amen.

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ABSTRACT

This study investigated the utilization of Information and communication Technologies (ICTs) in public library services in Nigeria. Twelve public libraries from the six geopolitical zones of the country comprised the sample of the study. These include Abia State Public Library, Adamawa State Public Library, Akwa Ibom State Public Library, Benue State Public Library, Ekiti State Public Library, Imo State Public Library, Jigawa State Public Library, Oyo State Public Library, Plateau State Public Library, Rivers State Public Library, Yobe State Public Library and Zamfara State Public Library. The aim of the study was to inquire into the utilization of information and communication technologies in public library services in Nigeria. The specific purposes were to (i) identify the ICT facilities that are available in public libraries in Nigeria, (ii) determine the perception of librarians on the benefits of utilizing ICTs in public libraries in Nigeria, (iii) determine the extent to which ICTs are utilized for various public library operations, (iv) ascertain the extent to which users utilize ICT facilities in public libraries, (v) identify barriers to effective use of ICTs in public libraries, and (vi) proffer strategies for enhancing ICT utilization in public libraries in Nigeria. The questionnaires were validated by the expert opinions of three professionals in library and information science from the universities of Uyo, Maiduguri and Abuja, respectively. Reliability test of the instrument (questionnaire) was done using 120 users and 30 staff (librarians and library officers) from Bauchi, Kano and Nassarawa states public libraries. The study employed descriptive survey research design. Stratified sampling technique was used in choosing the sample. The population of the study consisted of four thousand two hundred and forty five (4,245) respondents which comprised librarians (74), library officers (164), and registered users (4,007). Three researcher designed instruments were used and these were questionnaire, interview schedule and observation checklist. The mean was used in answering the research questions and bar charts were used to show-case the analysis of the study. Data collected from the questionnaires, interview schedules and observation checklist were analyzed using descriptive statistical method. Based on the data collected and analyzed, findings revealed that: the commonly available ICT facilities in public libraries were computers, UPS, video tapes, television sets, photocopiers and printers; users were not satisfied with the ICT facilities available in public libraries; some of the barriers to effective utilization of ICTs in public libraries were inadequate funding, staff low level of computer literacy, inadequate ICT infrastructure and low level of ICT awareness among users; users of public libraries in Nigeria use ICTs mainly for accessing educational information, keeping abreast with current news, events, Internet browsing, down loading and storing information for personal use and for word processing. Based on these findings the researcher recommended that State governments should adequately fund public libraries, public libraries should partner with other agencies in ensuring the provision of ICT facilities, public library authorities should sponsor their staff to ICT- related workshops and training, and public libraries should organize workshops and seminars on ICT literacy for library users. The study concluded that, public libraries in Nigeria need to employ the use of ICT facilities and resources if their services are to improve.

CHAPTER ONE

INTRODUCTION

Background of the Study

Recent developments globally show that Information and Communication Technologies (ICTs) have permeated all fields of human endeavour, including library and information services. It is perhaps for this reason that the United Nations Development Programme (UNDP), as cited by Minishi-Majanja (2007) refers to ICT as a "powerful enabler of development" because of its significant impact on the economic, scientific, academic, social, political, cultural and other aspects of life. ICTs have therefore become synonymous with "development" in modern day society. According to Agaji as cited in Gujbawu (2004), the potential of Information and Communication Technology to transform development in both the underdeveloped and developed world is increasingly recognised by governments, Non-Governmental Organisations (NGOs), corporations and global agencies such as the United Nations (UN).

Information and Communication Technologies (ICTs) are tools that facilitate the production, transmission and processing of information (Grace, Kemy and King, cited by Eyo, Nkanu and Nkebem, 2011). This researcher categorizes these tools to include computer facilities (computers, scanners, printers, UPS and power point projectors); computer software resources (online databases, CD-ROMs, library application software, Internet and storage media); audio-visual media/equipment (satellite connection, digital cameras, video compact disk (VCD), digital video disk (DVD) radio, television, audio tapes, video tapes and photocopiers; and communication media (telephone-intercom and global system of mobile communication (GSM). Generally speaking, ICTs consists of hardware, software, networks and media for processing, transmission and presentation of information (Eyo, Nkanu and Nkebem, 2011). Qiang as cited by Onwubiko (2011) perceives ICT as the application of

communication technologies consisting of ‘’hardware, software, networks and media for the collection, storage, processing, transmission and presentation of information, via voice, data, text or images’’. A more lucid definition is that given by Onwubiko (2011) thus ‘’any technology that is used in producing, organizing and for distributing information. It is a broad-based concept that encompasses the gathering (acquisition), organization (packaging), storage and retrieval for disseminating information that can be in textual or numeric (books and documents), pictorial and vocal forms (audio-visual) using the combination of all the above (multimedia) including computers and telecommunication facilities’’ (p.62).

A public library is one which is generally funded from public sources (such as tax payers’ money). Harrod (1990) defines a public library as a library established by local, state or central government for the use of the general public. In Nigeria, public libraries function under state governments and have branches in the local government areas. A public library therefore is a library that offers services to the public, free of charge. Such services cover education, social, cultural and political information to its community, reference and information services, and selective dissemination of information (SDI). Public libraries exist in most nations of the world and are often considered an essential part of having an educated and literate population. Public libraries are important national resource with a vital role to play in establishing, nurturing and nourishing people’s love of reading. They also play an important part in life – long and informal learning, providing access to books as well as other reading materials, whether on paper or in digital form via the People’s Network (Bertot et al, 2008). According to UNESCO public library manifesto cited by Edoka, (200*):*

> The public library is the local centre of information, making all kinds of knowledge and information readily available to its users. The services of the public library are provided on the basis of equality of access for all, regardless of age, race, sex, religion, nationality, language or social status, specific services and materials must be provided for those users who cannot, for whatever reasons use the regular services and materials, for

> example, linguistic minorities, people with disabilities or people in hospital or prison (p.12).

Public libraries are distinct from research libraries, school libraries or other special libraries in that their mandate is to serve the public's information needs generally (rather than serve a particular school, institution or research population) and offer materials for general entertainment and leisure purposes. Public libraries typically are lending libraries, allowing users to take books and other materials off the premises temporarily; they also have non-circulatory reference collections. They typically focus on popular materials such as popular fiction and movies as well as educational materials of interest to the general public (Bertot et al, 2008). The use of ICTs will further boost these services and ensure users' satisfaction with the library service.

Public library users cut across a wide spectrum of the society. They include artisans of various types, market women, children, secondary school students, university undergraduates and students of other tertiary institutions, professionals- such as doctors, engineers, lawyers etc. It is the varied nature of public library clientele that makes it distinct from other types of libraries. For instance, the academic library caters for the students, researchers and academic staff of the institution, while the special library is concerned with the information needs of the parent organisation, particularly the researchers. Public libraries cater for all classes of citizens. They are social institutions which contain diverse sources of information on a variety of subjects to serve the information and educational needs of the public. As Onadiran (1989) notes, "the usefulness of any public library depends on its ability to serve the community and the encouragement it provides for people of all ages to educate themselves continually".

As the only libraries that have their doors wide open for all members of the community regardless of their sex, ethnicity, creed, social or class status, age, academic qualifications, or political leanings, ICTs are tremendously impacting on public library

services in developed countries. This is made possible through training courses in ICT, Computer Literacy and Information Technology (CLAIT), the European Computer Driving Licenses (ECDL) etc. (Bird and Tedd, 2000). ICTs are also employed for reader development, resource management, information literacy etc. in public libraries. This is done through training programmes developed for both staff and users. Books are selected to meet the specified criteria and links are made from the website to catalogues in certain libraries to ascertain the local availability of titles (Bird and Tedd, 2000). Job advertisements on the Internet provide job opportunities for users and there have been reported cases of users that have found jobs through the provision of Internet services in public libraries (Blake, 2003). The social impact of ICTs in public libraries is in connecting people to ICT, which in turn connects them with their communities and wider social infrastructures (Milner, 2007). ICTs have shaped identities for library staff, who are now more of information providers and facilitators than mere custodians of information/knowledge (D-Lib Magazine, 2005). According to Eve and Brophy (2000), the provision of ICT is generally perceived as a crucial development that will place library service at the heart of the UK's emerging "information society". Services provided by public libraries such as reference services, lending service, current awareness service, reprographic service etc. could be enhanced with the use of ICT facilities such as Internet, CD-ROMs, digitized materials, library catalogues, printers, scanners etc. The quality of library services in Nigerian public libraries will equally be enhanced when ICT usage is intensified in library operations and services.

Ghosh (2005) also shows how ICTs are affecting the services of public libraries in India. He emphasizes the need for ICT- driven public libraries in India thus:

> ICT-driven public libraries act as intermediary centre for improving literacy, awareness, welfare and cultural re-awakening, it is the intention to put public libraries in the right perspective, to arrive at a single window interacted environment for information concerned with all aspects of human life (p.5).

In India as well, the emergence of rural digital libraries and application of ICTs is helping solve the problems of developing public libraries (Ghosh, 2005). Effective utilization of ICTs in Nigerian rural libraries will yield similar results.

In the same vein, Garrod (2002) examines the relevance of ICTs in the activities of agencies in the United Kingdom, such as Regional Development Agencies (RDA), Peoples Network Programme (PNP) etc. The author highlights the relevance of these agencies in skills development and the labour market and suggests that public libraries can relate with these agencies in providing ICT services and support to the general public. He concludes that libraries offer both physical access to ICT facilities and tangible media (books, radio, virtual materials etc.), and virtual access to library catalogues, community library catalogues, community information, digital or digitized materials and a host of portals and gateways aimed at making the process of locating and retrieving quality information sources as easy as possible for the public. The intensification of usage of ICTs in Nigerian public libraries will improve their services in like manner.

Emphasizing the crucial role ICTs can play in public libraries worldwide; IFLA/UNESCO guideline for development (2001) stipulates that:

> Public libraries have an exciting opportunity to help everyone into this global conversation and to bridge what is often called the 'digital divide'. They can achieve this by providing information technology for public access, by teaching basic computer skills and by participating in programmes to combat illiteracy. While becoming the gateway to the electronic information world should be a key objective for the public library, every effort must be made not to close other doors through which knowledge and information can be provided (p.9).

It is therefore apparent that the utilization of ICTs in public libraries ensures quality service to users. It can also extend library services beyond the walls of the library.

IFLA Guidelines for Public Libraries (2000) emphasizes that "planning library development from a service, rather than building perspective is important in all public library policy development. The provision of services using information and communication technology also presents exciting opportunities to take library and information services direct to the home and work place". Public libraries in developed countries have embraced this challenge and have taken the lead in utilizing ICTs in processing and managing information resources and providing services to users efficiently. If the IFLA mandate on libraries without walls can be implemented in developed countries, then developing countries (including Nigeria) can equally achieve same with adequate financial and moral support from the relevant authorities.

The ICT facilities that are expected in a public library include computer facilities (computers, scanners, printers, UPS, and power point projectors), computer software resources (online databases, CD-ROMs, library application software, Internet connectivity and storage media), audio-visual media/equipment (satellite connection, radio, television, audio tapes, video tapes, DVD/VCD, digital cameras and photocopiers) and communication media (telephone-intercom and GSM). Gama (2007) also categorized these facilities by medium into five groups as follows: computing facilities and services; film/tape-based facilities – microfiche reader, micro card reader, microprint reader, slide projector, reel to reel recorder, tape recorder, video machine etc; reproduction facilities – photocopying machine, duplicating machine etc; telecommunication facilities – telephone, GSM, telex, telegram, fax machine, satellite etc; broadcasting facilities – radio, television, cable transmission (e.g. CNN, BBC, Al-jazeera). Hamelink as cited by Anansi (2003) categorized ICTs by usage into four viz: capturing technologies, communication technologies, storage technologies, and display technologies; while Islam and Islam (2007) gave another concise classification of ICTs by usage as follows: ICT-based resources, including computers connected to Internet, CD-ROM,

audio cassettes, video-cassettes, photocopiers, printers, software used by libraries etc; ICT-based activities, including data processing, circulation, cataloguing, bibliography, serial control, in-house database; and ICT-based library service including CD-ROM searching, online information service, news clipping, scanning service, online reservation services etc.

Having gotten an insight into the ICT facilities and services that are available in public libraries, the purposes for which users utilize ICTs in public libraries include the following: accessing educational information for self development; keeping abreast with current news, events etc; Internet browsing; downloading and storing information for personal use; word processing; sending and receiving e-mail; knowledge of other peoples' culture; and social networking.

The public library is a potent democratic institution that brings people from all walks of life together in their bid for information, education and continuous self-development. Every effort, therefore, must be made to enhance the quality of its services and make them more effective and efficient. Information and Communication Technologies (ICTs) play a crucial role in all sectors of the society and have radically transformed the role of public libraries in developed countries. Through ICTs public libraries are providing more sophisticated and user friendly services to their patrons. ICTs can afford public library users the opportunity for cultural expression and personal fulfillment through lifelong learning. The benefits of ICTs in public libraries are also evident in programmes in computer literacy and information technology, reader development, resource management, information literacy, access to wider social infrastructure and job opportunities that are available through the Internet. Other benefits of utilizing ICTs in public libraries include: enabling users self education through Internet and its multimedia resources, provision of speedy and easy access to information, provision of access to unlimited and up-to-date information from different sources, increases efficiency in library operations and services, facilitate cooperation and

formation of library networks, provision of round the clock and remote access of information to users, and facilitation of reformation and combination of data from different sources.

Information and Communication Technologies (ICTs) can also improve public library operations and services when utilized. For example, library application software are used in automating routine tasks in acquisition, cataloguing, circulation, serials control and similar functions, thereby reducing manual effort in executing these tasks and increasing productivity. Online Public Access Catalogue (OPAC) allows users virtual access to huge library collections all over the world. CD-ROMs and DVDs/VCDs are used in providing better reference service and in information management. Similarly, Internet is a powerful ICT facility that is useful in providing effective reference service, e-mail, web information, and enables social networking through social media such as face book, twitter, YouTube, etc. More important is that the Internet and satellite connection have eliminated geographical barriers and made the world a global village, with the later allowing public libraries to interact and network with other information outfits. Digital cameras are used to capture important events and stored for use in public libraries, while satellite or cable information provides round the clock news and other events around the world. Therefore, utilization of ICTs in public libraries will enhance the quality of their operations and services and lead to users' satisfaction.

However, a survey in ten countries of Anglo-phone Africa on the use of ICT in African public libraries (Chisenga, 2004) revealed that most public libraries are inadequately funded to procure ICT facilities, lack skilled manpower with ICT knowledge, do not have ICT strategies and policies, and are not committed to implementation of ICT projects. This situation is appalling given the crucial role public libraries play in informing and educating the public. While the literature to do with ICT use satisfaction in public libraries reveal high satisfaction among public library users in developed countries of United Kingdom (U.K.) and

United States (U.S.) (Tedd, 2003; Spacey and Murray, 2003; Bird and Tedd, 2004), inadequate provision of ICT facilities in Nigerian public libraries is resulting in low satisfaction among its users.

The current situation, from the researcher's observation is that the availability of ICT facilities in public libraries in Nigeria is grossly inadequate and its utilization equally poor. The ICT facilities that are mostly available in Nigerian public libraries are computers, UPS, printers, and scanners, and these are used in library administration and management, and for word processing. Essential ICT facilities such as Internet connectivity, online database, CD-ROMs, DVDs/VCDs, and library application software are rarely available. The researcher has had a long working experience in a public library before moving to an academic library. It is the pathetic situation of ICT facilities and services in Nigerian public libraries that motivated the researcher to conduct this study. The population of the study comprises public libraries (including branch libraries) in the 36 state library boards in the Nigeria, public library users and public library staff, which includes librarians and library officers.

Statement of the Problem

Public libraries, generally, function to support individual and self-education as well as formal education at all levels by providing non-fiction materials. They also exist to create and encourage reading habits in children and adults alike, through the provision of rich fiction collection that would stimulate reading for recreation and leisure. In Nigeria, public libraries are supposed to be in the forefront of encouraging individual and self-education with robust non-fiction collection, especially given the limited chance that is available for formal education in institutions of higher learning in the country. But this is hardly the case due to the poor state of facilities in public libraries. The use of ICT facilities in public libraries in Nigeria, therefore, has the potential of improving their present situation and making them

better positioned to fulfill their role in the society – being to inform, educate and provide for recreational needs of their users by providing the relevant information resources.

The literature concerning ICT utilization in library operations and services show that libraries of all kinds in Nigeria are not utilizing ICTs as effectively as those in developed countries. Public libraries in particular do not seem to use them in providing services to their users as effectively as their counterparts in academic and special libraries. The consequences of not utilizing ICTs in public libraries are that they will deny users access to the full range of resources available through newer technologies and their services will not meet the needs of users. As a result, users may not be satisfied. Similarly, they would not be able to achieve self-actualization or their life goals. Consequently, public libraries in Nigeria may not be able to make their impact on national development. This study therefore examined the use of ICTs in public libraries in Nigeria and its impact on library services and users. The question that needs to be asked then is, to what extent are public libraries in Nigeria using ICTs and how can ICTs be used more effectively to improve their services?

Purpose of the Study

The general aim of the study is to examine the utilization of Information and Communication Technologies (ICTs) in public library services in Nigeria.

The specific purposes of this research are to:

1. Identify the ICT facilities that are available in public libraries in Nigeria.
2. Determine the perception of librarians on the benefits of utilizing ICTs in public libraries.
3. Determine the extent to which ICTs are utilized for various public library operations.
4. Ascertain the extent to which users utilize ICT facilities in public libraries.
5. Identify barriers to effective use of ICT in public libraries.
6. Proffer strategies for enhancing ICT utilization in public libraries in Nigeria.

Research Questions

The following research questions guided the study:

1. What are the ICT facilities that are available in public libraries in Nigeria?
2. What, in the perception of librarians are the benefits of using ICT in public libraries?
3. To what extent are ICTs utilized in the various library operations?
4. To what extent do users utilize ICT services in public libraries?
5. What barriers hinder the effective utilization of ICTs in public libraries?
6. What strategies could be employed to enhance ICT utilization in public libraries in Nigeria?

Hypotheses

The following null hypotheses were tested at 0.05 level of significance:

Ho_1 – There is no significant difference between the mean rating of staff and library users on the barriers that hinder the effective ICT utilization in public libraries in Nigeria.

Ho_2 – There is no significant difference between the mean rating of staff and library users on the strategies that could be employed to enhance ICT utilization in public libraries in Nigeria.

Significance of the Study

The findings of the study will be significant to the following: librarians in public libraries, public library managers (Directors of State Library Services), state governments, and researchers. In specific terms the findings will be useful to librarians in public libraries in the sense that they can apply the recommendations in improving the performance of their operations and services to library users. It will also enable them be up-to-date with current practices in public librarianship, thus fully equipping them to render efficient services to library patrons.

Public library managers, who are often addressed as Directors of Library Services in their states are the link between the library services and state governments. The findings of this study will serve as a reference document or tool for the library managers in educating the state governments on the need to adequately fund public libraries in respect of providing ICT services and facilities. It will also enable public library managers to be equipped with the knowledge of state-of the-art technology in library management, thus enhancing their managerial ability in managing information and human resources.

State governments are usually responsible for providing public library services to the public in their domain. The findings of the study will therefore assist state governments in formulating policies on ICT utilization and services in public libraries. The findings will also enable them appreciate the role of ICTs in enhancing public library operations and services, and consequently enable them be more responsive to their grievances.

The findings of the study will be useful to researchers in the field of librarianship and information science by allowing them identify the gap (s) that need filling. It will also afford researchers the opportunity to see the link or relationship of this study with other studies that have been conducted in the area and enable them identify the areas that need further investigation. This work is the researcher's contribution to existing knowledge in ICT services in libraries and will serve as a useful resource material for researchers. Finally, the study may lend further support to the theory, specifically Library 2.0, by examining whether effective utilization of ICTs in libraries involves the input of both staff and users. If answered in the affirmative, this would support the theory's tenet of being interactive and communally innovative as a means of sustaining the library's viability.

Scope of the Study

The study covered the utilization of ICTs in public libraries in Nigeria. These libraries are located in the thirty-six states in the country that make up the six geographical zones of

Nigeria. For the purpose of this study, ICTs include computer facilities such as computers, printers, Uninterruptible Power Supply (UPS), barcode and document scanners and power point projectors; computer software resources - storage media, online databases, CD-ROMs, library application software, and Internet connection; audio-visual media/equipment - satellite connection, digital camera, radio, television, audio tapes, video tapes, DVD/VCD and photocopier; and communication media – telephone (intercom), and GSM. The content scope covers ICT facilities that are available in public libraries in Nigeria, the perception of librarians on the benefits of utilizing ICTs in public libraries, the extent to which ICTs are utilized for the various public library operations, the extent to which users utilize ICT facilities in public libraries, the barriers to effective utilization of ICTs in public libraries, and the strategies for enhancing ICT utilization in public libraries. The population of the study included librarians, library officers and users (including adolescent and adult users). The potential beneficiaries of this work are librarians, information scientists, information managers, library managers, state governments, and all those interested in the progress and development of public libraries in Nigeria.

CHAPTER TWO

REVIEW OF LITERATURE

This chapter discussed the literature review under the following headings:

Conceptual framework:

Concept of public libraries

Concept of Information and Communication Technology

Benefits/utilization of ICTs in libraries

Concept of utilization of ICTs in library operations

Problems associated with ICT utilization in libraries

Suggestions for improving ICT utilization in public libraries

Theoretical framework:

Ranganathan's Five Laws of Library Science

Maness Library 2.0

Review of related empirical studies:

ICT utilization in library Operations

Utilization of ICTs by library users

Utilization of ICTs by library staff

Summary of literature review

Conceptual Framework

Concept of public libraries

A public library is a library which is accessible to the public and is generally funded from public sources (such as tax money). It is a library that is open to all members of a community regardless of age, educational qualification, sex, religious belief, political leaning, social class or status etc. The public library is generally considered as the people's university

due to its non-restrictiveness to any group of users (Okeoma, 2011). Public libraries exist in most nations of the world and are often considered as essential to having an educated and literate population.

According to UNESCO public library manifesto, cited by Edoka (2000), the key missions that should form the core of public library services include: creating and strengthening reading habits in children from an early age; supporting both individual and self-conducted education as well as formal education at all levels; providing opportunities for personal creative development; stimulating the imagination and creativity of children and young people; promoting awareness of cultural heritage, appreciation of the arts, scientific achievements and innovations, etc.

A fundamental feature of a public library is that usage should be free to all residents of the community. Users of a public library in a community range from the youngest child to the oldest adult, from the wealthiest citizen to the most economically disadvantaged and from the most highly educated to the stark illiterate. In order to accomplish the expectations highlighted, the public library performs specific functions which include the following: to provide for educational development of all people in the community; to positively support the civic and cultural activities of groups and organizations; to promote and encourage wholesome recreation and positive use of leisure time; and to give the user access to information over the whole range of human activities such as agriculture, crafts, commerce and industry (Edoka, 2000).

The public library must therefore be well equipped to satisfy the information needs of the various individuals and groups in any given community. By its nature, it is a library that is open to all. Globally, public libraries were conceived to provide members of the community with an avenue for recreation, in which people could go and find something to

read for leisure, hence the emphasis on fiction material. While serving recreational purposes, people could also use the information resources for self-education.

Learning is again coming to the forefront of public library service as economies and societies of the 21st century require people to learn new skills and to retrain several times in their working lives. As Sutherland (2003) rightly observes, "whether one lives in the industrialized or developing world, acquiring an education and learning new skills is of primary importance to securing a person's future". The UNESCO manifesto, supported by IFLA has 12 missions, two of which focus on the public library as a learning organization: mission no.2 is Supporting both individual and self-conducted education as well as formal education at all levels, while mission no.11 is facilitating the development of information and computer literacy skills. Similar emphasis on the educational role of the public library was captured in the American Library Association outline of 13 service responses, four of which focused on learning and education, viz, basic literacy, formal learning support, information literacy, and lifelong learning. Each response requires a particular range of resources, programmes, facilities, technology and staff skills to achieve the envisaged outcomes (Sutherland, 2003). Herein lies the relevance of non-fiction material in public libraries. They also have the added advantage of informing the public on events in the society, through the medium of newspapers, magazines, pamphlets and the like. Thus, like related social institutions such as cinemas, theatres, clubs, sport centres, museums etc., public libraries provide members of the community a wider latitude for interacting with literature as a form of relaxation, entertainment, accessing information and attainment of self-actualization.

Public libraries have their origin in developed countries of Europe and U.S.A., whose cultures are based on the printed word (Mamman, 2000). The early libraries open to the public in the West were the collections of Greek and Latin scrolls, which were available in the dry sections of the many buildings that made up the huge Roman baths of the Roman

empire, albeit they are not lending libraries (New World Encyclopedia, 2011). Public libraries existed from the 17th century in the true sense of the word and were to be found in countries such as United Kingdom, United States, Poland, Canada, Australia and a few others.

According to Koontz (2007), public libraries started in the United States in the mid 1850s with the sole aim of meeting the demand for adult education, which was necessitated by the migration of millions of Europeans into the United States in search for a better life. These immigrants found themselves in a strange culture and often times out of necessity learning a new language. It was in an attempt to accommodate these transplants that new schools were created to educate and ameliorate the immigrants' transition into the American experience. Hence, public libraries were developed and built across the country to further augment and merit the demand for adult education. Efforts to develop public libraries in the United States were made by Benjamin Franklin, Samuel J. Tilden and Andrew Carnegie (New World Encyclopedia, 2011).

In the United Kingdom, the concept of public libraries was conceived in the early years of the seventeenth century through the establishment of town libraries which were noticeable in cities such as Norwich (1608), Ipswich (1612), Bristol (1613), and Leicester (1632). The introduction of the Public Libraries Act in 1850 gave birth to more libraries in England and Wales. Hence, by 1857, there were public libraries in Winchester, Manchester, Liverpool, Bolton, Cambridge, Sheffield etc. Andrew Carnegie also played a crucial role in public library development in the U.K. in the late nineteen century. These libraries were established to encourage purposeful use of leisure time for reading and recreation (New World Encyclopedia, 2011).

Canada and Australia are also countries that made remarkable efforts in the history of public library development. In Canada, there were public libraries in cities like Quebec,

Oakville, and Toronto which were established with the intention of encouraging purposeful use of leisure time for reading and recreation. Public library service commenced in Australia in 1809, through the efforts of Reverend Samuel Mardson when a public library was established in New South Wales. Later years saw the establishment of public libraries in Melbourne (1856), Sidney (1869), and Brisbane (1898). The passing of the Library Act in 1943 ushered in more and better public libraries in the country, which were aimed at fostering purposeful use of leisure time for reading and recreation (New World Encyclopedia, 2011).

UNESCO promoted public library development in Africa. It played a major role in eradicating illiteracy by initiating various steps in sub-Saharan countries since its inception in 1946. UNESCO with UNDP initiated Experimental World Literacy Programme arranging mass literacy programmes such as adult literacy courses. Its literacy campaign cited libraries as one of the effective methods of eliminating illiteracy. UNESCO promoted the concept of the 'National Information System' (NATIS) to derive maximum benefits from information. This system encouraged the formation of overall information policies and the establishment of appropriate information infrastructure and networks (libraries inclusive) at national levels. Consequent upon this, UNESCO conducted several conferences in the countries in Sub-Saharan Africa. Its entry into library development in West Africa began in 1953, with its seminar on public libraries development in Africa in Ibadan, Nigeria. The report of this seminar, which influenced the creation of African library services, states that the public library should support the programmes of adult and fundamental education, provide effective services for children and young people and promote reading for pleasure and recreation. It also laid emphasis on the necessity for production of reading materials at low cost and recommended library schools to provide full-scale professional training (Ranasinghe, 2007). It is therefore apparent that the intervention of UNESCO in public library development

provided the impetus for public library services development in Africa as a whole and Nigeria in particular.

The Carnegie Corporation of New York is another agency that played a crucial role in development of libraries generally in West Africa (Nigeria inclusive). In 1939, Carnegie Corporation sponsored a survey of library needs of British West Africa, undertaken by Magret Wrong and Hans Vischer. The survey report indicated the British lack of interest in library matters in Nigeria, it noted that in 1939, of the 152 subscribers to the Lagos library, only seven were Africans and 154 were Europeans, and that the few Africans who could use the library were those with sufficient Western education, social standing and connections not to feel out of place in such a milieu, it provided valued recreation for the British administrative and professional class and for their wives, and for an even tinier group of Nigerians of similar background and mind (Aguolu and Aguolu, 1997).

The Carnegie Corporation, nevertheless, in 1940 made financial grants of about $136,861.00 to Nigeria for library development. The British colonial government though interested in library development and anything that would promote literacy and intelligent reading among Nigerians was not ready to spend from its coffers but rather preferred the intervention of agencies such as Carnegie Corporation, UNESCO and others. Carnegie Corporation on the other hand preferred a situation in which the British colonial administration would foot the responsibility of continuing the library service development when the grants are exhausted. The negative attitude of the British colonial government on library development and the effort of Carnegie Corporation in this respect was revealed when the then Colonial governor, Sir Bourdillon, wrote the British colonial secretary in London in 1940 informing him that “the Carnegie Funds had little practical value. African reading interests were considered to be limited and to be too closely associated with personal advancement to justify expenses on reading materials of broader scope”. In a fierce reaction,

Dr. Nnamdi Azikiwe denounced this statement as “irresponsible and racist” in his highly influential newspaper, the West African Pilot. In his vituperation, Dr. Azikiwe scolded the colonial government for its failure in providing Nigerians with free public library services or even reading materials of narrow scope (Aguolu and Aguolu, 1997).

Then came the British Council into Nigeria in 1943 during World War II. It established reading rooms across the country to promote the British culture and ideas. These reading rooms were filled with British newspapers, political tracts, bulletins and radio propaganda about the on-going war, and with little or nothing reflecting local interest as far as reading is concerned. However, British Council made significant contributions to library development in British colonies by way of appointing library specialists, conducting conferences, making grants, donating books, and giving scholarships (Ranasinghe, 2007). Towards the end of the war some perceptive British colonial officials who recognized the inevitable progression of political events towards Nigerian independence, had begun to question the British policy on libraries in Nigeria and its misuse of financial grants from the Carnegie Corporation.

The prospects of public library services development in Africa were to be seen in the UNESCO seminar of 1953 that was held in Ibadan. This enabled African governments to enact public library legislation and to set up public library boards. The seminar emphasized that “only legislation can empower the appropriate authorities to provide the services and ensure adequate financial support and efficient administration according to national standard. Only legislation can define the functions of the providing authority, create the conditions in which it may fulfill those functions and ensure development” (UNESCO Bulletin, p.3). Consequently, public library services were initiated in Nigeria by the then regional governments through the enactment of public library legislation. The Eastern Nigeria Public Library Ordinance and Eastern Nigeria Publications Law came into force in 1955. Although

the Western and Northern Regional Governments passed the publications law in 1957 and 1964 respectively, they did not pass the public library board law (this came into effect in 1967 with the creation of 12 states in the country). It was obvious that the passage of the public library law in the Eastern Region helped to speed up the development of public library services in that region more than the other regions whose public library services were under the political umbrella of the Ministry of Education or Information (Aguolu and Aguolu, 1997).

However, the promulgation of more public library legislation came into effect when the country was partitioned into 12 states in 1967. This gave birth to public library boards and public library service started on a strong footing, with reading materials that reflected the communities' interest and background. Public library legislation not only provided for a board but also legal deposit, which mandated authors and publishers to deposit a certain number of copies of their works with the library boards, thus enriching the libraries' collections. Further partition of the country into 19 states (1976), 21 states (1987), 30 states (1991) and 36 states (1996) saw the expansion of public library services throughout the country. Presently, there are 36 library boards in the 36 states of the country, providing public library services to both urban and rural communities in their domain.

Concept of Information and Communication Technology (ICT)

Information and Communication Technology (ICT) is made up of three concepts which have come together – Information, Communication and Technology. Information, to the ordinary person may be interpreted to mean news, events, messages, whether documented, or heard through electronic media or relayed by word of mouth (Opera, 2004, p.214) sees information as facts, data, opinion and the like, including what is revealed in the results of research and scholarship in all fields of knowledge. He further elaborated that information is transmitted by act or process of communication and may be a message, a

signal or a stimulus; it assures a response in the receiving organism and therefore, possesses a response potential. According to Ifidon (2007, p.165) as cited in Aiyepeku (1982), "Information is man's accumulated knowledge in all subjects, in all forms and from all sources that could help its users to make rational decisions...it is processed data of value in planning, decision-making and execution of programmes".

Marchlup and Mansfield (1983, p.660) define information as "a signal transmission... the telling of something or the something that is being told to a person". This definition limits the capacity of information to humans. From the perspective of computer scientists, information is "any electrical signals or bit pattern with defined meaning". Information is also basic data communication theory that applies to the technical processes of encoding a signal for transmission, and provides a statistical description of the message produced by the code. It defines information as choice of entropy and treats the 'meaning' of a message (in the human sense) as irrelevant. Shannon (1995) looks at information as how to transmit data most efficiently and economically, and to detect errors in its transmission and reception, while Roger (1996) sees information as the representation of a fact (or of a message) for the receiver. According to Zoglaner (1996), information means the content or meaning of a message, while Newman and Newman (1985) choose to define information as "that which destroys uncertainty". Information will be taken here to have a broader connotation than in its basic information theory usage and refers to some meaningful data stored and processed in services and systems for the purpose of providing a permanent memory of numerical, textual and audio-visual material and its communication to special users.

Communication, the second element, stems from the Latin word 'communicare', which means 'to share' 'to make common' (Rosengren, 2000, p.1). The word communication has been described in different ways by different scholars. Almost all agreed that communication is the heart of social relations between all entities, which implies an exchange

of information between machines or between individuals and machines. According to Obafemi cited by Salau (2010):

> Communication is the process through which human beings impact ideas, opinions and feelings between themselves through language with which mankind has been able to interact, converse, socialize and record past history, transmit culture from one generation to another and build societies and other social groupings as well as contribute to the sustenance of civilization (p.23).

To a scientist, communication is the vital component of ICT. It is concerned with the creation, transmission, interpretation and the use of information (Armstrong, 1993, p.47).

According to Ogunmola (2007) "communication is the codification of a message by a sender who then transmits it through a channel to a receiver, who decodes it, puts it into context, and thereby comprehends it". From the foregoing, it is evident that communication cuts across every human endeavour. To underscore the importance of communication, the International Telecommunication Union (ITU) and the United Nations Educational, Scientific and Cultural Organization (UNESCO) asserted that the right to communication is a basic human right (UN, 1996).

The advent of computers, satellites, mobile phones and Internet systems have increased the sphere of communication. Commenting on the use of Internet, Anan (2002, p.8) states that "people are now enabled to connect directly, who otherwise might remain divided by distance, culture and economic stratification". In this study, communication is taken to be the creation, transmission and receipt of information in the form of message and ideas for the smooth conduct of the affairs of the modern society.

Technology is derived from the Greek word 'teklie,' which refers to art of craft, and 'logia,' meaning an area of study; thus technology is the scientific study and the use of applied sciences or the application of sciences for the purpose of transforming natural resources and endowments into goods and services. According to Ajayi (2002), technology

signifies “the knowledge, capacity or skill that an individual uses to produce a product or craft it”. He explains that the knowledge concerned could be in the form of methods, processes, techniques, tools, machines, materials and procedures. He therefore concludes that the design, development and use of technology are driven by effective use of human resources and management system. Ajayi’s definition is all encompassing and therefore adopted for this study.

There is convergence in the modern day application of information and communication using technology. Due to the rate at which the ICT solution product emerges, it was difficult to have a common definition. For instance, The Information and Communication Technology Association of America (2005) defines Information and Communication Technology (ICT) as the study, design, development, implementation of computer based information support systems, particularly software applications and computer hardware. Roger (1996) defines ICT as the use of modern technology to aid the capture, processing, storage and retrieval, and communication of information whether in the form of numerical data, text, sound or image. The British Northern Examination Association (2001) defines ICT as “the study of information handling and its use in society by means of modern technology. This includes the acquisition, processing, storage and communication of information in any form by appropriate means”, while the British Department of Trade and Industry defines ICT in terms of “acquisition, processing, storage and dissemination of vocal, pictorial, textual and numerical information by a microelectronic based combination of computing and telecommunication”. This definition implies that ICT involves the use of computer hardware and software to input, process, store, protect, transmit and retrieve data. The term ICT is commonly used interchangeably with IT, due to the involvement of telecommunication in transporting information across two computer systems. The accelerated development of electronics such as telephone, television, Automatic Teller Machine, (ATM),

telex and computers among others has brought into existence the concept referred to as ICT. The United Nations Economic Commission for Africa (UNECA) avers that ICT covers Internet services provision, telecommunications equipment and services, media broadcasting, libraries and documentation centres, commercial information providers, networked – based information services, and other related information and communication activities (ECA, 2008). In the same vein, Gupta and Ansari (2007) view ICT as tools used in information-handling technology required to convert, store, process, transmit and retrieve information. These tools, according to Liu (2002) comprise Fax machines, CD-ROM, WWW, e-mail, etc.

The origin of ICT usage can be traced back to the technological rivalry between Union of Soviet Socialist Republic (USSR) and United States of America (USA) in the mid-twentieth century. In 1957, the Soviet Union launched a space craft called "Sputnik". The success recorded in this venture was humiliating to the US, which was supposed to be leading the world in space programme. This challenge spurred the US to devote much time and funds into space research. This led to the formation of Advanced Research Project Agency (ARPA), which comprised military scientists and organizations in the private sector of the US economy. This synergy gave birth to mainframe computers, which were used and linked in a network for medium usage by all the researchers involved in the project. The network link, which was initially called ARPAnet, later metamorphosed into the Internet. Although the military later removed the space research aspect out of ARPA net and into a new body called National Aeronautics and Space Administration (NASA), ARPAnet continued as Internet through private initiative and efforts to become an important global network for communication (Mohammed, 2007; Onyeneke, 2007; Achonna and Yaya, 2007). The Internet has made it possible for people all over the world to communicate with one another effectively and inexpensively, hence its adoption in all spheres of human endeavour. As

Aliyu (2007) rightly observes "Advances in ICT have facilitated the advancement of all professions".

ICT has revolutionized the industrial sector with the array of improved products. This new concept has set a new standard for nations to compete. As a matter of fact, the wealth and power of any nation are dependent on the strength of its ICT as well as its effective management. This assertion was reported by Smith (1987, p.29) that "through its links with data processing and telecommunications, the electronics complex during the next quarter of a century will be the main pole around which productive structures of the advanced industrial societies will be reorganised". In line with the preceding statement, Salau (2010) posits that "ICT has changed the focus of every economy, whose viability is no more measured on the basis of available human and natural resources alone but on the state of technology". This was further corroborated by Annan (1999, p.107a) who states that:

> The Internet holds the greatest promise humanity has known for long distance learning and universal access to quality education; it offers the best chance yet for developing countries to take their rightful place in global economy. And so our missions must be to ensure access as widely as possible. If we do not, the gap between the have and the have-nots will be the gulf between the technology rich and the technology poor.

Information and Communication Technologies (ICTs) can be categorized in terms of medium, usage and types of technology.

Gama (2007) categorized ICTs by medium into five groups viz: computing facilities and services; film/tape based facilities - microfiche reader, micro card reader, microprint reader, slide projector, reel to reel recorder, tape recorder, video machine etc; reproduction facilities-photocopying machine, duplicating machine etc; telecommunication facilities - telephone, GSM, telex, telegram, fax machine, satellite etc; broadcasting facilities - radio, television, cable transmission (e.g. CNN, BBC, Al-jazeera etc).

Hamelink as cited by Anansi (2005) categorized ICTs by usage into four, namely: capturing technologies, communication technologies, storage technologies, and display technologies. A concise but more elaborate classification of ICTs by usage was made by Islam and Islam (2007) viz:- ICT- based resources, including computers connected to Internet, CD-ROM, audio cassettes, video-cassettes, photocopiers, printers, software used by libraries etc; ICT – based activities, including data processing, circulation, cataloguing, bibliography, serial control, in – house database; and ICT – based library services, including CD-ROM searching, online information service, news clipping, scanning service, online reservation services, etc.

Gupta and Ansari (2007) posit that ICTs primarily hinge on four technologies: Computer hardware technologies (computers, midsize servers and large mainframe systems, and the input and output and storage devices that support them); software (web browsers software, productivity suits and software for business applications); telecommunication and network technologies (telecommunications, media processors and software needed to provide wire-based and wireless access and support for Internet and their networks); and data resource management technologies (database management systems, software for the development, access and maintenance of the databases of an organization).

Benefits of Utilization of ICTs in Libraries

The benefits of utilization of ICTs in libraries are immeasurable, especially given the ways they have impacted on libraries and their users. Librarianship like the other disciplines have adopted ICT because of the immense benefits attached to it. These benefits include: provision of speedy and easy access to information; enabling users' self education through Internet and its multimedia resources; provision of access to unlimited and up-to-date information from different sources; increased efficiency in library operations and services; facilitating cooperation and formation of library networks; provision of round the clock and

remote access of information to users; and facilitation of reformation and combining of data from different sources.

Information and communication technologies allow the provision of speedy and easy access to information in libraries. The use of telephone, GSM and e-mail facilities ensure the provision of the desired information to library users with much ease. Haliso (2007) observed that the use of GSM facility in academic libraries has improved their services tremendously through speedy delivery of information, while Fatoki (2005) submitted that the use of GSM has contributed to speedy delivery of documents needed by researchers or students. Telephone and e-mail are vital tools that facilitate prompt handling and fast response to the stream of patrons' reference queries. Fatoki further stated that now that GSM facilities are available, mobile phones can be displayed at the enquiries desk, while Adedigba (1995) averred that ICTs are applied to library processes and services in order to facilitate easy and quick access to the libraries database records. Similarly, Kumar and Chitra (2008) explored how SMS technology can impact library services through the use of GSM, e–mail, websites, social media platforms – e.g. twitter, face book, etc. According to the authors, mobile technology is feasible in terms of cost and efficiency to meet the communication needs of all types of libraries and SMS can reach large number of users. They enumerated the advantages of SMS technology in libraries which include: provision of quick, easy access to library services; ability to remind users of overdue books; the prospect of renewing books without physically coming to the library; enable users make reservations of titles needed; enables answering of reference queries (a form of virtual reference service); announcement of library events to the local community, etc. Public libraries in Nigeria can equally benefit immensely from the use of GSM, telephone, and e-mail facilities in providing effective library services to their patrons when utilized.

ICT enables users' self-education and enhances personal growth and development through the resources in libraries. Internet, and its multimedia resources especially, enable users self education and life-long learning. Reading promotion and reader development programmes also facilitate the attainment of this objective. Eve and Brophy (2000) explored how ICT facilities for public use in UK public libraries are used in providing a network of access to learning opportunities and services. They discovered that government policies to tackle issues of social exclusion and to stimulate the uptake of life-long learning have prioritized the role of public libraries in being one of the key delivery points for ICT access. In order to prove the value and impact of providing access to ICT facilities and services within public libraries, measures were developed and implemented and they provided managers, funders, and policy makers with reliable information about the uses made of these services and how they contribute to the government's social agenda. The study presented the results from the VITAL (Value and impact of IT access in Libraries) research project, which set out to test methodologies (focusing on the need for qualitative indicators of value) suitable for providing evidence to support the role libraries have begun to play in delivering electronic services to the public in the U.K. The introduction of ICTs in public libraries in Nigeria for similar objectives will impact positively on the lives of people.

In a related development, Todd and Tedd (2000) described lifelong learning and opportunities in the U.K through initiatives such as the National Grid for Learning and the University for Industry. The paper gave an overview of how public libraries can and are being involved in the process of providing information and communication technology (ICT) training courses for life-long learners. It states that in Belfast Public Libraries, partnerships have been made with other organizations involved in running training courses in ICT, and a pilot project has involved people coming to the library for such courses as Computer Literacy and Information Technology (CLAIT) and the European Computer Driving Licence (ECDL).

When partnerships of this nature are introduced in public libraries in Nigeria they will help the populace in acquiring computer literacy and information technology skills.

Relating the relevance of ICTs for learning opportunities in libraries Tedd (2003) provided an overview of co-operative and ICT-based projects in British libraries. According to the author, many of the early projects of the 1970s and 1980s have ceased but some have developed into current working services. She further stated that during the 1990s, the UK government funded various initiatives to improve the learning opportunities for its citizens, whether through formal education courses at college or universities or by "life-long learning". Public libraries in Nigeria will benefit in like manner when ICTs are introduced into their services. Another example of how ICT is impacting on self development in libraries is that given by Bird and Tedd (2004), who presented an account of the role of Welsh public libraries in encouraging reading and using information and communication technologies (ICT) in the reading development process. According to the authors public libraries have a long standing role in promoting books and encouraging reading and such activity has been given added impetus to a number of national and international developments. They posited that the use of ICT for reader development was included in the training programme developed for all public library staff and users in Great Britain for the Peoples Network. In a report of initial findings from the Peoples Network it is claimed that 40 percent of non – members who came to the libraries to use the computers went on to become members. Similar results can be obtained in Nigerian public libraries if ICTs are employed in reader development efforts.

The benefits derivable from utilizing ICTs in libraries also includes provision of access to unlimited and up-to-date information from different sources and provision of information flexibility to be used by individuals according to their requirements. ICTs allow information to be located, filtered, organized, delivered and shared more effectively than

before. It is further revealed in the literature that ICTs offer a wide range of services to libraries. Some of these include online information services, view data information services, in-house computer systems and the electronic office systems (Ochogwu, 1994). Ochogwu (1994) further stated that the application of computer technologies for information storage and retrieval is in the form of establishment of general and specific subject computerized data banks and database. Rasareko (1999) noted that in developing countries the availability of online information sources is changing the nature of the use of library collections as most libraries are now investing therein.

ICTs have the capability of assembling needed resources electronically, thus making research efforts more convenient and efficient (Dowler, 2000). It is an ideal tool for increasing effectiveness and efficiency of service delivery in the library and information world and is seen as an antidote for information explosion. Ajibola and Tiamiyu (2000) noted that, while ICT have contributed to information explosion they are also tools for containing and exploiting information. This way, according to the authors ICTs offer new techniques in library operations. In other words, ICT is a blessing to the library profession because it facilitates dissemination of information to library users with much ease compared to the manual or traditional method, which is cumbersome. On the other hand, ICT has also resulted in the generation of colossal information whose accessibility can sometimes be frustrating. Scholars have posited that with the steady acceptance and wide adoption of the new technologies, the potential advantages of ICTs are fast becoming realized. Mabawonku and Okwilagwe (2004) acknowledged that technology is fast gaining recognition in library and information service delivery and is being increasingly used in library activities. A study by Agaba (2005) investigated the utilization of electronic information resources by academic staff of Makerere University library (Kenya). The findings revealed a number of factors affecting electronic information resources utilization and the problems academic staff face.

Major conclusions were that despite a number of factors inhibiting use of these resources, a number of staff are aware of the availability of these resources and some use them. The computer has huge memory and can store vast amount of information. These, coupled with external storage hard disks, have provided libraries the leverage not only to save space but provide efficient service to their patrons. Furthermore, resources on the Internet permit librarians to provide value added information services to their clientele (Achonna and Yaya, 2008). ICT is increasingly used in information provision in all types of libraries. Adewale, Omolola and Sunday (2012) examined the role played by the medical library and the information and communication technology tools in medical research. The paper highlighted the role of the medical library as an information resource centre in meeting the information needs of health professionals. It described information technology tools such as search engines and social networking tools that can be used by physicians and information professionals in decision making. The study advocated the formation of consortium by medical libraries in Nigeria and adequate funding of medical institutions by their parent bodies and recommends the use of guides to medical resources. It gave some tips on Internet searching.

Increasing efficiency in library operations and services is another benefit of using ICTs in libraries that has gained prominence. Libraries are presently using ICTs to automate technical services, provide efficient reference and information services, network operations such as cataloguing, authority control, and inter library loan and compilation of bibliographies (Oketunji, 2000). Adeyemi (2004) asserted that computers have provided libraries the leverage to execute library activities such as loan, controls, design and implementation of databases. The last two decades have witnessed rapid transformation of information delivery from the manual system to the technology driven system (Akintunde, 2004). Akintunde maintained that the symbiotic relationship between libraries and ICTs is

providing librarians and information professionals with a challenge to constantly review and adjust their skills, technologies, services and methods of outreach to clients. Malumfashi (2005) also posited that ICT can enhance public library services by automation of services, overcoming constraints and believes that the use of ICTs in library operations can be economical in terms of production, storage, retrieval and dissemination of information. Modern technologies provide librarians and information scientists with a wide range of tools to help them achieve their goal of improved services to users. A publication by Centre for Management Development (2005) also agreed with these views when it indicated that:

> A developing role for librarians of all kind is to give users the tool they would need to find information in the digital world and to use it effectively for teaching, learning and research, while also ensuring appropriate access to knowledge through the available collections in both electronic and hard copy. (p15).

Oye (2008) further added that in computerized libraries, housekeeping, administration and management functions can be stored, updated, manipulated and retrieved rapidly and efficiently. A study by Ivwighreghweta (2013) on the application of information and communication technology on academic library operations and services in Nigeria found that the major benefit derived from using ICTs in the selected libraries is that it increases efficiency, while Singh (2013) posited that ICT facilitates collection storage, organization, processing, analysis, presentation, communication and dissemination of information. The automation of routine activities in public libraries in Nigeria will indisputably facilitate with much ease, the execution of library processes that are done manually and enhance information service delivery to users.

Provision of round the clock and remote access of information to library users has been identified as a salient benefit of using ICTs in libraries. ICT enables libraries to process, store, retrieve and communicate information in whatever form it may take, unconstrained by

distance, time and revolution (Uzoigwe, 2004). In the Netherlands, ICT (2008) is making tremendous impact in public libraries. In the country's National Action Plan on information superhighway, public libraries were pinpointed as general access points and various projects have since been developed. The government has supported the regeneration of public and community information with the help of information technology. The Internet is now accessible in all 1,115 libraries, with more than 500 having public information services. A comprehensive plan has provided all public libraries with Internet-ready computers, legislative and other public information on CD-ROM, and advanced communication with schools throughout the nook and crannies of the country. In a related publication, Greyling and Zulu (2010) provided a case study in community participation in developing content for a digital library of 100 indigenous knowledge. Description of the programme highlighted interaction between the library, the community and the technology used. The paper discussed implementation challenges, results and lessons learnt and pointed out the benefit to the community. According to the authors, in providing an online, contextually based information service to local communities, public libraries in Africa will ensure future-oriented access to cultural heritage resources through 21st century information communication technologies (ICTs). They stated that the potential to reduce the digital divide will be enhanced and African communities will be introduced to the global information society. Internet and CD-ROM technology especially, have made it possible to share much more information as well as provide immediate access to resources throughout the world (Tibenderana and Ogao, 2013).

Facilitation of cooperation and formation of library networks is a benefit that is derivable from the utilization of ICTs in libraries. In Colombia, the metropolitan area uses a network of public libraries (2007) with the aid of ICT to reach its communities with library services. The network comprised 36 interconnected libraries, creating a collaborative

knowledge network, open to the world that uses ICT as a learning resource to enhance library management, human capacity and services and to reduce cost. The network has an integrated new website that uses web 2.0 tools, with unified online catalogue forum chats, kids corner and other interactive tools. The project supports the 3 main pillars of ICT: access and connectivity, content and services, and training and empowerment. Similarly, Milner (2007) presented case studies on four library projects that sought to demonstrate the social impact of connecting people to information and communication technologies (ICTs) and the potential for partnership between libraries and online centres in Great Britain. According to him, the "social impact Demonstrator" projects were announced by the government's Social Exclusion Action Plan. The projects, which aim to explore the relationship between digital and social inclusion, involved library networks in Lincolnshire, Leeds, Cambridgeshire and Suffolk. Their objective, according to the author is to track how connecting people to ICT can in turn connect them with their communities and with wider social infrastructures. The projects target poor families, adults supporting children in care, the mentally- ill, and teenage parents. ICTs therefore provide libraries the leverage to automate their core functions, implement efficient and effective library cooperation and resource sharing through networks; and it has been reported that university libraries of Rajasthan (India) are using ICT for their in-house activities and services to automate and digitize resources and to share resources at local and national level (Tiwari and Sahoo, 2013).

Another benefit of utilizing ICT in libraries is its ability to facilitate reformation and combination of data from different sources. Several scholars have stressed the significant role of ICTs in library and information services operation and services. Oladele (2005) concurred that advances in ICTs have resulted in new product and service for information management (sourcing, processing, transmission and delivery) which helps in decision making and productive activities. Zaman-Shuva (2005) posited that Information and Communication

Technologies play a vital role in bringing about changes in our society through the provision of information in various packages and formats. As technology is getting more sophisticated and more affordable every day, according to the author, the range of services that are provided also increases accordingly. According to him, ICT has radically changed the role of public libraries in developed countries. They are providing more sophisticated and user friendly services to their users. He lamented that public libraries in developing countries are using these facilities very slowly due to shortage of funds, skilled manpower and other logistical support, and concluded that as a result the users of public libraries in developing countries are not fully satisfied. ICTs are transforming the ways information is generated, stored and retrieved in libraries (Okejiri, 2006). According to the scholar, ICTs have introduced innovations in the development and management of libraries in Nigeria, notable among which were the changing role of libraries, technology and innovation in libraries, the case of electronic library and the development of information and communication technologies in Nigeria, the diffusion of Internet in Nigeria, and many others. ICTs are being used by libraries to implement management information system (MIS), develop institutional repositories (IR) of local content and digital libraries, and to provide value- added information services and access to a wide variety of digital-based information sources to their clients (Tiwari and Sahoo, 2013).

The foregoing treatises show that there are benefits that are derivable from using ICTs in libraries. Public libraries, whose audience cut across a wide spectrum of the society will benefit immensely when ICTs are introduced in their services and operations.

Concept of Utilization of ICTs in Library Operations

ICTs are utilized in the various library operations and functions, such as library administration/management, acquisition/collection development, cataloguing and classification, circulation/reference services, and serials control and management.

Library administration and management has been identified as a major area of ICT utilization in countries as diverse as Australia (Fitzgerald and Savage, 2001) and Bangladesh (Islam and Islam, 2004). Gardner (1994) stated that ICT could be deployed in the area of library management as a means of ensuring better organization and control of ICT services in developing countries, while Olagunleko (2004) highlighted the importance of using ICT for administrative purposes in public libraries as it ensures easy manipulation and processing of information for more effective ICT-driven library service for users. Similarly, Oni (2004) examined its usefulness in effective management of resources. Anunobi (2005) found that ICT was mostly used for library administration and management purposes than for other library functions in some university libraries in Nigeria. A related opinion by Okoro (2007) averred that ICT utilization in library operations have become indispensible. He discussed the potency of the computer and allied technologies to convert huge amount of print information into digital format and stresses that this development has enabled libraries to provide high quantum of information to users at minimal time.

Aligned to the preceding views, Anunobi and Edoka (2010) discussed the adoption and use of ICT in library and information services in Federal University of Technology, Owerri (FUTO) library. The paper x-rayed the historical development of the ICT unit of the library, the structural organization of the ICT facilities, hardware and software available, the offline and online databases and services available as well as the automation process involved. Other issues examined include the challenges towards the provision of effective and efficient ICT based services in the library, funding aspect, ICT policies, environmental challenges etc. The prospects identified by the authors included tremendous increase in the number of ICT experts at all levels of library staff, improvement in the provision of ICT infrastructure, development of institutional strategic policy on ICT in FUTO, increased awareness and commitment to ICT among policy and decision makers etc. is believed to

result in prompt and timely information delivery, global access to information and ease of use etc.

In a related development, Emojorho (2011) examined the effectiveness of ICT in library administration for data capture and processing, and its ability to transmit or disseminate information in an efficient manner to users. Similarly, Singh (2013) looked at the impact of technology in library services and posited that ICT plays a crucial role in the effective management of information and allows delivery of processed and qualitative information to end users. The preceding treatises have highlighted the role of ICT in library administration and management, and it clearly shows that similar results would be achieved when ICT is deployed for library administration and management in the operations of public libraries in Nigeria.

ICT has also been widely adopted in technical services like acquisition and collection development. Electronic publishing is fast changing the role of librarians in building and acquiring library resources as well as providing access to such resources (Jegede and Tolowawi, 2010). According to the scholars, the Internet and the World Wide Web have expanded and made available resources that were unimagined in earlier years to be accessible presently without any problem. Computers, they added have had great impact on acquisition process in libraries of developed countries of Europe and America, and in some developing countries globally, especially Nigeria. Similarly, according to the authors, many publishers' catalogues and bibliographies can be accessed via online computers, i.e. through the Internet. They explained in detail how ICT facilities are used in the acquisition process, selection of resources, and means of acquiring information resources, such as gifts, and exchange/inter institutional cooperation.

Supporting this contention, Odeh and Akpokurerie (2011) posited that automated systems facilitate the process of acquisition in respect of ordering, receipting and invoicing.

They further stated that the use of ICTs enable libraries to use online library catalogues to conduct selection exercise. Some of these online catalogues, according to them include: Library of Congress Online catalogue, British Library Online catalogue, Northern Ireland Online catalogue, and a few others. Turnkey systems also offer bibliographic utilities in book selection exercise. These packages usually contain all the modules in library operations, and a library could acquire any of the modules on customized basis (Tiwari, 2011). According to the author, the acquisition module, whether in an integrated system or single system offers a wide advantage, enabling bibliographic verification and data transfer from cataloguing records to facilitate order preparation, and simplifies staff training requirements. On the other hand, he further added, the online availability of information about the holdings of other libraries supports cooperative collection development.

Iheaturu, Okafor and Mberu (2006) also examined how ICT is influencing key library functions such as acquisitions, cataloguing and classification, and how it is reaching out to other libraries and utilities through linkages and networks for resources sharing and subscription. They emphasized that the utilities in ICTs have become dependable sources that enable libraries to verify and validate new titles, place orders, and also make payment to publishers and booksellers. Information resources selection, in the context of ICT application, also involves matters to do with site licenses and making decisions between stand alone CD-ROM work stations and networked CD-ROM subscription. Librarians' in-charge of acquisition must have knowledge of how to purchase gateway access to commercial vendors, how to integrate electronic resources into collection development policies and decide whether to buy print or electronic versions of resources. They are also required to make decisions about either procuring a resource or accessing it through another channel (Blake and Suprenant, as cited by Spacey, 2003). The fore-going discussion on the use of ICT in

acquisition/collection development processes in libraries would greatly impact public libraries in Nigeria when they are introduced in their operations.

Cataloguing and classification is another technical service where ICT has been utilized in libraries. The changes brought to cataloguing and classification by application of ICT is considerable, as pointed out by Ajibero (2006). According to the author, the application of ICT in library cataloguing and classification has enabled the production of Machine Readable Catalogues (MARC), Online Computer Library Centre (OCLC), and Online Public Access Catalogue (OPAC). All of these, according to him have transformed the cataloguing system and is allowing libraries to look into national and international networks in other to fast track their cataloguing processes. On the other hand, Imo (2007) argued that ICT has not changed the way the cataloguer does his work, but instead it has accentuated the need for the cataloguer to be tactically and technically sound. The author, however, contended that ICT has facilitated the production and availability of Machine Readable Catalogues of libraries universally. Siriwongworawat (2003) averred that since the 1980s many libraries in Thailand have used computers and particularly the UNESCO-developed CDS/ISIS for library operations and many databases have been created in higher educational institutions. According to the author, Chiang Mai University library management system was the first (in 1987) to introduce a commercial integrated management system when URICA software was used for the processes of cataloguing and providing online public access, and that by 1992 the National Library of Thailand installed the Dynix Library Automated system software. He added that presently a range of library management software is used including ALICE, Dynix, INNOPAC, TINLIB and future goal of the library is how to provide users with access to more and better information with a quicker and easier approach, VTLS, in the libraries of higher educational institutions and some private agencies. The paper stated that the trend for

library operations now is for electronic information resources, electronic books and the virtual library..

In a related development, Adeleke and Olorunsola (2010) conducted a study on the relevance of online cataloguing and classification tools and techniques in Nigerian libraries. A questionnaire was designed to elicit information from librarians on pertinent areas relating to the use of online tools for processing library resources. The findings of the survey revealed a high level of awareness among librarians in Nigeria about the benefits that could be derived in the use of online tools for cataloguing and classification processes; that there is the need for continuing education programmes for cataloguers for effective use of the tools; that the use of online tools has advantages over manual methods; that librarians perceived the method to be useful and easy to use; that ICT infrastructure facilities are the major constraints facing librarians in the use of online tools. According to the authors most of the problems identified with the use of the online tools in the Redeemers University library study would not be different from the challenges facing other libraries. The study concluded by highlighting the need for an intensive continuing education programme to teach the skills required for online operations and the provision of web-driven facilities in Nigerian libraries, and stated that libraries in developing countries like Nigeria should intensify efforts to close the gap between them and those in the developed countries in terms of ICT literacy. Utilization of ICT facilities in cataloguing and classification processes in Nigerian public libraries would ease the burden associated with manual method and facilitate information service delivery to users.

Reference service is a core area of library and information science in which ICT is heavily used to satisfy users' needs. It is one of the fundamental library services in meeting the increasing need of users in the present digital environment (Ozioko and Igwesi, 2010). The scholars highlighted the various forms of digital references, advantages of digital

references, the changing roles of reference librarians in the digital environment and the challenges of digital reference services. They posited that if the various challenges are adequately handled, the advantages of digital reference services would be enjoyed by the reference librarians and users. Similarly, Anyaogu (2007) examined current trends in the utilization of ICT for reference services in libraries and information centres, the roles of reference librarians and reference resources in the effective provision of reference services to clientele. She gave an overview of the growing digital reference movement and its impact on effective provision of reference services and highlighted the challenges faced by reference librarians in libraries. She suggested a new reorganizational structure that will make the reference librarian 'more visible and consulted than ever'.

Odeh and Akpokurerie (2011) on the other hand averred that libraries have no option but to embrace ICT in this age if they are to establish their relevance in society. The authors discussed the impact of ICT on library service which touches on Online Public Access Catalogue (OPAC), bibliographic services, indexing services, current awareness service, user education services, selective dissemination of information (SDI) services, document delivery services, use of ICT in reference services and a few others. Similarly, ICT enables libraries to provide current awareness service (CAS) to users by providing current periodicals, current contents of information resources, list of on-going and future seminars, conferences and workshops. There is also web-based current awareness service which libraries could download into their database. Examples of this include: Entry Point, MyZD-net IDEAL Alert, Wiley Book Notification service, Listerv, Webzines, etc. (Odeh and Akpokurerie, 2011). The authors also stated that many libraries now use ICT based bibliographic services in providing reference service, most of which are available online, or on CD-ROM.

The various ICT facilities that are used in reference service are asynchronous and synchronous. Asynchronous reference service involves a time delay between the receiving question and providing answer such as in e-mail reference service. It is similar with e-mail reference service, in which a user sends the query in the form of a message and receives an answer at a later time. Apart from using the medium of e-mail, it also involves the completion of web forms and use of services such as 'ask A' services. The user can ask his/her question even when the library is closed and the reference librarian replies by e-mail, fax or phone at his convenience. Synchronous reference service involves transaction that takes 'real time' with immediate response to query, i.e. the interaction between the user and reference librarian is live and that is why it is called 'real- time-digital-reference service'. The media used in this type of reference service include video conferencing, Voice over Internet Protocol (VoIP), chat reference and digital reference robot. The implications of these for reference service are that in asynchronous reference service it is difficult to judge the urgency of the information, thus urgent queries may be left unattended to; users may have to wait for long periods, which can be stressful; and it is labour intensive. The implications in synchronous reference service are that delivery of information is faster than with e-mail; more urgent questions may not be attended to; errors in typing queries may hamper understanding the information required, etc. (Ominyi, 2011). Ominyi (2011) defined the concepts of reference service, ICT, libraries and information centres, and discusses the challenges posed to reference librarians by the introduction of ICT in libraries. He concluded that the use of ICT in libraries necessitated a new breed of information professionals who must be well-equipped with IT knowledge and skills to work in present day libraries which are ICT-driven. Public libraries do not have any option to utilizing ICT in providing reference services to users. The preceding discussion has demonstrated that effective and efficient reference service in libraries currently is ICT-driven;

and public libraries in Nigeria must not be left out of this practice if they are to establish their relevance in the society.

Circulation control is another fundamental area of library and information science in which ICT is used. The use of manual system in document delivery is not yielding the desired result and has now been replaced by ICT-based document delivery services (Odeh and Akpokurerie, 2011). Core circulation duties involve issuing and renewing resources, reservation of items, charging and discharging of library information resources, fining users who have overdue information sources. ICTs have made these tasks less laborious. The automated system handles these processes with much ease and speed. Data provided by circulation control module of the automated management system enables better management of stock; overdue notices are automatically generated and amount to be paid is immediately known (Odeh and Akpokurerie, 2011). The authors indicated that libraries with automated systems can be accessed on the Internet by other libraries. Similarly, documents can be delivered electronically through e-mail to requesting users or libraries. They further stated that there are several ICT-based document delivery service providers worldwide; a good example of which is the British Document Supply Services (BLDSS).

Another dimension of ICT usage in circulation control was highlighted by Olaniyi, Omotosho, Oluwatosin, Towolawi and Grant-Ezeronye (2012), who presented a library readers' desk management system with the use of finger biometric and barcode technology to activities of a library's readers' services. The system is capable of reducing the time spent and errors associated with identification and verification of users and library books as well as charging-in and charging-out of books to library patrons. According to the authors, though Close Circuit Television (CCTV) would also be an important factor ensuring almost total security, biometric scanners like the finger print scan and facial recognition gives security greater edge. They further added that users will no longer need ID cards, yet access will be

simple and reliable. They gave examples of two libraries – The Fujitsu Library System and Naka City Public Library, all in Japan, who make use of the Contactless Palm Vein authentication technology, which allows lending of library materials without the use of cards. Similarly, Adebowale, Okiki, and Yakubu (2013) looked at the circulation activities of Yaba College of Technology Library and how ICT is impacting these activities. According to the authors, the ICT components that relate to circulation activities include telephone, radio, TV, LAN, fax, mobile, software, www, and many others. They posited that, apart from other operations of the library that have been transformed by the use of computer technology, ICT have also made circulation of library materials easier and faster for both staff and users of the library. The authors stated that Yaba College of Technology subscribes to and uses the LibPlus Manager Software Package. Although the foregoing discussion revealed high usage of ICT in circulation control in academic libraries, the use of ICT in circulation services in public libraries is even more compelling in public libraries than in other types of libraries. This is due to their large audience and enormous task of charging and discharging information resources to users at peak periods. Public libraries in Nigeria will therefore benefit immensely if ICT is utilized in this aspect of their service, as it would facilitate dissemination of information to users.

ICT has eventually been introduced in serials control and management in libraries. Serials represent a very complex world and it is not surprising that automation was slow to play a significant role in its management and control (De Kamp, 1983). The author described the function of software designed for handling serial publications in libraries by Swets and Zeitlinger B.V. (a company that is into production of computer software for service oriented outfits). He discussed the process involved in handling serials through automation, which touched on ordering, cataloguing, claiming, financial control, reporting, check-in, routing, duplicate issue storage and dispersal, management reports and others. The author examined

the ‘ FAST system’, which was specifically designed for external check-in and serials control in libraries, and the ‘SAILS system’, which offers a complete system for internal independent library use. The author further stated that the SAILS system presents many added options and the system can be implemented on the library computer, or other central facilities for group of libraries in a town, region or country. In the same vein, Chizoba (2011) stated that the application of ICT in serials management facilitates the search for information, both current and retrospective. He further stated that ICT also facilitates routine work in serials management to do with recording and checking orders, verifying payments, renewal of subscription of titles of journals, sending claim notices for unreceived serials issues and related activities. A great impact ICT is making in this area, according to him, is the wide accessibility to e-journals such as Agora, Hinari, EBSCOhost and a few others. Empirically supporting the preceding views, Emojorho (2011) discussed the importance of using online data entry system to facilitate quick and easy information to access serials in Delta State University library, Abraka. The paper described the process involved in the acquisition and processing of serials publications using online. He stressed the usefulness of placing serials collection on Online Public Access Catalogue (OPAC) in order to facilitate access to the publications in the serial unit. The author recommended adequate funding to aid in the acquisition of periodicals, and also the hosting of regular seminars and workshops for staff and users on serials arrangement and ICT application to serials and information retrieval.

Tiwari (2011) on the other hand asserted that ICT is making its impact on serials control through the production of automated versions of bibliographical serial publications. Notable among such publications, according to him is: Ulrich’s International Periodicals Directory, published by R.R. Bowker. Similarly, he added that the International Serials Data System (ISDS) and the International Centre for the Registration of Serials are charged with the responsibility for the establishment and maintenance of a comprehensive machine

readable registry of bibliographic information about serials published throughout the world. The author further stated that in the United States, the Library of Congress has developed a MARC format for serial publications and participates in the CONSER programme which creates and maintains a high-quality machine-readable database of serial publications. Through systems developed by vendors, he further added, libraries are taking advantage of this database in managing the local collections of serial publications.

The treatises have revealed the relevance of utilizing ICT facilities in serials management in libraries. The utilization of same in public libraries in Nigeria will ease a lot of burden experienced with manual method and greatly improve serials service to users.

Problems Associated with ICT Utilization in Libraries

Despite its vitality in library parlance and its potentials for enhancing services and operations there are obstacles which hamper effective utilization of ICTs in libraries. These obstacles, which generally hinge on facilities, skills acquisition and planning, comprise the following: lack of funds/economic barriers, lack of ICT infrastructure, Poor and inadequate telecommunication facilities, poor level of computer literacy, low level of ICT skills, lack of functional ICT policy/strategy, resistance to change, cultural factors, etc.

Finance plays a critical role in ensuring the availability and utilization of ICT facilities in libraries. But, sadly enough, this appears to be the greatest challenge for most libraries. According to Gardner (1994), one of the key problems affecting effective application of ICTs in libraries in developing countries is that of adequate funding. Likewise, Chisenga (2004), in his study of ICT utilization in public libraries in Africa also identified lack of funds as one of the major barriers that affects ICT application in public libraries. Similarly, Okiy's (2005) survey of ICT in Nigerian university libraries highlighted 'economic barrier' as one of the obstacles to ICT utilization in libraries; while Afolabi and Abidoye (2006) also indicated 'poor funding' as one of the barriers to ICT integration in library

services. In the same vein, Mohammed (2007) indicated 'lack of funds' as one of the problems militating against complete automation of Ghanian and Nigerian university libraries, while Tiwari (2011) also identified financial constraint as the major hindrance to ICT utilization in libraries at national, local and organizational levels in India. From the foregoing, funding, which is an indispensable factor in ICT availability and utilization in libraries appear to be a scarce resource for most libraries. Public libraries, in their quest for utilization of ICT facilities in their operations and services need adequate funding. Without adequate funding, the possibility of them fulfilling their dream of providing effective and efficient library services to users would remain elusive.

ICT infrastructure and equipment is another important element in ensuring an effective and efficient library services in libraries, but most often this is not available in sufficient quantity to guarantee satisfactory services to library users. Okiy (2005) indicated 'lack of ICT infrastructure' as one of the barriers to ICT utilization in Nigerian university libraries, while Nwachukwu (2005) and Onyeneke (2007) also identified unavailability of ICT resources (Internet, e-mail, video conference, fax machines, digital cameras, digital scanners, online information sources etc.) as one of the barriers to ICT utilization in libraries of tertiary institutions in Nigeria. Similarly, Afolabi and Abidoye (2006) highlighted among others, 'high cost of ICT equipment' as a barrier to ICT integration in library services, while Mohammed (2007) identified 'limited hardware' as one of the barriers militating against complete automation in Ghanian and Nigerian university libraries. The provision of adequate ICT infrastructure/equipment in libraries therefore is a necessity if libraries must meet their obligation of satisfying users need through ICT-driven library services. Public libraries, whose scope of coverage is wide, both in terms of audience and subject area must ensure that ICT infrastructure/equipment is in place if they are to provide effective service to their patrons.

Another significant problem that is posing a serious threat to ICT usage in libraries is poor and inadequate telecommunication facilities. Atinmo (2000) identified poor telecommunication infrastructure as one of the factors that is impeding effective implementation of ICT services in libraries in developing countries, while, Okiy (2005) in a paper titled 'strengthening information provision in Nigerian university libraries through communication technologies', stated poor and inadequate telecommunication facilities as a factor that is affecting the introduction of ICT in providing effective library services to users. Afolabi and Abidoye (2006) also indicated poor infrastructural facilities in African countries as a major barrier in applying ICT in library services. In the same vein, writing on automation in Ghanian and Nigerian university libraries, Mohammed (2007) identified absence of reliable infrastructure as a militating factor against successful implementation of the exercise. Haliso (2007) also concurred that, in assessing the availability and utilization of information and communication technology and job performance of academic librarians in South Western Nigeria 'inadequate infrastructure' was discovered to be a major constraint in realizing this feat. It is obvious from the discussion that academic libraries are in the fore front in the application of ICT facilities in their services, but despite their enthusiasm in this direction, the provision of adequate infrastructure poses a big challenge for them. Public libraries in Nigeria, who are slow in adopting ICTs in their operation and services, should learn from the experience of academic libraries and brace up for this challenge. Such proactive posture would enable them to be better equipped in providing effective and efficient library services using ICT facilities.

The use of ICT facilities in libraries of all kind requires some level of computer literacy/ICT skills. However, the literature on this aspect showed that the situation needs improvement if library staff and users are to benefit maximally from ICT-related library services. Gardner (1994) stated among others that, 'education and training' are key factors for

ICT utilization in libraries of developing countries, and this is grossly lacking. According to him, unskilled and untrained human resources lead to employment of expatriates, and most African governments cannot pay or sustain expatriates. Atinmo (2000) also observed that electronic communication in Nigeria is still 'very weak', and attributed this to a number of factors, one of which is 'low level of computer/ICT culture'. By extension, this problem affects both library staff and users, whose level of computer/ICT knowledge is low, and consequently, they may not benefit fully from ICT driven library services. Okiy (2005) also identified poor level of computer literacy among staff and users of Nigerian university libraries as one of the major drawback of benefiting effectively from library services that utilize ICT facilities, while Haliso (2007) also concurred that low level of computer literacy/ICT skills among librarians does not allow them to effectively utilize ICTs in their libraries. Similarly, Afolabi and Abidoye (2006) highlighted 'inadequate skilled manpower' as barrier to ICT integration in library services, while Nwachukwu (2006) also stated poor computer literacy skills as impediment to ICT application in federal university libraries in Nigeria. Mohammed (2007) also stated that 'inadequate ICT professional staff' was one of the militating factors against complete automation of Ghanian and Nigerian university libraries, while Ugwuanyi and Ezeani (2010) concurred that, in transiting from conventional to digital libraries, both library staff and users need some degree of computer literacy/ICT skills, which is apparently lacking. Public libraries, as the only library that open its doors to the public will need to be fully prepared to educate both staff and users on computer literacy/ICT skills, as this will enable them benefit from a wide range of services that is offered by ICT-driven library services.

The availability of ICT policies or strategies is often considered a useful decision in guiding libraries in their efforts to utilize ICT facilities in their operations and services. But, most often this is not obtainable in many libraries. Chisenga (2004), in his study of ICT

utilization in public libraries in Anglophone African countries indicated 'lack of ICT strategy' as one of the barriers militating against ICT utilization in libraries. In the same vein, Okiy's (2005) survey of ICT utilization in Nigerian university libraries highlighted barriers to ICT utilization, which included 'lack of functional ICT policy'. Highlighting barriers to ICT integration in library services, Afolabi and Abidoye (2006) also stated among others, 'lack of ICT policies', while Mohammed (2007) indicated 'absence of ICT policy' as one of the factors militating against automation of Ghanian and Nigerian university libraries. The fore-going revelation is a warning to public libraries on the need for them to have well articulated ICT policies/strategies in place before they embark on utilizing ICT facilities in their operations and services. This would enable them provide effective and efficient library services to their clientele.

Resistance to change and lack of cultural considerations sometimes create problems in some libraries when ICTs are introduced into the system. Change is said to be the only constant phenomenon in life, as it ensures development and progress in the society. But sometimes, people are aversed to change due to fear of the unknown. Similarly, developments that fail to take the peoples culture into cognizance may not have the desired effect on the people and the society. As a result, innovations to do with ICT utilization in libraries are sometimes viewed with ambivalence. Okiy (2005) discovered that one of the factors that is impeding utilization of ICT in Nigerian university libraries is 'resistance to change'. Similarly, Nwachukwu (2005) identified 'staff seeming resistance to introduction of ICTs in libraries' as one of the barriers to ICT utilization in libraries of tertiary institutions in Nigeria. Afolabi and Abidoye (2006) also stated 'technophobia' among older librarians as a form of resistance to ICT introduction in libraries. In the same vein, Onyeneke (2007) indicated 'resistance to change' as one of obstacles to ICT utilization in libraries of tertiary institutions in Nigeria. Haliso (2007) on the other hand considered culture to be an

impediment to ICT utilization in African libraries. He posited that system designers need to understand or undertake a systematic study of the organization and the country within which the system will be used or implemented. He further stated that the challenge goes to system planners and programme writers to consider the way of thinking, cultural setting, level of education and awareness. Similarly, Mohammed (2007) identified 'inadequate adoption of the software that is relevant to the Nigerian context and to the needs of users and staff' as a barrier that militates against complete automation in Ghanian and Nigerian university libraries. Public libraries in Nigeria should learn from these experiences and diligently prepare for challenges in this direction. This would enable them make better plans that will ensure effective and efficient ICT-driven library services to users.

Suggestions for Improving ICT Utilization in Libraries

Scholars have suggested a number of ways to improve ICT utilization in libraries. These relate to obstacles discussed previously, which generally hinge on facilities, skills acquisition and planning. These include: adequate funding/aid, effective telecommunication infrastructure, Internet facilities/hybrid collection, training/capacity building, innovative use of the web, and ICT policy/strategy.

Adequate funding has been the bane of most libraries when it comes to providing ICT facilities. It is for this reason that Afolabi and Abidoye (2006), in their recommendations for ICT integration in library services stated amongst others that, 'government should endeavour to vote huge amount of money for ICT infrastructural development. Similarly, in his study of some Anglo-phone public libraries in Africa, Chisenga (2004) recommended that 'central and local governments should provide adequate funding' to public library services if they are to deploy appropriate ICTs and play an active role in the provision of access to global information resources. In the same vein, Ugwuanyi and Ezeani (2010) suggested that, libraries need to be 'adequately funded' to enable them procure and maintain ICT gadgets

and that library authorities can solicit for assistance from corporate bodies, philanthropists, friends of the library, etc. Public libraries in Nigeria obviously need adequate funding if they are to make their impact in society through ICT-driven public library services.

A second strategy that has been proffered for improving ICT utilization in libraries is the provision of effective telecommunication infrastructure. Atinmo (2000) recommended that improved telecommunication facilities would go a long way in enhancing ICT utilization in Nigerian libraries. Okiy (2005) also concurred that 'improvement in ICT infrastructure' will result in improvement in ICT utilization in Nigerian university libraries, while Afolabi and Abidoye (2006) confessed that with 'better infrastructural facilities', ICT- driven library services will make their impact in the society. Ugwuanyi and Ezeani (2010) also suggested that there should be 'effective telecommunication infrastructure' linking cities and towns in order to ensure efficient ICT services to users. The availability of telecommunication facilities in public libraries in Nigeria will enable them utilize ICTs optimally and they will be able to provide effective and efficient services to their users.

The provision of Internet facilities and hybrid Collection has been advanced as a possible way of improving ICT utilization in libraries. Boughey (2000) saw the "new library"-The People's Network and other recent government initiatives as ideas that have set out a new direction for public library services in Britain. According to the author, the aim was to create hybrid libraries that combine existing book lending and information services with extensive information and communication technology (ICT) access. With the new technology, according to the author, came enhanced roles in information, learning support and reader development. The paper stated that, management of change theory emphasizes the effects of introducing change in one area or the whole of the organization and asserted that if this theory is applied to public libraries, significant domino effects can be expected. The author gave some examples taken from the practical experience of Bury libraries in

Lanchashire, U.K. Similarly, expressing his views on how ICT utilization can be improved in tertiary institutions in Nigeria, Onyeneke (2007) posited that the authorities of the tertiary institutions should provide well 'equipped computer laboratories' (especially in libraries) with Internet facilities for students and lecturers use. Public libraries (in Nigeria), by their wide scope of coverage need Internet facilities to reach their audience. Similarly, they require hybrid collection of information resources that will complement that in the Internet. This will enable them to be better equipped to provide an efficient and effective library services to their clientele.

Training and capacity building is another strategy that has been suggested by scholars for improving the skills of both staff and users in ICT utilization in libraries. It is in this light that Spacey, Goulding and Murray (2004) considered the implications of technological change for public library staff and managers in the U.K. and suggested training as an appropriate means of enabling staff to cope effectively with technological change, noting that staff have different needs and thus prefer different training methods. They also viewed resistance as a natural response to change that managers should attempt to understand and address through training when it occurs. In the same vein, Chisenga (2004) recommended equipping staff in public libraries with appropriate skills relating to digital information resources management and the provision of Internet based library and information services; while Okore (2005) suggested amongst others, that e-learning centres should be created within public libraries as a means of enabling users to acquire ICT knowledge. Afolabi and Abidoye (2006) also recommended that, there should be 'training and retraining' for library staff at all level in respect of use of ICT, and that the 'concept of e-library' should be revitalized in Nigerian libraries. In the same vein, Nwachukwu (2006) recommended the provision of essential computer expertise for effective application of ICT in library operations and services. Similarly, Proffering suggestions that affect all types of libraries, Ugwuanyi and

Ezeani (2010) stated among others that, there is the need for 'aggressive training and retraining of librarians, paraprofessionals and library users in computer proficiency', as this will enable them to be better information managers. Tiwari (2011) also recommended that, 'users must improve their skills in the digital systems' and that the different OPACs should be designed not only for the professionals but also for ordinary users, whether they visit the library or have electronic access from their homes or workplaces. The foregoing discussion suggests that public libraries in Nigeria need to be prepared to train library staff and users in acquiring the relevant skills if they are to utilize ICT facilities in their operations and services.

Innovative use of the web is also considered as a strategy that would improve ICT utilization in libraries. Chisenga (2004), in this light recommended among others that, there is the need to make innovative use of the web through the provision of public library services to users, which can be possible by equipping staff in public libraries with appropriate skills relating to digital information resources management and the provision of Internet based library and information services. He observed that some public libraries in Botswana and South Africa have developed library websites and are making efforts to provide library services from them. Similarly, Chowdury, Poulter and Macmenemy (2006) proposed a new vision for public libraries in the digital age. Their study is based on an understanding of the recent developments in ICT, Internet, and digital libraries; and also on the authors' personal experience in research and development in library and information science, especially in relation to public libraries and digital libraries. The findings of the study disclosed that currently there are no proper mechanisms for capturing, preserving and disseminating community knowledge, and proposed that public libraries in the digital age should take a new role whereby they should act not only as a gateway to knowledge, but also as a platform facilitating the 'creation of, and access to local community knowledge'. The authors proposed

a model for PL 2.0, where public libraries can take on this new role to build a network of community knowledge. On the limitations/ implications of the study, the authors proposed a conceptual model for the second generation of public libraries, and stated that further studies are required to test and implement the model; and on practical implications, the study proposed that the new role of public libraries will be to shift from solely providing access to knowledge to acting as a platform for the storage and dissemination of 'local community knowledge' within the global context created by twenty first century digital technologies. The authors concluded by stating that the proposed model will bring in a 'cultural change' by giving a new role to public libraries in preserving and disseminating 'community knowledge'. Public libraries in Nigeria can equally utilize their websites to provide library services when ICT facilities are introduced in their operations and services.

The provision of ICT policy and strategy has been advanced by some scholars as a planning strategy that could improve the utilization of ICT in libraries. It is for this reason that Chisenga (2004) suggested that, there is the need to assist public library services with the development of 'formal ICT strategies' in their absences, as most of the libraries will continue using ICT in adhoc manner, which in the long run will not be cost effective. Similarly, Afolabi and Abidoye (2006) recommended the crafting of 'ICT policies and strategies' as a means of providing adequate guidance for libraries on how to go about implementing an ICT-driven library services, while Mohammed (2007) also supported this view when he suggested that a 'well articulated ICT policy' will guide Ghanian and Nigerian university libraries in their automation efforts. Public libraries (in Nigeria), indisputably, need ICT policies/strategies that will guide them and keep them on the right track as they embark on utilizing ICT in their operations and services. This way, they will be in a position to provide a more effective and efficient library services to their users, using ICT facilities.

Theoretical Framework:

There are theories of libraries which have been propounded in a bid to provide an understanding of the various possible intelligible aspects of the library. This section discussed two theories that are relevant for the study. These are:

Ranganathan's Five Laws of Library Science

The Five Laws of Library Science propounded by Ranganathan in 1931 are as follows: (i) Books are for use, (ii) Every reader his book (iii) Every book its reader (iv) Save the time of the reader, and (v) The library is a growing organism. Propounded some 80 years ago, the theory is very much relevant today in the practice of librarianship and information science. According to Singh (n.d), the five laws of library science propounded by Ranganathan are valid *sine die (*indefinitely*)* and more relevant in the ICT era. In the digital context, according to Barner (2011) the term ''book'' can be conveniently replaced with the term ''sources of information and knowledge'' and the term ''reader'' replaced with ''user''. The five laws also involve access to bibliographical, lingual and conceptual information; open access to open source information; availability, affordability, and accessibility. Ranganathan sees the library as an institution that is active in a constantly changing environment and that the institution should change (the library is a growing organism) and adapt itself with the spirit of the time so that it can serve best, those who need it. From all indications, Ranganathan has provided one of the best theory and practice to make library resources and services accessible (regardless of their format). This theory is relevant for this study because the information needs of users can be met through all sources of information (including ICTs).

Maness Library 2.0:

A recent and more modern library theory is that which has been propounded by Maness (2006). The author posited a definition and theory for "Library 2.0". He suggested that recent

thinking describing the changing web as “Web 2.0” will have substantial implications for libraries, and recognized that while these implications keep very close to the history and mission of libraries they still necessitate a new paradigm for librarianship. According to him the” Library theory 2.0” has four essential elements, viz: (i) It is user-centered - Users participate in the creation of the content and services they view within the library’s web-presence, OPAC, etc. The consumption and creation of content is dynamic, and thus the roles of librarian and user are not always clear; (ii) It provides a multi-media experience – Both the collections and services of Library 2.0 contain video and audio components (While this is not often cited as a function of Library 2.0, the author suggested it should be); (iii) It is socially rich – The library’s web-presence includes users presence. There are both synchronous (e.g. IM) and asynchronous (e.g. wikis) ways for users to communicate with one another and with librarians; and (iv) It is communally innovative – This is perhaps the single most important aspect of Library 2.0. It rests on the foundation of libraries as a community service, but understands that as communities change libraries must not only change with them, but must allow users to change the library. It seeks to continually change its services, to find new ways to allow communities, not just individuals to seek, find, and utilize information. The paper applied the theory and definition to the practice of librarianship, specifically addressing how Web 2.0 technologies such as synchronous messaging and streaming media, blogs, wikis, social networks, tagging, RSS feeds, and mash-ups might intimate changes in how libraries provide access to their collections and user support for their access. The author concluded that Library 2.0 is not about searching, but finding; not about access, but sharing. That Library 2.0 recognizes that human beings do not seek and utilize information as individuals, but as communities.

The two theories discussed have relevance to the study being undertaken. Apart from being similar in many respects, they all hinge on the relationship with users and use of

information and communication technology. Library Theory 2.0, which is the recent of the two, appears to be more relevant, especially given its versatility in being communally innovative and interactive. The theory was therefore adopted for this study.

Review of Related Empirical Studies

This section reviewed the related empirical studies to do with the theme of the study, i.e. Utilization of Information and Communication Technologies (ICTs) in Public Library Services in Nigeria. This has been done under the following headings: utilization of ICTs in library operation; ICT utilization by library users; and utilization of ICT by library staff.

Utilization of ICT in Library Operations

Empirical studies by numerous scholars have revealed increasing use of ICT facilities in libraries. Dilroshan (2006) investigated the problems faced by university libraries in the process of automation. The main objective of the study was to identify the problems faced by the university libraries of Moratuwa and Colombo, Sri Lanka in automating their functions. The survey research method was applied for the study. The population of the study comprised 2 librarians and 8 departmental heads of University of Moratuwa Library (UML) and University of Colombo Library (UCL), (making a total of 10 respondents). This also formed sample of the study. Data was collected through the use of the interview method, which involved the use of two interview schedules – one for departmental heads and the other for librarians. The data was organized or grouped in tables, after which it was analyzed descriptively. The findings of the study revealed that: The progress in automation is slow, as both libraries have taken a long period of time to automate their library functions; both libraries lack infrastructure and hardware facilities required for the smooth running of an automated system; low bandwidth of Internet connectivity creates problems in accessing Internet in both libraries; library staff in both libraries do not have adequate opportunities for training on computer technology; both libraries lack funds to provide necessary ongoing

training for staff on available software and computer technology, etc. The study proffered the following recommendations: an IT committee be constituted in both university libraries, which should include library staff and computer staff to deal with automation activities; formulation of a special committee of university librarians for library automation project, both libraries to craft a proper written down policy on library automation; develop and provide training opportunities suitable to train library staff on the use of computers, especially on the use of existing software and hardware with adequate practical experience; encourage Sri Lankan universities and other organizations involved in library development and utilization of information technology to develop indigenous software packages to suit local library needs; etc. The findings of the study will enable public libraries in Nigeria avoid the pitfalls encountered by the libraries in the study by planning adequately before acquiring ICTs in their operations and services.

In the same vein, Ghaloum and Ahmed (2011) enquired into the factors impeding the establishment of ICT services in Kuwaiti Academic Libraries. The aim of the paper was to investigate the challenges facing the implementation of ICT solutions in Kuwaiti Academic Libraries (KAL). The study adopted the survey method in which the questionnaire was used in data collection. The population of the study, whose number was 19,096 comprised all the students and faculty members that enrolled at the four colleges in year 2009/2010 session. Five percent (5%) each were selected from the colleges, which gave a sample of 955 students and 74 faculty members. The findings of the study revealed amongst others that: there is significant lack of ICT related services in KAL; the current budget is low and does not meet the requirements of the libraries; there is shortage of qualified staff in the libraries; there is no provision for capacity building programmes for users in improving their ICT skills; there is inadequate infrastructure in place, etc. The study recommended that: the annual budget should be increased to enable the purchase of more ICT equipments and improve

infrastructure; more qualified staff should be employed; training programmes should be introduced to enable library users improve on their ICT skills, etc. This study will enable public libraries in Nigeria plan effectively for the provision of ICT facilities and avoid the problems enumerated in the study.

From the university libraries perspective in Nigeria, an in depth investigation of ICT availability and use in Nigerian University libraries was made by Anunobi (2005).The study was designed to identify the information and communication technology (ICT) facilities available in Nigerian university libraries, the use made of them and the distribution of such facilities with reference to the geographical location and the funding body of such universities. The survey method was used for the study. Data was collected from the university librarians during the Committee of University Librarians of Nigerian Universities (CULNU) 75th meeting at the University of Science and Technology, Port Harcourt, 26- 27 April, 2001. Twenty five copies of the research questionnaire were distributed to university librarians and 19 were returned completed. The data was collated and analyzed using tables and graphs. The findings and conclusions disclosed that, majority of these libraries use ICT facilities for administrative purposes, and that their use for cataloguing and classification, and for acquisition is on the average, while it is less used for circulation, serials, and reference service; first generation university libraries are more committed to the provision of ICT facilities than the other three generations, and that of remaining three generations, third generation university libraries appear not to be doing much in the provision of ICT facilities; university libraries without ICT facilities should liaise with those that have them in order to learn from their experiences; libraries should provide money yielding ICT facilities like Internet and E-mail facilities which will serve as an enabler to the provision of other facilities and understand that the task of providing ICT facilities is not a collective or mandatory venture but rather the responsibility of each individual university management and university

library management. The findings and recommendations of this study are also relevant to public libraries in Nigeria, in the sense that it will enable them appreciate the value and benefits of ICTs in libraries and make concerted efforts to acquire them.

In the same vein, Nwachukwu (2006) investigated the utilization of computer technologies in Nigerian federal university libraries. The objective was to find out the status of computer technologies application and utilization in these libraries. Descriptive survey method was adopted for the study and stratified random sampling technique was used to select a sample of 189 library staff. The questionnaire and observation checklist were used for data collection. Data was analyzed using frequency means and percentages. The findings revealed that, there is a dearth of computer facilities in federal university libraries in Nigeria; the computer technologies were not adequately utilized; the computer technologies were effectively applied in library operations; and the university libraries possessed poor computer literacy skills. The study recommended that, genuine effort should be made to provide essential computer technologies and trained librarians, as well as other library staff with essential computer skills for effective computer application in library operations and services.

Similarly, Etubi and Ikekhai (2007) also investigated the impact of ICT on mutilation and theft of library collection. The purpose of the study was to establish the extent of mutilation and theft of University of Jos collection, and to determine the impact of ICT on mutilation and theft of the library's collection. Survey research method was adopted for the study. Four hundred (400) copies of the research questionnaire were administered to students, out of which three hundred and eighty four (384) were properly filled and returned, giving a response rate of 96%. The study revealed a gradual fall in the number of mutilation and theft in the library as a result of the influx in the use of ICT facilities provided by the library and recommended the acquisition of more computers to accommodate the increasing number of users. It also recommended an increase in the sitting capacity in the computer laboratories.

Public libraries in Nigeria will equally benefit in this manner if ICT facilities are applied in their operations and services.

Nkanu (2007), in like manner surveyed the availability and utilization of ICT facilities in Nigerian university libraries. The purpose of the study was to assess the Information and Communication Technology (ICT) facilities available and used for storage and provision of library and information services in Nigeria. The survey research design was used for the study. The population of the study was all university libraries in Nigeria. Stratified sampling technique was used to select 600 respondents from 13 university libraries from the six geo-political zones of Nigeria. A total of 590 respondents duly completed the questionnaire, giving a response rate of 98.3%. The findings revealed that all ICT facilities surveyed are available with computers emerging as one of the most available facility in Nigerian university libraries. The study recommended among others, the provision of funds to university libraries by relevant authorities to justify their commitment to the cause of sustaining an ICT-based utilization culture in Nigerian university libraries. The recommendations of this study will enable public libraries in Nigeria make their case for ICT facilities to the appropriate authorities.

In the same vein, Nnadozie (2007) investigated the extent to which Information and Communication Technology (ICT) has been provided and applied in the operations and services of libraries in public universities in Southeastern Nigeria. The main objective of the study was to ascertain the current status of ICT availability, density and application in government sponsored university libraries in South-eastern zone of Nigeria. The survey method was used and the copies of research questionnaire were administered to 8 government owned university libraries in the South-eastern zone and seven questionnaires were completed and returned, providing a response rate of 88.8%. The findings disclose among others that there is a general low presence of ICT hardware and software as a result of which

application of these facilities to library operations and services is limited; there is inadequate funding of ICT and that the alternative is expensive and out of the reach of poorly funded university libraries; there is shortage of ICT literate librarians in most university libraries, etc. The study recommended that the management of university libraries should solicit for financial assistance from civil society groups, international agencies and corporate organizations for upgrading of their ICT; that state governments in the country should improve on the funding of their universities and their affiliate libraries; Nigerian university libraries should adapt a deliberate policy aimed at developing a corps of ICT-compliant staff; since most ICT and their accessories are electricity-driven, there is the need for improvement in the supply of electricity through the national grid etc. The study will enable public libraries in Nigeria plan better before venturing into acquiring and applying ICTs in their operations and services.

In a related study, Anunobi and Edoka (2010) examined use of ICT facilities for serials function in Southern Nigerian Federal University Libraries. The objectives of the study were to: identify the serials operations performed with ICT facilities in Southern Nigeria federal university libraries; determine the serials public services performed with ICT; find out the ICT facilities used for these serials operations; and ascertain if the use of ICT facilities in serials units of the libraries is a determinant of their use. Questionnaire and observation checklist were employed in gathering facts and opinions of serials staff from 11 of the 13 federal university libraries. Purposive sampling technique was used to select 55 from 107 serials staff in the universities under study, consisting of five (5) serials staff each, including the serials librarian and any other four (4) staff which are responsible for acquisition, processing, user services, and preservation in the units. The findings of the study revealed that: serials functions in the Southern Nigeria federal university libraries are still predominantly manually performed with ICT application being more prominent in the public

services and preservation function; though a few of the libraries use Internet, LAN and OPAC, photocopiers, personal computers, and CD-ROM are the most commonly used ICT facilities in the serials unit; the low availability and use of ICT facilities in serials units of the university libraries is not a determinant for its use for serials operations. Hence many serials operations are performed with ICT facilities outside the serials units. The study recommended that: university libraries should take a firm decision whether to equip serials unit with ICT facilities and affect all serials operations in the unit or have a systems unit where ICT related operations are carried out including serials; university libraries should also solicit aid from donor agencies in the area of ICT hardware and software for serials functions. The study will enable public libraries in Nigeria evaluate the problems associated with ICT application in serials functions and plan better before acquiring and applying them.

Similarly, Obaje and Chollom (2010), discussed the use of ICT in enhancing services in the University of Jos library. The study's objectives sought to among others, ascertain the level of use of the ICT facilities by librarians, library officers and system staff of the university library, determine whether ICT use has enhanced library services, identify the constraints in the use of ICT facilities by staff in the provision of and enhancing library services etc. Questionnaires were administered to a sample of 38 staff, out of which 22 were satisfactorily filled and returned, giving a response rate of 61.1%. The findings reveal that ICT use has enhanced services in the university of Jos library to a large extent in terms of accessibility, use and speed, and a good number of staff are effective in ICT usage. The study recommended among others that, funding be improved in order to upgrade Internet connectivity and maintenance of ICT facilities. Public libraries in Nigeria stand to benefit in similar manner when ICTs are introduced in their services and operations.

Concentrating on a particular type of ICT, Iwhiwhu, Rutevan and Eghwubare (2010) examined the prospects of using mobile phones for library services in Delta State University

Library, Abraka, Nigeria. The objectives of the study was to encourage librarians and library users in the use of GSM in library operations, examine the benefits derived from the use of GSM in library operation and discover possible problems affecting the use of GSM in library operations. The survey method was used to get respondents' perception of the use of mobile phones in library services. The population of the study which included staff and users covered 110 library staff and 5,000 registered users for the 2005/2006 session. A simple random sampling technique was used in selecting 100 respondents from the student population and 50 from staff population. A questionnaire was used in data collection and data was analyzed using simple percentage and frequency counts. The study revealed that DELSU library does not use mobile phones for library services, as a result of lack of communication infrastructure, high costs, problems with technology and lack of staff training and awareness. It also revealed that since a majority of library users own mobile phones, incorporating it into library services will promote a good relationship between library users and enhance library services, which will attract and retain users, etc. The study recommended that library management should explore the possibility of providing mobile phone library services, while liasing mobile phone operators with improved transmitting frequency to avoid network failure at reduced tariff; telecommunication infrastructure should be put in place for efficient and effective communication between library users and staff, which will engender mobile library services; library users and staff should be educated on the proper use of mobile phone library services to eliminate abuse; each section of the library should have a GSM set for the purpose of providing library services, etc. The use of mobile phones in public libraries in Nigeria will obviously boost library service delivery to users and enhance the libraries image.

In a related development, Yusuf (2012) surveyed the effective use of Online Public Access Catalogue (OPAC) at the Lagos State Polytechnic Library, Ikorodu. The study adopted the survey research design. Four hundred (400) copies of the structured questionnaire

were distributed randomly to staff and students of the polytechnic in Ikorodu campus for the 2011/2012 academic session. Out of the 400 hundred copies of questionnaire distributed 91.14% of the respondents identified the use of OPAC while 8.86% indicated non-usage of OPAC to access library collections. Data collected were analyzed using frequency distribution table and simple percentage. The findings revealed that: lack of awareness amongst the library users' community on the use of OPAC; lack of instruction on the use of soft ware package; shortage of terminals; instability of electricity supply among others. The study recommended among others, the need for continuous instructions for library users on how to search information materials within the library using the OPAC. The study highlights the need for public libraries to be ready to educate both staff and users on any ICT technology they intend acquiring, and in this case, OPAC and its necessary accessories.

Widening the scope of ICT usage, Gwazah (2011) assessed the availability, awareness and use of electronic resources and services in the libraries of tertiary institutions in Kaduna state. The purpose of the study was to investigate the availability of electronic resources and services and the extent to which these resources were being used in the selected tertiary institutions in Kaduna state. The survey research method was used to conduct the study and the instrument used for gathering data were questionnaires, interviews and observation. The population of the study was the users of the libraries of the state owned tertiary institutions. A stratified purposive random sampling was used to draw a sample size of 1,323 from the selected institutions. Responses from the questionnaires were analyzed using descriptive statistics. The findings showed that all selected institutions had the following e-resources: computers, VCD/DVD, Internet access, full text articles, online databases, e-journals, e-books, multimedia, CD-ROMs, and flash drives; they also use the following electronic services – e-mails, online references, electronic alerts, etc.; all the institutions studied depended on Education Trust Fund (ETF) intervention to provide them with the necessary

electronic resources instead of the normal government funds, which may or may not come; there was significant difference in the quantity, awareness created and use of electronic resources and services among the selected institutions. The study recommended that government should provide adequate funds for the provision of electronic resources and services to enhance teaching, learning, research and training. Public libraries in Nigeria could likewise solicit funding to do with the provision of ICT facilities from other agencies such as TETFund, since funding in connection with ICT provision has often been a problem for them.

Relating the relevance of ICT to collection management in public libraries, Emojorho (2010) administered questionnaires to 147 public library staff and users in the South-South Zone of Nigeria, using simple random sampling. The data was analyzed using percentages. The findings revealed that, slightly more than half the libraries are computerized; more than half the respondents indicated that the use of ICT does not improve library services; most respondents still have a card catalogue, with much smaller numbers having Internet access and electronic resources; the benefits of ICT on collection management in public libraries are felt by most respondents to some extent; and more than half of the respondents have attended training on ICT in collection management. The study concluded by recommending that Government should ensure that all public libraries computerize their operations and become connected to the Internet, public libraries should be adequately funded, and public libraries should encourage staff to attend training courses on various aspects of ICT. The study, also being on Nigerian public libraries but in another zone, is partially relevant to this study and the recommendations are very applicable to this study.

Omekwu and Ferdinand (2010), on the other hand articulated strategies for effective law library services delivery to the Nigerian Judicial System. The objective was to identify the information needs of the Nigerian Judiciary, synthesize strategies for effective library services and recommend the way forward. The methodology involved a critical review of

papers presented at the Biennial National Workshop for Judicial Librarians, Abuja, 19th - 23rd February, 2007. The findings revealed that the planning, implementation and operation of information system for the judiciary depends largely on careful identification, analysis and classification of the real information needs of the users, the need for strategies that will result to effective library services delivery which includes web presence, electronic library development and Internet connectivity, Current Awareness Services (CAS) , Selective Dissemination of Information (SDI), indexing and abstracting services etc. The paper recommended ICT literacy for librarians, ICT resources availability in the library, the need for resource sharing through consortium formation etc. The findings and recommendations of the study will assist public libraries in Nigeria equally plan effectively for their information system and ICT availability, and also explore the possibility of forming consortium in order to enable resource sharing.

The publications reviewed, though mostly discussed ICT usage in academic libraries, especially in Nigeria, show that they are also relevant in public libraries in Nigeria. Public libraries in Nigeria are far behind as far as ICT usage in their operations and services is concern. Hence, this has highlighted the need for them to be awake to their responsibility of satisfying users need through ICT-driven services.

Utilization of ICTs by Library Users

Various scholars have written on the utilization of ICT facilities in libraries by users, as they are the focal point for the use of these resources in libraries. Ingutia-Oyieke (2008) examined the main features of ICT use by a public and private university library in Kenya in support of formal and informal teaching and learning. The study adopted the survey method. The population of the study comprised third year undergraduate students, library committee members, and library managers. Data was collected through self-administered questionnaires, interviews, and site visits. The findings revealed that: there is inadequate ICT infrastructure,

specifically library networks and computers at Kenyatta University; access to and use of ICTs is affected by lack of access skills, and there is a need for training in this area; ICT usage differs, with Kenyatta University students lagging behind UEAB students; and student learning outcomes are diverse, UEAB students benefited from the use of library e-resources to meet their formal and informal learning needs, and Kenyatta University students did not benefit at all. The study recommended that: the implementation of ICTs in Kenyan Higher Education Institutions (HEI) libraries, through the provision of adequate infrastructure and funding; the development of ICT policies; and the development of information literacy (IL) programmes for students, will ensure that ICTs play an important role in academic support for formal and non-formal teaching and learning. It also proposed a model for the implementation of an IL programme as a means of advancing or facilitating the process. Public libraries in Nigeria will not be an exception to findings of this study, as most of them do not have adequate ICT facilities. This study therefore provides them with the opportunity to learn from the challenges highlighted and be better prepared for meeting the task of utilizing ICTs in their operations and services.

In a similar publication, Armah (2009) examined how students, lecturers and research fellows have been using the Internet services provided by the three oldest public university libraries in Ghana – the Balme Library of the University of Ghana, Legon; the Kwame Nkrumah University of Science and Technology Library (KNUSTL); and the University in Cape Coast Library (UCCL). The objectives of the study include among others, to determine the frequency of use of the Internet services by students, lecturers, and research fellows; the purposes for which users exploit the Internet services; the most used Internet facilities by users, etc. The survey method was used, while questionnaire and interview were the instruments used in data gathering. The population of the study, which comprised students, lecturers, and research fellows in the three universities was 2,553 users. Ten percent sample

of this was used for the study, i.e. 255 users. Questionnaires were administered to the 255 users of the libraries, out of which 240 were duly completed and returned, giving a response rate of 94%. The findings of the study showed that most of the respondents used the services only once in a while and mainly for sending and receiving information. The study recommended that the university libraries should expand their computer facilities, train users in different online skills, and compile and publicize the Internet sites useful for obtaining different types of research information. The study's findings is applicable to public libraries in Nigeria who do not only possess few ICT facilities (especially Internet), but have acute problem of ICT skills availability. Thus, the recommendations of the study will enable them prepare for the challenges of ICT utilization in libraries.

Capturing the scenario back home, Gbaje (2007) looked at the relevance of online information services in academic libraries in Nigeria and highlighted the importance of transporting their services to the online environment. The purpose of the study was to determine the online information services academic libraries in Nigeria provide their patrons, and highlight the importance of transporting their services to the online environment. The study also intends to identify some of the challenges academic libraries in Nigeria are facing in providing online information services to their patrons. Nineteen (19) universities which have websites were purposively selected as the population of the study. The sampled population comprised only ten universities which have webpage/website dedicated to their libraries. Qualitative research method was used in the study to examine the online services Nigerian academic libraries provide to their patrons. Purposive sampling technique was used to collect data from ten universities through online survey and data was analyzed using percentages. The study revealed that the shortage of technology infrastructure and high cost of equipment have hindered the Nigerian academic libraries from providing online information services. It also highlighted the advantages of online information services in

assisting Nigerian academic libraries provide better online library services to the growing online patrons. Though widely used in academic libraries, Internet and online services will greatly impact on public library services in Nigeria when introduced.

Similarly, Olumide (2007) investigated the relevance of Information Technology to libraries as Information Centres. The objectives of the study include inter alia: to investigate the Information Technologies available at Development Policy Centre (DPC) and International Institute of Tropical Agriculture (IITA) libraries; to elucidate the benefits derived by users of these libraries from the Information Technologies, to determine the efficiency of Information Technologies available at DPC and IITA libraries, etc. The survey Research Design was used for the study. Systematic random sampling technique was used to select 80 users from the two libraries. Questionnaire and interview were used as instruments for data collection. The findings showed that Information Technologies and equipment have improved the quality of library services to users. The paper recommended among others, periodic users education/training on use of Information Technologies; the two libraries (DPC and IITA) should relax their bureaucratic restrictions to accommodate more users; libraries should influence decision-makers, both at institutional and national levels on the importance of investing adequately on information resources and services, etc. The introduction of ICTs in public libraries in Nigeria will equally yield similar dividends for users and they should endeavour to provide them.

Onuoha (2010) also evaluated the effectiveness of the library services offered to undergraduates of Babcock University. The objectives of the study were to find out how students perceive the effectiveness of library services at Babcock University, determine the problems encountered with library services and make suggestions on how to improve the library services at Babcock University library. Descriptive research design was used for the study and the population was made up of 1,207 students in the 400 level. Multistage sampling

technique was used to select a sample size of 250. Data was collected by means of questionnaire and analyzed using descriptive statistics. Findings revealed that services such as personal assistance in the use of library, provision of print materials, and shelve guides received high rating. Other services such as provision of electronic journals, Online Public Access Catalogue and Current Awareness received low rating. Other findings revealed have to do with inadequate computers, Internet access and a few others. The study recommended an assessment of the effectiveness of OPAC in the library, provision of more online resources to meet the needs of students in the various disciplines, increase the number of computers with Internet connectivity, evaluate its website to ascertain the reason for its low rating and many others. Though public libraries in Nigeria do not have most of the ICT facilities mentioned, the study will educate them on their (ICTs) usefulness and enable them brace up for the task of utilizing ICTs in their domain.

Utilization of ICTs by Library Staff

The utilization of ICT facilities in libraries is not restricted to library users alone. Scholars have proved that library staff, like users can also benefit from the availability of ICT facilities in libraries. King, Mcmenemy and Poulter (2000) discussed the findings of a survey into staff perceptions of the U.K.- wide information and communications technology (ICT) training conducted under the People's Network programme for public library staff. The methodology used was a web-based survey, which was undertaken across several prominent UK mailing lists, seeking staff views on issues such as the usefulness of the training provided, and any perceived gaps in training that existed. The survey also asked what types of ICT queries staff regularly encountered. The findings reveal that while the staff found the training rewarding, there were concerns at the lack of ICT troubleshooting in the programme, and the reliance on an off-the shelf training programme not specifically designed for libraries, namely the European Computer Driving License, or ECDL. The paper suggested that ICT

training for library staff should be built around problem solving and troubleshooting, rather than generic skills in order to match the kinds of queries encountered in the front line of libraries. The findings and suggestions of the study are likely to depict the same situation when ICTs are introduced in Nigerian public libraries. However, public libraries in Nigeria should make concerted effort to acquire ICT facilities in order for their staff to benefit in like manner.

Similarly, Mathew (2011) assessed the impact of ICT on professional development and educational needs of library professionals in the universities of Kerala. The aim of the study was to assess whether the development in information communication technologies have any influence on the library professionals development, and the need for further education and training in the profession and evaluate their skills in handling developments in ICT. The population of the study comprised 252 professional library staff in central libraries in the main campuses of the universities in Kerala, India. The survey method was adopted for the study. The questionnaire was used for data collection and was supplemented by interviews to collect additional information. The findings revealed that: library professionals have a positive approach towards ICT application and services in libraries, but majority do not have the opportunity to develop their skills and competencies in their work environment; to develop competitive personnel in a technologically advanced world, high priority must be given to develop competence in ICT application, library management and soft skills in library profession by the university administrators and library associations; library science schools across the country have to take significant steps to revise library science curriculum, and incorporate significant changes to achieve the demands and challenges of library science profession. The findings of the study paint a likely scenario should ICTs be introduced in public libraries in Nigeria. All the same, public library staff will benefit alot with the availability of ICTs in their libraries.

In a related publication on the Nigerian scenario, Adekunle, Omoba and Tella (2007) explored the attitudes of librarians in Nigeria towards ICT in their libraries. The study adopted the descriptive survey method. A questionnaire was used for data collection. The population of the study comprised librarians in academic libraries in Oyo state of Nigeria, who are 41 in number. The findings revealed that Librarians training and knowledge of ICT influenced their attitude toward it; adequate training and knowledge of ICT are crucial in encouraging librarians to show a positive attitude toward it (ICT), and many others. It recommended that: Training and knowledge are *sine qua non* of a positive attitude toward ICT, and as such it is essential for librarians to keep up-to-date with ICT developments; in Africa, it is time to bridge the digital gap, therefore, African libraries who are not yet automated should start thinking about it, and a few others. The findings of the study are relevant to public libraries in Nigeria, who do not have adequate ICT facilities, but will enable them brace up for the challenges of utilizing ICTs for staff and users' benefit.

In the same vein, Uwaifo (2007) examined the predictive effect of occupational status on perceived ease of use of computer-based libraries by library staff in Nigerian universities. The objectives of the study were to among others ascertain the library's staff exposure to computers, and to recommend measures to tackle the problems that may result from the investigation. A total of 581 respondents encompassing university librarians, other librarians, library officers drawn from 17 government-owned computerized university libraries in Nigeria comprised the population of the study. The sample of the study comprised 386 purposively selected library staff. Two hundred and fifty two (252) out of the 386 copies of the questionnaire administered were completed and returned, giving a response rate of 65.3%. Personal interview and observation methods were employed in generating data. The findings of the study showed that occupational status of library staff does not only determine their perception of the ease of use of computer-based university libraries in Nigeria, and that the

library staff's degree of exposure to computers is very little. The study recommended that the university management should embark on strategies to motivate the library staff so that they will become more exposed to computers in particular and information technologies in general, that training programmes like seminars and workshops be organized on regular basis, and that the training programme should place emphasis on the imperatives of IT in libraries. Public libraries in Nigeria will obviously benefit from the findings of this study, as it will enable them prepare for the challenges of effectively utilizing ICTs in their operations and services for the benefit of both staff and users.

In another development, Shidi and Ape (2011) x-rayed ICT facilities and skills level of the staff in the three universities in Benue state (Federal University of Agriculture, Makurdi; Benue State University, Makurdi; and University of Mkar). The objectives of the study were to find out the ICT facilities available in university libraries, and to determine the extent of ICT skills possessed by library staff of the universities in Benue state. The survey method was employed in the study and questionnaire used in obtaining data. A population of 195 was administered the questionnaires and 134 were duly completed and returned, giving a response rate of 68.7%. The findings reveal that ICT facilities were found in greater number in Federal University of Agriculture, Makurdi than the other two universities, possession of ICT skills by staff of the universities also differ in line with the size of the institution, and a paucity of the resources was found available in the private university i.e. University of Mkar. The paper recommended that, University of Mkar particularly should be assisted by government, private donor agencies and public spirited individuals; and that each of the universities should make efforts to improve in line with its users' needs but not to allow it to be driven into unhealthy competition to meet up with one another. The findings of the study have highlighted the need for public libraries in Nigeria to have enough ICT facilities to enable library staff develop their skills in order to serve their users better.

The availability of ICT facilities in libraries, provide staff with ample opportunity to develop themselves and realize their life goals. It also enables them improve their ICT skills and allow them provide better service to library users. The Public library, by virtue of its wide audience and responsibilities need these skills to impact on its users in particular and the society in general.

Summary of Literature Review

This chapter explored in depth the literature on the utilization of ICTs in libraries. This was done under three broad headings viz: Conceptual framework, Theoretical framework, and Related Empirical studies.

Under conceptual framework, the concepts on the subject of the study (information and communication technology, and public library) were discussed. The review defined and examined the genesis of public libraries globally and narrowed down to the Nigerian scenario, capturing recent developments by way of the number of public libraries in the country. It discussed the problems associated with ICT utilization in libraries, showing how this is impeding effective provision of library services to users. The review explored possible ways that ICT facilities could be provided and better utilized in libraries. However, most of the works reviewed (about 80%) are on academic libraries in both developed and developing countries. It also discussed the benefits/utilization of ICT in libraries generally and how ICT is impacting on library operations and services in libraries, especially those in developed countries (where it is commonly used).

The review looked at two theories under theoretical framework. The Ranganathan's five laws of library science was used to demonstrate the relevance of these laws to modern day practice of librarianship, which is ICT driven. The second library theory, which was propounded by Maness is called library 2.0. This theory, like Ranganathan's theory is more

dependent on the web for effective provision of library services to users, but also expects a feedback or response from the users as a strategy for the survival of the services.

Under related empirical studies, the review discussed utilization of ICT in library operations by showing the impact it is making on library functions such as administration and management, collection development, cataloguing and classification, reference service, serials control, etc. The review also examined ICT utilization by library users and utilization of ICT by library staff. A greater part of the publications reviewed (over 80%) are on academic libraries in both developed and developing countries.

The literature reviewed showed that much has been written about information and communication technology in academic libraries globally, with very little known about utilization of information and communication technology in public libraries in developing countries, and Nigeria in particular. This is the gap identified, which this study has attempted to fill.

CHAPTER THREE

RESEARCH METHOD

This chapter presents the methods and the procedures used for conducting the study. These were discussed under the following headings: design of the study, area of the study, population of the study, sample and sampling technique, instrument for data collection, validation of the instruments, reliability of the instruments, method of data collection and method of data analysis.

Design of the study

The descriptive survey design was used in conducting the study. According to Akuezuilo and Agu (2003) the survey research is used for collection of standardized information from a sample that is considered as representative of a particular group or population. Hence, the research design was appropriate for the study because it generated the relevant and useful data from a sample that was representative of the population for generalization.

Area of the study

The area of the study is Nigeria as an entity. The justification for this choice is that, Nigeria is vigorously pursuing literacy programmes for its citizens. Public libraries as institutions that encourage, support and promote literacy endevours play a key role in ensuring the attainment of this noble objective, i.e. literacy development of the citizenry.

Population of the study

The population of the study is 36 state public libraries in Nigeria. Library statistics obtained from the libraries showed that there are 13,015 people comprising 12,234 users, 244 librarians and 537 library officers. There are 36 public libraries in Nigeria (Agoulu and Agoulu, 1997). North West zone has 7 public libraries, North East has 6, North Central 6, South East 5, South West 6 and South South 6 public libraries (See appendix G, pages 158-159: Population of public libraries in Nigeria). The population of the study comprises library users, librarians and library officers in the 36 public libraries in Nigeria (See appendix I, pages 161-162: Distribution of librarians, library officers and library users in the 36 state public libraries in Nigeria).

Sample and Sampling Technique

The sample of this study consist of 10% of library users (4,007) drawn from 12 public libraries in Nigeria; 74 librarians and 164 library officers (See appendix J, page 163 – Distribution of librarians, library officers and registered users in the sample of the study). This sample size was drawn using a multi-state sampling technique and occurred in three stages thus: Stage one – The use of proportionate stratified random sampling to select 12 public libraries from the 36 public libraries, based on the geopolitical zones in the country. Stage two – selection of respondent from the 12 selected public libraries, in which proportionate stratified random technique was used to select library users, librarians and library officers. For the library users, 10% was used in the proportionate stratified random technique. According Nworgu (2006) this is usually adequately representative. Stage three – first, selection of librarians and library officers was used because they are manageable and accessible. From the total of the selections, there are 407 library users, 74 librarians and 164 library officers, making a total of 645 respondents. The strata therefore were public libraries,

library users, librarians and library officers. The samples comprised institutions (for public libraries) and human beings (for registered public library users, librarians and library officers). Therefore, the breakdown of the questionnaires distributed to users is as follows: Abia state public library – 39; Akwa Ibom state public library – 31; Benue state public library – 49; Ekiti state public library – 23; Imo state public library – 39; Jigawa state public library – 35; Oyo state public library – 22; Plateau state public library – 30; Rivers state public library – 25; Yobe state public library – 32; and Zamfara state public library – 22. The total number of questionnaires administered to both staff and users is 639.

Instruments for Data Collection

The instruments that were used in collecting data are the questionnaire, structured interview schedule and observation checklist.

Questionnaire

Two questionnaires were designed by the researcher for the study. The first questionnaire, titled ‘’Staff Utilization of Information and Communication Technologies (ICTs) in Public Libraries Questionnaire (SUICTPLQ)’’ was addressed to librarians and library officers, while the second named ‘’Users Utilization of Information and Communication Technologies (ICTs) in Public Libraries (UUICTPLQ) was targeted at library users’’. The items were generated from reviewed literature. The questionnaire for library staff was arranged in five (5) sections. Section (A) requested for biodata and has (18) items. Section (B) which answered research questions has (4) clusters. Cluster (A) with (10) items dealt with perceived benefits of using ICTs in public libraries. Cluster (B) which has (8) items addressed extent of utilization of ICTs in library operations. Cluster (C) with (10) items is on barriers to effective utilization of ICTs in public libraries; while cluster (D) with (8) items handled strategies that would be employed to enhance effective utilization of ICTs in public libraries.

The users' questionnaire, called ''Users Utilization of Information and Communication Technologies (ICTs) in Public Libraries Questionnaire (UUICTPLQ)'' has been categorized into four (4) sections viz: Section A - Bio data has (13) items. Section B, which answered the research questions has (4) clusters. Cluster (A) has (8) items and dealt with extent of utilization of ICT facilities in public libraries. Cluster (B) (with 10 items) dwelt on barriers for effective utilization of ICT facilities in public libraries. Cluster (C) with 8 items, covered strategies that could be employed in enhancing ICT utilization in public libraries.

A four (4) rating scale questionnaire, where the four response options for each statement given was used. These options are as follows: Strongly Agreed, Agreed, Disagreed and Strongly Disagreed; Highly Utilized, Somewhat Utilized, Not much Utilized and Not Utilized; Very Great Extent, Great Extent, Slight Extent and No Extent. The corresponding values, albeit not used in this study are: 4,3,2,1.

Structured Interview Schedule

Structured interview schedule was used in obtaining additional information from the heads of public libraries (directors of state library boards) in the 12 public libraries that were studied. The interview enabled the researcher to crosscheck the information on the questionnaire with the aim of validating the information therein. The heads of public libraries have been chosen to be interviewed because they oversee the smooth running of the library services and are in a better position to provide the required information on ICT utilization in the libraries. The interview schedule, which had 10 items was therefore designed to provide information on ICT facilities that are available, frequency of utilization of the ICT facilities, staff ICT literacy level, staff capacity building programmes on ICT, ICT policy and strategy, availability of websites, availability of e-mail address, and how ICT utilization in public libraries can be improved (See Appendix C, page 153 – structured interview schedule).

Observation Checklist

The researcher also used the observation checklist titled "Utilization of Information and Communication Technologies in Public Libraries in Nigeria". This instrument was used to determine the ICT facilities available in public libraries understudied. The checklist is organized in four sections: Section A sought for computer facilities that are available in Public Libraries; Section B requested for computer software resources; Section C sought for audio-visual media/equipment, and section D enquired into the communication media available. The checklist had 19 items in all (See Appendix D, page 154-155 – observation checklist).

Validation of the Instruments

The instruments (questionnaires) were validated by three experts in library and Information science; one from University of Uyo, another from University of Maiduguri and the last from University of Abuja. The objective of the study was attached to the questionnaires to guide the experts in the process of validation (See appendix L, pages 165-192 - validated questionnaires).The questionnaires originally had 108 items but 65 items were used for the validation. Similarly, the Interview schedule was validated by three experts in the Department of Library and Information Science, University of Nigeria, Nsukka. They were requested to ascertain the appropriateness and suitability of the items as they relate to the study. The experts were given free hand to either include or remove any item deemed appropriate or inappropriate. Based on their criticisms and suggestions, some items were restructured, some were discarded, while some new items were added (see Appendix N, page 196 - validated structured interview schedule). The structured interview schedule which originally had 20 items was condensed into 10 items (see appendix C, page 153 – structured interview schedule). Similarly, the observation checklist was validated by a professional in Library and Information Science Department from the University of Nigeria Nnsukka.

Hence, the observation checklist which originally had 44 items was also reduced to 20 items. The whole instruments used (Questionnaires, structured interview and observation checklist) were vetted taking into consideration the purposes, research questions and hypotheses.

Reliability of the Instruments

Forty (40) users each from Bauchi, Kano and Nassarawa States public libraries respectively (making a total of 120 users), and ten (10) library staff each (librarians and library officers) from these States (making a total of 30) were given the main instrument (questionnaire) for trial testing. The responses from the respondents were used to calculate the reliability co-efficient of the instrument. The co-efficient correlation was obtained using Cronbach alpha method of assessing internal consistency. The analysis of data collected in the sections of the questionnaire had the following reliability co-efficient: Library staff – a reliability coefficient of 0.81-0.86. Library users – a reliability coefficient of 0.81-0.90. The reliability index of the instrument is as follows: Overall is 0.089: Cluster A – 0.861: Cluster B – 0.905; Cluster C – 0.812; and Cluster D – 0.752. According to Ary, Jacobs, and Razavieh (2002) scores with modest reliability coefficient in the range of 0.50 - 0.99 may be used as a yardstick for making a decision about a group or for research purposes. Therefore, the figures obtained show that the instrument was reliable and consistent with the problem of the study (see Appendix N, page 198 – Reliability of Instrument Test).

Method of Data Collection

The instruments (questionnaires) were administered to both users and staff by the research assistants. These research assistants were instructed in best strategies to follow to enhance maximum retrieval of administered questionnaires. Precisely, persuasion, motivation and effective communication skills with respondents was taught them in order to facilitate the retrieval of the instruments. The researcher used two weeks in instrument administration and collection. In effect, a total of 639 copies of the questionnaire were administered to both users

and staff. Out of this number, 581 were duly completed and returned, given a response range of 91%. On the other hand, the researcher also visited the libraries understudied with the checklist to personally identify ICT facilities available. This was done to personally oversee the data collected and to ensure its reliability.

Method of Data Analysis

Percentage was used to answer research question one while mean were used to answer the other research questions. Real limit of numbers was used in interpreting the results as follows:

0.50 -1.49 – very low extent or low satisfaction or strongly disagree;

1.50 – 2.49 – low extent or moderately satisfied or disagree;

2.50 – 3.49 – high extent or satisfied or agree; and

3.50 – 4.00 – very high extent or highly satisfied or strongly agree.

T-test statistics was used to test the hypotheses at 0.05 level of significance. The data obtained from interview generated qualitative information which was integrated in the discussion of the findings of study.

CHAPTER FOUR

RESULTS

This chapter presents the results of data analysis based on the research questions that guided the study.

Research Question One:

What are the ICT facilities that are available in public libraries in Nigeria?

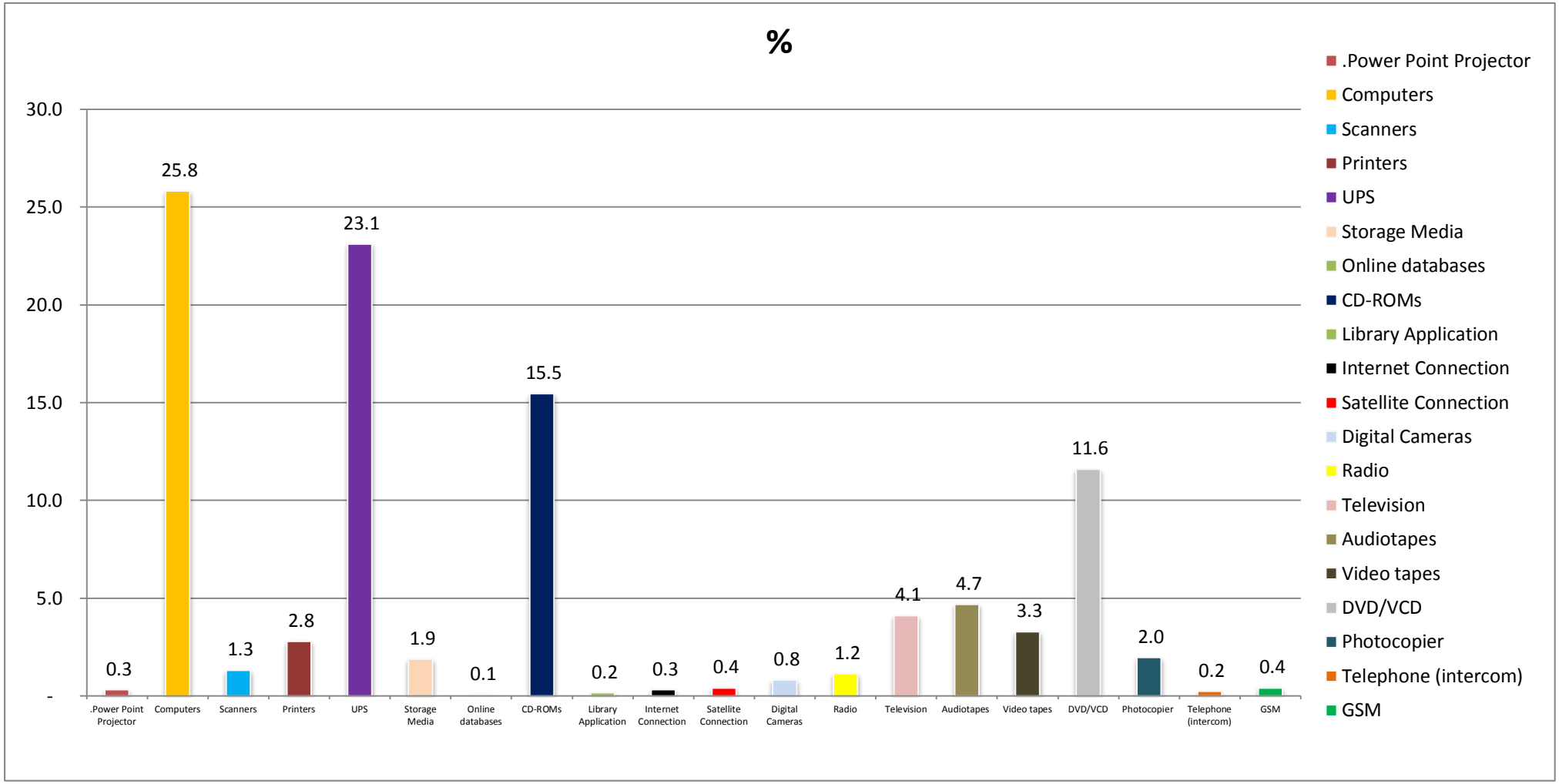
Table 1: **ICT facilities that are available in public libraries in Nigeria**.

N = 12 (representing number of public libraries in the sample of study)

S/N	ITEM STATUS	NORTH WEST		NORTH CENTRAL		NORTH EAST		SOUTH WEST		SOUTH SOUTH		SOUTH EAST		TOTAL NO. ITEMS	TOTAL NO. OF LIBRARIES HAVING ITEMS	Percentage (%) of Total No. of Items
		Jigawa	Zamfara	Benue	Plateau	Adamawa	Yobe	Ekiti	Oyo	Akwa Ibom	Rivers	Abia	Imo			
A.	**Computer Facilities**															
1	.Power Point Projector	1	1	-	-	1	-	-	1	-	-	-	-	**4**	**4**	**0.3**
2	Computers	80	50	7	8	55	20	4	50	15	15	-	10	**314**	**11**	**25.8**
3	Scanners	-	2	-	2	2	1	1	2	-	1	-	5	**16**	**8**	**1.3**
4	Printers	3	5	1	-	5	4	2	4	2	4	-	4	**34**	**10**	**2.8**
5	UPS	80	50	7	6	50	1	3	50	15	15	-	4	**281**	**11**	**23.1**
B.	**Computer Software Resources**															
6	Storage Media	10	5	-	-	-	-	2	4	2	-	-	-	**23**	**5**	**1.9**
7	Online databases	-	-	-	-	-	-	-	-	1	-	-	-	**1**	**1**	**0.1**
8	CD-ROMs	1	-	1	-	-	-	-	174	12	-	-	-	**188**	**4**	**15.5**
9	Library Application	2	-	-	-	-	-	-	-	-	-	-	-	**2**	**1**	**0.2**
10	Internet Connection	1	-	-	-	-	-	-	1	1	1	-	-	**4**	**4**	**0.3**
C.	**Audio-Visual Media/Equipment**															
11	Satellite Connection	1	1	-	-	1	1	-	1	-	-	-	-	**5**	**5**	**0.4**
12	Digital Cameras	1	2	-	-	-	-	-	7	-	-	-	-	**10**	**3**	**0.8**
13	Radio	3	2	-	4	3	1	-	1	-	-	-	-	**14**	**6**	**1.2**
14	Television	15	4	-	5	5	10	1	3	2	1	-	4	**50**	**10**	**4.1**
15	Audiotapes	12	2	-	3	5	-	-	35	-	-	-	-	**57**	**5**	**4.7**
16	Video tapes	13	2	-	-	5	-	-	20	-	-	-	-	**40**	**4**	**3.3**
17	DVD/VCD	2	4	-	-	4	-	-	128	-	-	-	3	**141**	**5**	**11.6**
18	Photocopier	2	4	2	3	1	1	1	3	3	1	-	3	**24**	**11**	**2.0**
D.	**Communication Media**															
19	Telephone (intercom	-	-	-	-	-	1	-	1	1	-	-	-	**3**	**3**	**0.2**
20	GSM	-	2	-	-	-	-	-	-	3	-	-	-	**5**	**2**	**0.4**
	Total Items	**16**	**15**	**5**	**7**	**12**	**9**	**7**	**17**	**11**	**7**	**0**	**7**	**20**		**100.0**
	Total Items No. in Libraries	**227**	**136**	**18**	**31**	**137**	**40**	**14**	**485**	**57**	**38**	**0**	**33**	**1216**		

Source: Observation Checklist

Figure 1: Bar Chart showing ICT facilities that are available in public libraries in Nigeria



Source: Observation Checklist

Table 1 and figure 1, which have been created from observation checklist show the percentage of total number of items of ICT facilities that are available in public libraries in Nigeria. The table shows that computer facilities (computers, projectors, scanners, printers, and UPS) are the most available ICT facilities by far in public libraries in Nigeria, with computers having the highest number- 314 (25.8%). Others with a high incidence are Unlimited Power Supply (UPS) – 281 (23.1%), Compact Disc Read Only Memory (CD-ROM) - 188 (15.5%), Digital Video Disc (DVD) and Visual Compact Disc (VCD) - 141 (11.6%).

A general analysis of ICT facilities in public libraries in Nigeria as shown in table 1 revealed that computer facilities are the most available - 649 (53.3%). This is followed by audio-visual media/equipment - 341 (28%), computer software resources - 218 (18.4%) and communication media - 8 (0.6%). Similarly, summation of ICT facilities in public libraries by zones shows that South West zone has the highest - 499 (41.0%). This is followed by North West zone - 363 (29.8%), North East zone – 177 (14.5%), South South zone - 95 (7.8%), North Central zone - 49 (4.0%) and South East zone - 33 (2.7%).

On the whole, computer facilities are the most available ICT facilities in public libraries in Nigeria. Oyo state public library in the South West zone has the highest number - 485 (41.0%) of ICT facilities, while Abia state public library in the South East zone has the least number - zero (0%) of ICT facilities. Jigawa and Zamfara states public libraries (in North West zone) account for a high number of ICT facilities in the zone, i.e. 227 and 136, respectively - 363 (29.8%); while Oyo state public library in South West zone is responsible for the high number of ICT facilities in the zone, i.e. 485 (39.8%). Abia state public library, with zero ICT facilities is responsible for the least number of ICT facilities in the South East zone. Comparatively, the South West zone has the highest number of ICT facilities - 499 (41%), while the South East zone has the least - 33 (2.7%).

The findings of the in-depth interview revealed that computer facilities such as computers, UPS and printers were the most available facilities in public libraries in Nigeria while computer software resources such as online database, Internet connectivity, application software and storage media were scarcely available. For example, a library user in Plateau state public library stated that "the present quantity of ICT facilities in the library is grossly inadequate -- -- - even computers that one should expect to be available in sufficient quantity for users are not there''. Another user from Imo state public library gave a comparative view of public and academic libraries and summed it this way "I have visited libraries in academic institutions and the difference is clear. The number of ICT facilities in public libraries is just not enough. It is sad that government is not doing anything about the condition of our public libraries". Yet another user from Abia state public library painted a gory picture of the situation when he said "It is a shame that government cannot provide ICT facilities in its public libraries".

Research Question Two

What in the perception of librarians and library officers are the benefits of using ICTs in public libraries?

Having looked at availability of ICTs in public libraries in Nigeria, the researcher went ahead to look at the benefits of using ICTs in public libraries.

Table 2: **Benefits of using ICTs in public libraries**

N = 215 (representing number of library staff in the sample of study)

S/N	Item Status	Mean scores	Decision	Ranking
1	Provision of speedy and easy access to information	3.74	Strongly Agree	1
2	Provision of more up-to-date information	3.67	Strongly Agree	2
3	Increases efficiency in library operation and services	3.58	Strongly Agree	3
4	Enable users self education, especially through Internet and its multimedia resources	3.56	Strongly Agree	4
5	Facilitate cooperation and formation of library networks	3.43	Agree	5
6	Provision of access to unlimited information from different sources	3.42	Agree	6
7	Provision of information flexibility to be used by individuals according to their requirements	3.37	Agree	7
8	Facilitation of reformation and combining of data from different sources	3.36	Agree	8
9	May save or generate funds for the library	3.34	Agree	9
10	Provision of round the clock access to users	3.33	Agree	10
11	Helps in avoiding duplication of efforts within library and between libraries	3.20	Agree	11
12	Provision of remote access of information to users	3.14	Agree	12
13	Provides marketing opportunity of library services	3.13	Agree	13
	Overall	**3.41**		

Figure 2: Bar chart showing benefits of using information and communication technologies (ICTs) in public libraries in Nigeria by states.

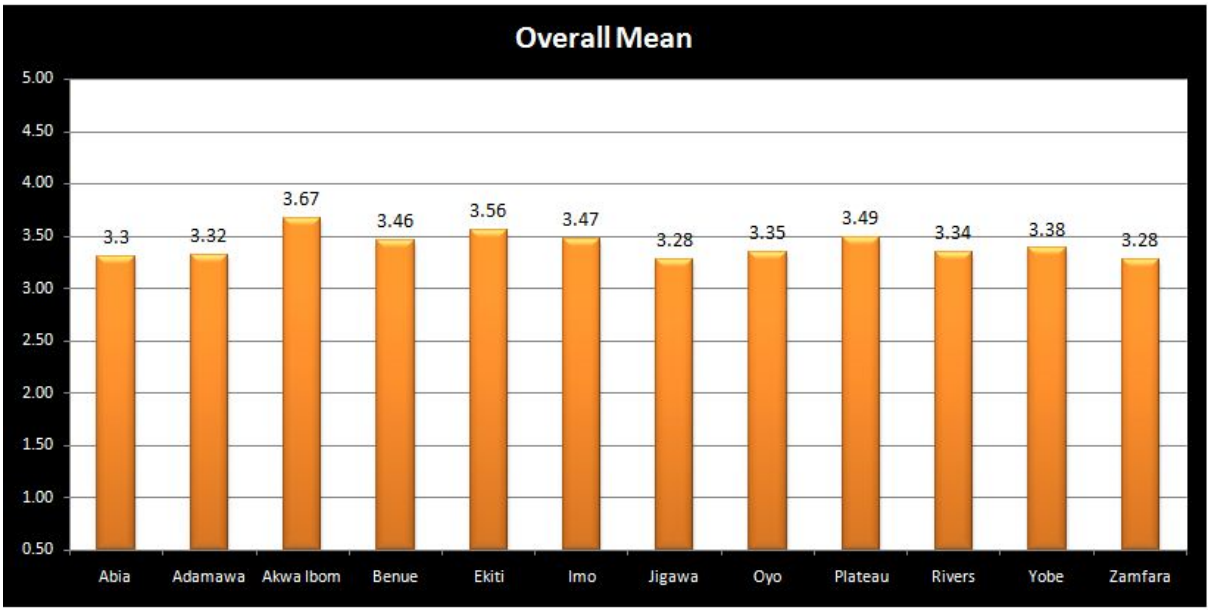


Table 2 and figure 2 above show that all the items listed are beneficial when ICTs are utilized in public libraries. This is evident in the mean scores of the listed items. The overall mean (3.41) shows that generally staff agreed that there are benefits in using ICTs in public libraries for the purposes listed. The table shows that staff strongly agree that there are benefits in using ICTs for provision of speedy and easy access to information; provision of more up-to-date information; increases efficiency in library operations and services; and enable users self education, especially through Internet and its multimedia resources. The figure on the other hand shows that in Akwa Ibom and Ekiti states public libraries, staff strongly agreed that there are benefits in using ICTs for the purposes listed. Interestingly, this revelation does not follow the pattern of availability revealed in table 1 and figure 1. All the staff saw the benefits of ICTs in public in libraries, which shows that lack of facilities is not due to lack of appreciation or awareness.

The in-depth interview indicated that staff agreed overwhelmingly that there are benefits in utilizing ICTs in our public libraries. For example, a staff from Oyo state public library opined that “it is very obvious that the introduction of ICTs in our libraries will be

beneficial to both staff and users in the provision of more up-to-date information at a faster rate and with much ease. The Internet especially, will assist in realizing this". Another staff from Akwa Ibom state public library was more elaborate when he stated "There are many benefits of using ICTs in public libraries. They include: provision of vast amount of information, ability to store huge amount of information in hard discs, flash drives, CD-ROMs etc., it will facilitate networking among libraries and interlibrary cooperation among others".

Research Question three:

To what extent are ICTs utilized in the various library operations?

Having looked at the benefits of using ICTs in libraries, the researcher went further to examine the extent of utilizing ICTs in public library operations in Nigeria.

Table 3: **Extent of utilization of ICTs in Library operations.**

N = 215 (representing number of libary staff in the sample of the study)

S/N	Item Status	Mean scores	Decision
1.	Acquisitions	2.22	Low extent
2.	Cataloguing & Classification	2.10	Low extent
3.	Serials control	2.13	Low extent
4.	Circulation control	2.14	Low extent
5.	Reference service	2.22	Low extent
6.	Library management and administration	2.26	Low exent
7.	Interlibrary cooperation and lending	2.20	Low extent
8.	Accessing online resources	2.25	Low extent
9.	Accessing offline resources	2.04	Low extent
10.	Developing online resources	2.19	Low extent
11.	Developing offline resources	1.97	Low extent
	Overall	2.15	

Figure 3: Bar Chart showing extent of utilization of ICTs in various libraries operation in public libraries in Nigeria

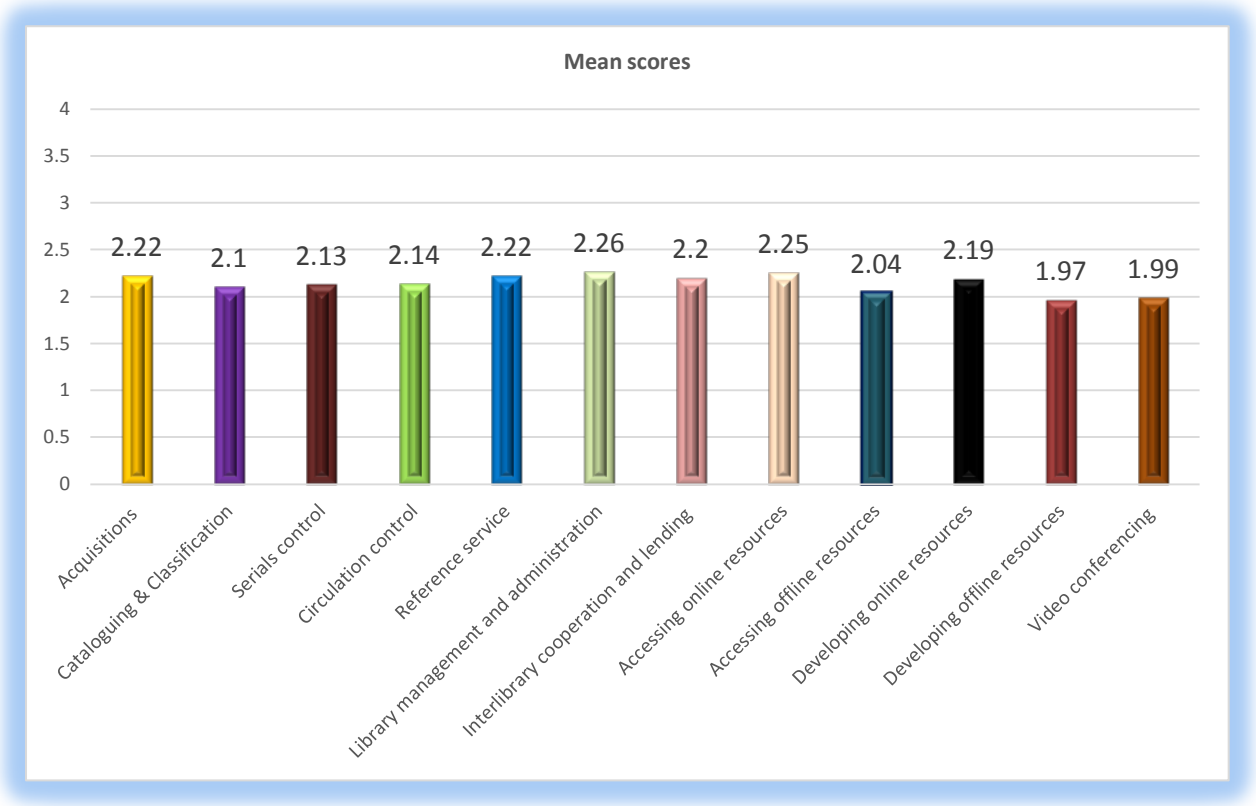


Table 3 and figure 3 show a poor usage of ICT facilities in library operations as revealed in the mean scores of the listed items, which are far below the accepted criterion of 2.50. All the library operations had ICTs used to a low extent. These include library management and administration (2.26), accessing online resources (2.25), acquisitions (2.22), reference service (2.22), and inter library cooperation and lending (2.20). Others are: developing online resources (2.19), circulation control (2.14), serials control (2.13), cataloguing and classification (2.10), accessing offline resources (2.04) and developing offline resources (1.97).

Although results of in-depth interview revealed poor usage of ICT facilities in public libraries' operations, library staff were positive that the provision of ICTs in public libraries will facilitate library operations. For instance, a library staff from Adamawa state public library was emphatic that "if ICTs are introduced into the library, it will enable the provision of more information in the library. Besides, library routine work in all the sections will be done with less burden and at a faster rate, because some ICT facilities such as application software contain modules on virtually all library activities such as cataloguing and classification, acquisition, circulation control, serials control and a few others". Another staff from Rivers state public library looked at this aspect from a different perspective. According to him, "the introduction of ICTs in public library operation will encourage and facilitate interlibrary cooperation because it will enable libraries know what they have in their various collections-- ---".

Research Question Four:

To what extent do users utilize ICT services in public libraries?

Having examined the extent of utilization of ICT facilities in library operations in public libraries in Nigeria, the researcher proceeded to investigate the extent of use of ICT facilities for various purposes in public libraries in Nigeria by users.

Table 4: **Extent of use of ICT facilities**.

N = 366 (representing number of library users in the sample of study)

S/N	Item Status	Mean scores	Decision
1	Accessing educational information for self development	3.14	High Extent
2	Keeping abreast with current news, events etc.	2.88	High Extent
3	Internet browsing	2.79	High Extent
4	Downloading and storing information for personal use.	2.75	High Extent
5	Word Processing	2.59	High Extent
6	Sending and receiving e-mail	2.44	Low Extent
7	To know about the culture of other ethnic groups, races.	2.31	Low Extent
8	Chatting with people (social media)	2.15	Low Extent
	Overall	**2.63**	

Figure 4: Extent of use of ICT facilities for various purposes in public libraries in Nigeria.

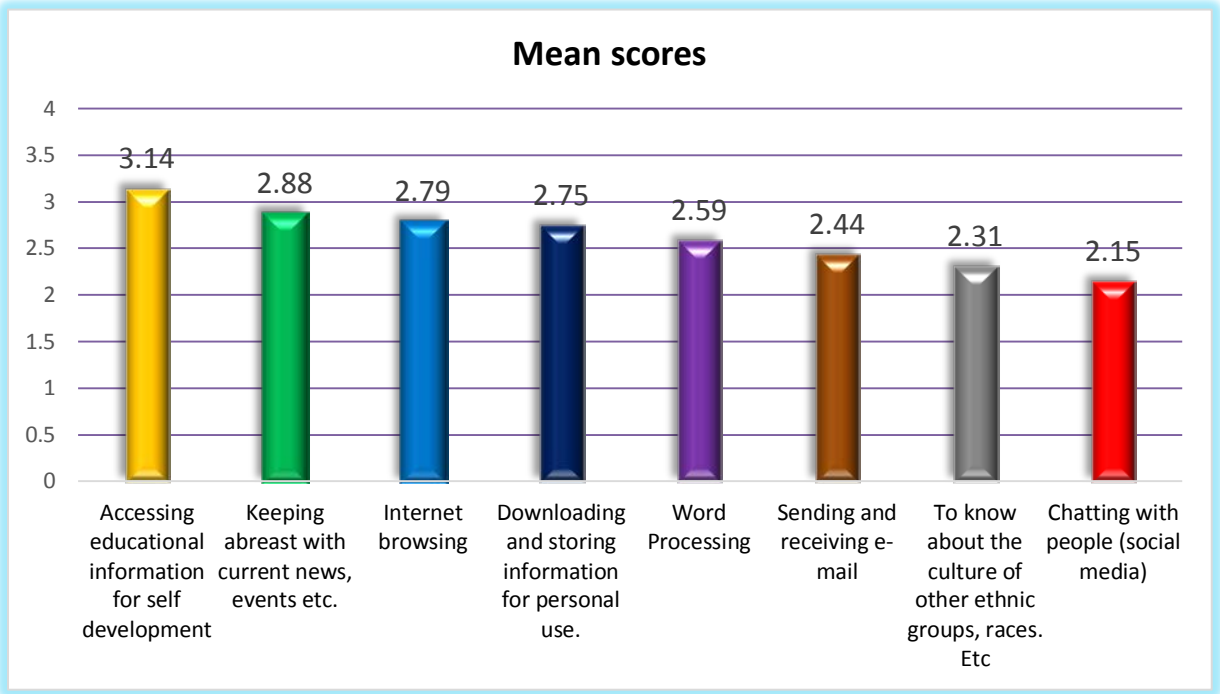


Table 4 and figure 4, which is on the extent of use of ICT facilities for various purposes in public libraries reveal that to a high extent, public library users use ICT facilities for accessing educational information for self development (3.14), keeping abreast with current news, events etc. (2.88), Internet browsing (2.79), downloading and storing information for personal use (2.75) and word processing (2.59). The purposes for which ICT facilities are used to a low extent in public libraries include sending and receiving e-mail (2.44), knowing about the culture of other ethnic groups, races, etc. (2.31), and chatting with people (2.15).

The results of the in-depth interview showed that library users utilize ICT facilities in public libraries for various purposes. Majority indicated they use ICT facilities for self development and in keeping in touch with loved ones. For example, a library user from Oyo state public library stated that "I use ICT facilities in the library to look for information that would help me in doing assignments given to us by our lecturers -- --", while another user from Rivers state public library indicated " I use ICT facilities especially Internet to look for information on various topics that are of interest to me", yet another user from Benue state public library said "Since I do not own a desk top or lap top, I come to the library to use the computer in producing my assignments". One other library user from Jigawa state public library said "I usually use the Internet to check my mails. Most times I go to the facebook to chat with my friends".

Research Question Five:

What barriers hinder the effective utilization of ICTs in public libraries?

Having discussed the extent of use of ICT facilities for various purposes in public libraries in Nigeria by library users, the researcher went on to examine the barriers that hinder

effective utilization of ICTs in public libraries in Nigeria by both staff and users in the libraries.

Table 5: **Barriers to effective utilization of ICTs in public libraries**

N = 581 (representing number of library users (366) and staff (215) in the sample of study.

S/N	Item Status	Staff Mean	Staff Rank	Users Mean	Users Rank	Overall Mean	Overall Rank
1.	Inadequate infrastructure e.g. electricity, accommodation (lighting, ventilation, floor).	3.11	2	3.35	2	3.23	1
2.	Inadequate ICT facilities e.g. computers, Internet connectivity.	3.04	3	3.30	3	3.17	2
3.	Inadequate funds to acquire or procure ICT resources	3.15	1	3.18	4	3.16	3
4.	Inadequate telecommunication facilities in the library e.g. mobile phones, intercom.	2.91	4	3.37	1	3.14	4
5.	Low level of ICT skills of staff	2.83	7	3.15	5	2.99	5
6.	Staff low level of computer literacy	2.86	5	3.10	6	2.98	6
7.	Low level of ICT awareness among users	2.83	6	3.08	7	2.95	7
8.	Staff resistance of ICT introduction in libraries	2.35	9	2.99	8	2.67	8
9.	Users' resistance to introduction of ICT	2.26	10	2.88	9	2.57	9
10.	Frequent changes and modifications of ICTs	2.41	8	2.55	10	2.48	10
Overall		**2.77**		**3.09**		**2.98**	

Table 5 shows the views of library staff and users on barriers that hinder effective utilization of ICTs in public libraries in Nigeria. Both staff and users (3.23) concurred that inadequate infrastructure constitutes the greatest barrier to ICT utilization in public libraries in Nigeria. Similarly, both users and staff (3.17) also agreed that inadequate ICT facilities (such as computers and Internet connectivity) is a serious barrier to effective ICT utilization in public libraries in Nigeria. Inadequate funds to acquire or procure ICT resources (3.16), was also considered a serious barrier to effective use of ICTs in public libraries in Nigeria. However, users (3.18) considered it to be a stronger barrier than staff (3.15). Another barrier that was regarded a threat to effective utilization of ICTs in public libraries in Nigeria is inadequate telecommunication facilities (such as mobile phones and telephone – intercom)

(3.14), in which users (3.37) considered it a more serious barrier than staff (2.91). Low level of ICT skills of staff (2.99) is another barrier to effective ICT utilization in public libraries in Nigeria. Comparatively, while users (3.15) rated this a more serious barrier, staff (2.83) rated it a bit lower. Similarly, both users and staff (2.98) considered staff low level of computer literacy as a barrier to effective ICT utilization in public libraries in Nigeria, albeit users (3.10) indicated it was a more serious threat than staff (2.86). Low level of ICT awareness among users (2.95) is another barrier to effective ICT utilization in public libraries in Nigeria. However, users (3.08) considered this a more serious barrier than staff (2.83). Staff resistance to ICT introduction (2.67) was, to some extent considered a barrier to effective ICT utilization in public libraries in Nigeria. While users (2.99) indicated this was a serious barrier, staff (2.35) did not agree with this. Similarly, users' resistance to introduction of ICT (2.57) in public libraries in Nigeria was, to some extent considered a barrier to effective ICT utilization. While users (2.88) considered this somewhat a barrier, staff (2.26) did not concur with this. Both users and staff (2.48), to some extent did not consider frequent changes and modifications of ICTs a barrier to effective ICT utilization in public libraries in Nigeria. Users (2.55) somewhat considered this a barrier, while staff (2.41) did not.

The results of the in-depth interview revealed that both staff and users concurred on the same barriers as being a hindrance to effective ICT utilization in public libraries in Nigeria, with majority indicating poor facilities and inadequate ICT literacy as the major barriers. For instance, a library user in Zamfara state public library pointed out that "the barriers to effective ICT utilization in our public libraries have to do with lack of enough facilities. By this I mean there are inadequate computers, UPS, printers, scanners and the like. Secondly, there is the problem of inadequate infrastructure such as steady flow of electricity. Even if there are enough ICT facilities, you won't be able to use them maximally when there is constant power failure". A library staff from Imo state public library expressed similar

views when he stated “I think the major barriers to effective utilization of ICTs in our public libraries are low level of computer literacy among public library staff and users, inadequate funding of public libraries to enable them buy the ICT facilities they need, and sometimes staff may not welcome the introduction of ICT facilities into the library mainly because they do not know how to use them. So, these are the problems the authorities need to address”.

Table 6: **T- test for Mean Rating of staff and Users on barrier to effective Utilization of ICTs.**

	Status	N	Mean	Std. Deviation	t	df	Sig. (2-tailed)	Remark
Itemd22	Staff	215	2.86	0.96	-2.67	474	.008	S
	Users	366	3.10	0.93				
Itemd23	Staff	215	2.92	0.96	-5.51	474	.000	S
	Users	366	3.38	0.81				
Itemd24	Staff	215	3.05	0.99	-3.02	474	.003	S
	Users	366	3.30	0.82				
Itemd25	Staff	215	2.83	0.94	-2.82	474	.005	S
	Users	366	3.08	0.91				
Itemd26	Staff	215	2.83	0.94	-3.83	474	.000	S
	Users	366	3.16	0.84				
Itemd27	Staff	215	2.35	1.11	-6.76	474	.000	S
	Users	366	3.00	0.92				
Itemd28	Staff	215	2.27	1.08	-6.39	474	.000	S
	Users	366	2.88	0.96				
Itemd29	Staff	215	2.41	1.09	-1.46	474	.146	NS
	Users	366	2.56	0.99				
Itemd30	Staff	215	3.16	1.06	-.27	474	.785	NS
	Users	366	3.18	0.92				
Itemd31	Staff	215	3.11	1.06	-2.75	474	.006	S
	Users	366	3.36	0.85				
Overall	Staff	215	2.78	0.66	-6.11	474	.000	S
	Users	366	3.10	0.47				

Table 6 shows t-test for mean rating of staff and users on barriers to effective ICTs utilization in public libraries in Nigeria. The result in the table revealed that the t- calculated for the overall is -6.11. The value of t- calculated is significant at 0.00. This value of t is equally significant at 0.05. This is because 0.00 is less than 0.05, that is (P=0.00; 0.00<0.05). Therefore, the hypothesis is not accepted. Hence, there is significant difference between the response of staff and users on the barriers that hinder the effective utilization of ICTs in public libraries in Nigeria.

Research Question Six:

What strategies could be employed to enhance ICT utilization in public libraries in Nigeria?

Having looked at the barriers that hinder effective utilization of ICT facilities in public libraries in Nigeria by both staff and users, the researcher proceeded to determine the strategies that could be employed to enhance ICT utilization in public libraries in Nigeria by both library staff and users.

Table 7: **strategies for enhancing ICT utilization.**

N=581 (representing number of library users (366) and staff (215) in the sample of study)

S/N	Item Status	Staff Mean	Staff Rank	Users Mean	Users Rank	Overall Mean	Overall Rank
1.	Training staff on acquiring ICT skills	3.75	1	3.63	1	3.69	1
2.	Allocation of at least 10% of the libraries budgets to developing ICT facilities	3.70	2	3.61	2	3.65	2
3.	Encouragement of computer literacy acquisition among users by organizing in-house training for them	3.59	3	3.53	5	3.56	3
4.	Updating staff and users on recent development in ICT innovations	3.54	4	3.56	3	3.55	4
5.	Developing effective ICT policy for sustenance and development of library service	3.51	5	3.54	4	3.52	5
6.	Partnering with other agencies in providing ICT services	3.51	6	3.45	7	3.52	6
7.	Explaining the benefits of utilizing ICTs in public libraries to both staff and users	3.47	7	3.51	6	3.49	7
8.	Organizing in-house literacy programmes for library users and staff	3.45	8	3.25	8	3.34	8
Overall		**3.56**		**3.51**		**3.53**	

Table 7, presents library staff and users' views on strategies for improving ICT utilization in public libraries in Nigeria. Strategies to do with skills acquisition dominated other views. These include 'training staff on acquiring ICT skills' (3.69), 'encouragement of computer literacy acquisition among users by organizing in-house training for them' (3.56), 'updating staff and users on recent development in ICT innovations' (3.55), and 'organizing in-house literacy programmes for library users and staff' (3.34). The next factor that follows has to do with planning, and this includes 'developing effective ICT policy for sustenance and development of library services' (3.52), and 'partnering with other agencies in providing ICT services' (3.49). The strategy to do with facilities, which is 'allocation of at least 10% of the libraries' budgets to developing ICT facilities' (3.65) also received high ranking. Attitudinal factor was also considered an important strategy for improving ICT utilization in public libraries in Nigeria; hence, 'explaining the benefits of utilizing ICTs in public libraries to both staff and users' (3.34) was proffered. The whole responses (items) on the table have an overall mean of 3.53, which is an indication that both public library staff and users in Nigeria concurred that the listed strategies (which hinge on skills acquisition, facilities improvement, effective planning and attitudinal change) will improve ICT utilization in public libraries in Nigeria.

The result of the in-depth interview showed that both library staff and users indicated the similar strategies for enhancing ICT utilization in public libraries in Nigeria, with facilities provision topping the list. A library staff in Akwa Ibom state public library mentioned that "adequate funding to public libraries is a must if enough ICT facilities are to be provided. State governments or whoever is responsible for managing public library services should allocate some reasonable amount of money yearly for developing ICT facilities in our public libraries. This is the only way we can have enough ICT facilities in our public libraries. If you go to university libraries you will discover that they are doing better

because they have ICT facilities like Internet, computers, photocopiers, printers, scanners and others. This is because money is allocated for procurement of these facilities". In like manner, a library user from Benue state public library indicated thus "I want to suggest that government should partner with rich agencies in providing ICT facilities in our public libraries. For instance, we have foundations such as Bill and Melinda Gates Foundation who do assist libraries and organizations solve their problems. Similarly, there are individuals and multi-national corporations such as Aliko Dangote, Adetula, MTN, GLO and many others who can assist public libraries in acquiring ICT facilities when contacted".

Table 8: **T- test for mean rating of staff and users on strategies that could be employed to enhance ICT utilization.**

	Status	N	Mean	Std. Deviation	t	Df	Sig. (2-tailed)	Remark
Iteme32	Staff	215	3.7006	.52083	1.455	474	.146	NS
	Users	366	3.6149	.65755				
Iteme33	Staff	215	3.5988	.58144	.961	474	.337	NS
	Users	366	3.5372	.70899				
Iteme34	Staff	215	3.7545	.49658	2.238	474	.026	NS
	Users	366	3.6375	.56810				
Iteme35	Staff	215	3.5150	.56883	-.482	474	.630	NS
	Users	366	3.5437	.64632				
Iteme36	Staff	215	3.5150	.62917	.941	474	.347	NS
	Users	366	3.4531	.71298				
Iteme37	Staff	215	3.4790	.67519	-.539	474	.590	NS
	Users	366	3.5146	.69128				
Iteme38	Staff	215	3.5449	.68289	-.330	474	.742	NS
	Users	366	3.5663	.67393				
Iteme39	Staff	215	3.4371	.67257	2.448	474	.015	NS
	Users	366	3.2589	.80034				
Overall	Staff	215	3.5681	.39640	1.228	474	.220	NS
	Users	366	3.5158	.46717				

Table 8 shows that t-test for mean rating of staff and users on the strategies that could be employed to enhance ICT utilization in public libraries in Nigeria. The result on the table displayed that the calculated t- value is equal to 1.228. This calculated value of t is significant at .220. This value of t is not significant at 0.05. This is because 0.22 is greater than 0.05. That is (P=0.22; 0.220>0.05). Therefore, the hypothesis is not rejected. Hence, there is no

significant difference between the response of staff and users on the strategies that could be employed to enhance ICT utilization in public libraries in Nigeria.

Summary of Major Findings

Based on the analysis of data presented in tables 1-6, responses obtained from structured interview schedule and observations made by the researcher, the following major findings are made:

1. The most available ICT facilities in public libraries in Nigeria are computer facilities such as computers, printers, UPS, scanners, projectors; and audio-visual media/ equipment such as DVD/VCD, photocopiers, satellite connection, radio, television, audio tapes, video tapes and digital cameras.

2. ICT facilities were most available in Jigawa, Zamfara, Adamawa and Oyo state public libraries.
3. Library users are generally not satisfied with availability of ICT facilities in public libraries in Nigeria.
4. Staff perceived benefits of utilizing ICTs in public libraries in Nigeria were many, with the highest rating for provision of speedy and easy access to information and for provision of more up-to-date information.
5. The use of ICT facilities is low for library operations in public libraries in Nigeria, but is more noticeable in library administration and management and accessing online resources.
6. Library users utilize ICT facilities in public libraries in Nigeria more for accessing educational information for self development; other uses are keeping abreast of current events, Internet browsing, downloading information for personal use, and word processing.

7. Both library staff and users identified inadequate ICT facilities and low level of ICT skills among staff and users as major barriers to ICT utilization in public libraries in Nigeria.
8. Training of staff and users on ICT skills and better funding were suggested as major means of improving ICT utilization in public libraries in Nigeria.
9. There was significant difference ($P<0.05$) in the mean ratings between the response of staff and users on the barriers that hinder effective utilization of ICTs in public libraries in Nigeria. There was no significant difference ($P>0.05$) in the mean ratings between the response of staff and users on th strategies that could be employed to enhance ICT utilization in public libraries in Nigeria.

CHAPTER FIVE

DISCUSSION OF FINDINGS, IMPLICATIONS, RECOMMENDATIONS, LIMITATIONS, AREAS FOR FURTHER STUDIES AND CONCLUSION

This chapter deals with the discussion of the findings, implications, recommendations, limitations of the study, suggestions for further research and conclusion.

Discussion of the Findings

ICT facilities available in public libraries in Nigeria

The study grouped ICT facilities into four categories, viz: computer facilities – computers, scanners, printers, UPS, and projector; Computer software resources - Internet connection, storage media, CD-ROMs, online databases and library application software; Audio-visual media/equipment – DVD/VCD, photocopier, satellite connection, audio and video tapes, digital camera, radio and television; and Communication media - telephone (intercom) and GSM.

The findings revealed that computer facilities and audio-visual media/equipment comprised the highest number of ICT facilities in public libraries in Nigeria, with provision level range of 305 in Oyo state public library to zero in Abia state public library. On computer software resources, only 4 libraries have Internet connectivity (Akwa Ibom, Oyo, Jigawa and Rivers states public libraries). This discovery is in tune with Emojorho's (2010) findings which showed that only a small number of public libraries in the South South Zone of Nigeria have Internet access. Internet is a very potent and versatile ICT facility that contains enormous amount of information resources that can be used in providing effective and efficient library services to users. The Internet is presently enabling people to acquire knowledge through distance learning programs; and it also provides life-long learning opportunities. Thus, the Internet is an indispensable ICT facility in public libraries. Similarly, the data in the structured interview disclosed that 9 libraries (Abia, Adamawa, Akwa Ibom,

Ekiti, Imo, Jigawa, Oyo, Rivers and Zamfara states public libraries) have e-mail addresses (which may not be in the library vicinity) and they indicated they use them for correspondences. This is a laudable development, as e-mail enables document delivery, exchange of ideas and networking. The information in the completed structured interview forms also revealed that only Akwa Ibom state public library has a website and that it uses it for uploading e-resources. The absence of this facility in most of the libraries is also an unpleasant development as websites enable libraries to showcase their profile and information resources.

CD-ROMs are available in considerable number in Oyo and Akwa Ibom states public libraries, while online database (EBSCOhost) is available in only one library, i.e. Akwa Ibom state public library. This is a pathetic situation given the usefulness of these facilities in enhancing effective and efficient library services to users. Online database is a critical ICT facility that ensures the provision of current and qualitative information to library users (Gwazah, 2011), while CD-ROMs contain vast amount of information on various subjects that can be relied on for useful information. Public libraries must therefore endeavour to have them. Similarly, library automation software (Liberty 3) is available only in Jigawa state public library, while Ekiti state public library indicated in the structured interview response that it had x-lib software (not active presently), which has been used to mount the library's catalogue. Software enables the automation of routine tasks in libraries and facilitates the dissemination of information to users. The availability of this facility in only two libraries is unsatisfactory, in view of its usefulness in enabling library automation and boosting library and information services.

This limited availability is also reflected in other studies, including one carried out in southern Nigeria by Nnadozie (2007), which revealed a low presence of ICT hardware and software; as a result the application of these facilities to library operations and services was

limited. Dilroshan's (2006) study in Sri Lanka also lends credence to this finding, which revealed that lack of software and hardware facilities was affecting the smooth automation of Moratuwa and Colombo university libraries.

Audio-visual media/equipment such as DVD/VCD, satellite connection, digital cameras, radio, television, audio tapes, video tapes and photocopier are more in Oyo state public library than in the other libraries that have them (Adamawa, Imo, Jigawa and Zamfara states public libraries). However, Oyo and Jigawa states public libraries have the highest number of these facilities (i.e. 49 - 4.0%) and 198 - 16.2%, respectively), while Abia, Ekiti, Benue and Rivers states public libraries have the least. DVDs/VCDs in particular are useful ICT facilities that contain offline databases on various disciplines and can be used in boosting library and information services (Ibeka and Okpala, 2004). Hence, public libraries in Nigeria should make concerted efforts to ensure that these facilities are provided. On a zonal basis, the public libraries in North West and South West zones have the highest number of this category of ICT facilities (70 - 5.7% and 200 – 16.4%, respectively), while public libraries in South East zone have the least (10 – 0.8%). Audio-visual/media equipment are some of the earliest ICT facilities but unfortunately, most public libraries in Nigeria are unable to provide them due to poor funding. This category of ICT facilities is relevant and useful in providing effective and efficient library and information services, thus, public libraries in Nigeria must ensure that they are made available.

Communication media, which constitute the last category of ICT facilities in this study comprises telephone (intercom) and GSM. Intercom facilitates communication and fast delivery of information within an organization, while GSM can be used in delivering information within and outside the library premises. These are found in only 3 libraries (Akwa Ibom, Oyo and Zamfara states public libraries). This situation does not speak well of public libraries, especially given the usefulness of this facility in information delivery and its

affordability. Haliso (2007) observed that the use of GSM facility in academic libraries has improved library services tremendously, while Fatoki (2005) concurred that the use of GSM has contributed to speedy delivery of documents needed by researchers or students. Iwhiwhu, Rutevan and Eghwubare (2010) in their study on the prospects of using mobile phones for library services in Delta State University, Abraka also reported that the use of mobile phones promote a good relationship between library users and staff and enhance library services, which will attract and retain users. GSM and intercom are vital ICT tools that facilitate prompt handling and fast response to the stream of library patrons' reference queries, hence their use should be encouraged in public libraries.

On the whole, the study revealed that there is acute shortage of ICT facilities in public libraries in Nigeria. Chisenga (2004) aptly captured this scenario a decade ago in his study of twenty public libraries in Africa (Nigeria inclusive), in which he observed that there is a shortage of ICT facilities in most of the libraries and consequent limited use of ICT facilities in public libraries. There has been no dramatic progress but some positive developments in the last decade suggest some improvement in this direction. The responses from the structured interview, the observation checklists and the researcher's observation in the libraries visited indicated little progress in this area.

In the same vein, the excerpts of the interview with users in some of the libraries visited revealed the need for more ICT facilities in the library as this would ensure more information and improved services. Majority of the users would also want Internet services provided, along-side CD-ROMs, VCDs and DVDs as this will ensure the availability of a wide range of information resources. Staff views from the excerpts on this aspect showed that poor funding was largely responsible for the inadequate ICT facilities in public libraries in Nigeria and justified the charging of fees for the existing ICT services in order to ensure their maintenance and procurement of ICT consumables.

Similarly, the researcher's observation showed that virtually the entire libraries have a section each devoted to provision of ICT services. In addition to this, most have adequate lighting and ventilation (a condition that is conducive for both the ICT facilities and users), and do operate on Mondays to Saturdays; and do not open on public holidays. Majority indicated they open from 8.00 a.m. in the morning and close at 6.00 p.m. in the evening (which provides ample time to enable effective use of ICT facilities in the libraries). The researcher also observed the buildings housing ICT facilities were built with cement blocks - an indication that they are well protected from the vagaries of harsh weather. But, however, the availability of ICT facilities in public libraries in Nigeria is low. Comparatively, however, academic and special libraries are well ahead of public libraries in terms of ICT utilization, as established by Anunobi (2005), Haneefa (2007), Nnadozie (2007), Nkanu (2007), Anunobi and Edoka (2010), Iwhiwhu, Rutevan and Eghwubare (2010), Gwazah (2011), and Yusuf (2012).

Benefits of using ICTs in public libraries

The responses of library personnel on the benefits of utilizing ICTs in libraries as presented in table 2 (on page 91) show that the most highly rated benefits were provision of speedy, easy and unlimited access to information; provision of more up-to-date information; provision of remote and round the clock access to information; increased efficiency in library operation and services; and enabling users self education (especially through Internet and its multimedia resources). Empirical studies have also highlighted the benefits of using ICTs to improve library services such as that of Olumide (2007) in the University of Jos library, who found these to include accessibility, use and speed; and Onuoha (2010) who found that ICT enhanced the library services offered to undergraduates of Babcock University.

From the findings of this study, and the perspectives and findings of scholars highlighted, it is obvious that there are benefits in using ICTs in libraries. All the respondents

(library staff) perceived high level of benefits in utilizing ICT facilities in library operation and services, whether it is available or not. So, the problem then is not that of awareness or attitude. The researcher's interaction with staff on this matter as revealed in the excerpts show that the use of ICTs in public libraries will reduce the burden associated with executing library functions manually and also ensure the provision of more information. Some of their responses were that the introduction of ICTs will enable users to educate themselves on their own (especially through the Internet) and that it will facilitate interlibrary cooperation. Thus, public libraries in Nigeria must strive to ensure that ICT resources are made available in order to ensure effective operations and services to users.

Extent of utilization of ICTs in library operations

The data on extent of utilization of ICTs in library operations as presented in table 3 on page 92 revealed minimal use, with overall mean of below 2.50 for each of the operations. The highest use was in library management and administration; followed by technical services such as acquisitions. There were some measures of use in reference services and other user-centred services like accessing online resources, circulation control, inter library cooperation and lending. Areas where low usage was recorded include some technical aspects such as cataloguing and classification, developing online resources, developing offline resources, serials control and a few user services such as accessing offline resources.

The researcher observed in some of the libraries visited, notably Akwa Ibom and Jigawa states public libraries that ICTs were used for library administration and management. Similarly, the researcher observed that Jigawa state public library, which has Liberty 3 library application software was using it for circulation control; while Oyo state public library, which has a large number of CD-ROMs (some of which contain publishers' catalogue and databases) was using it for collection development and reference sevice, respectively. Majority of the public libraries visited were not using ICTs in their operations and services.

Emojorho's (2010) study of public libraries in South-South Zone of Nigeria on the relevance of ICT in collection management adds credence to the findings of this study when he observed that, slightly more than half the libraries are computerized, most respondents still have a card catalogue and with very few having Internet access and electronic resources.

Accessing online resources require connectivity to the Internet, and table one, on page 88 shows that only Jigawa, Oyo, Akwa Ibom and Rivers states public libraries have this facility. Albeit these libraries have Internet connectivity, the researcher observed that only Akwa Ibom, Oyo and Jigawa states public libraries are using it effectively in accessing and developing online resources, while Rivers state public library uses it for the general access to information by library users. The researcher also observed that users in the libraries with Internet connectivity used it for accessing online resources for personal development endeavours to a high extent.

The use of ICT facilities in reference services could be enhanced with tools such as Internet and CD-ROMs (which contain databases). The researcher observed that the 4 libraries that have Internet connectivity were effectively using it for reference service. In the same vein, being online allows libraries access to one another's collection (via the catalogue) and this is the only way they can effect positive inter-library cooperation and lending. Contrary to expectation, the researcher observed that even the libraries with Internet connectivity (Jigawa, Oyo, Akwa Ibom and Rivers states public libraries) are not using it in inter library cooperation and lending. Further interrogation on the issue revealed that this was due to the lukewarm attitude of the library management. Thus, availability in some cases does not denote utilization. Similarly, developing online resources requires being connected to the Internet and to the researcher's dismay, none of the libraries with this facility was using it for this purpose. This is not surprising as this aspect of library operation is complex and requires staff with the requisite skills, which are lacking in public libraries.

The use of ICTs for circulation and serials control, and cataloguing and classification require having access to library application software, and the data in table 1 (page 86) reveals Jigawa state public library as the only library with this facility, i.e. Liberty 3 Automation software. However, the researcher observed that the library was using it for circulation control and cataloguing and classification. It was not using it for serials control. When the researcher inquired why this was so, the officer in charge indicated the serials module developed a technical problem. But on further interrogation on its application in other areas of library operation, the researcher discovered that apart from its application in circulation control and cataloguing and classification, there was the element of insufficient skills in manipulating the facility. The use of library application software in libraries require technical and professional skills and public libraries are poorly equipped for this, as was discovered in Jigawa state public library. Anunobi and Edoka (2010) examined use of ICT facilities for serials function in Southern Nigeria Federal University libraries, and their findings which lends credence to this finding, disclosed that serials functions are still predominantly manually performed. The researcher observed that Oyo state public library uses some of its CD-ROMs for obtaining Cataloguing in Publication Data (CIPD), thereby facilitating the cataloguing and classification of documents in the library. The data in table 1 (page 86) and table 3 (page 92) obviously show the dismal state of these facilities and operations. Studies by Chisenga (2004) and Nnadozie (2007) also aligned with these findings.

Accessing offline resources and developing offline resources require the use of CD-ROMs and DVDs/VCDs. The data in table 1 (page 86) reveals Oyo state public library as the library with substantial number of these facilities, while Akwa Ibom state public library has the least and which is being under-utilized. While accessing offline resources implies having access to information that is not through the Internet (in this case through CD-ROMs, VCDs/DVDs and other offline databases), developing offline resources means creating

information in these facilities (CD-ROMs, DVDs/VCDs and localized databases). The researcher observed that these facilities are being minimally used for these functions in Oyo state public library. While CD-ROMs and VCDs/DVDs are used to some extent in cataloguing and classification, and for providing reference service in Oyo state public library, they are rarely used in developing offline resources. The unavailability of these facilities (CD-ROMs and DVDs/VCDs) in public libraries in Nigeria (as revealed in table 1, page 86) and its poor usage (as shown in table 3, page 92) paints an unimpressive picture. This is because these facilities are relatively cheap and affordable by public library authorities in Nigeria. CD-ROMs and DVDs/VCDs can be used to contain huge amount of useful information on various disciplines in public libraries and serve as invaluable sources of information for users.

On a general note, the researcher observed that the utilization of ICTs for various library operations was more in Akwa Ibom, Oyo, Jigawa and Rivers states public libraries than the other public libraries, in that order. The driving force behind this was to a great extent due to the availability of Internet connectivity, and to a less extent the utilization of computer facilities (such as computers, scanners, printers, and UPS).

Extent of use of ICT facilities for various purposes in public libraries

The extent of use of ICT facilities for various purposes in public libraries (table 4, page 95) revealed that users utilize ICT facilities in public libraries is for accessing educational information for self development, to a great extent. This is followed by keeping abreast with current news, events, etc; Internet browsing; downloading and storing information for personal use; and word processing. The findings also disclosed that users utilize ICTs to a low extent for sending and receiving e-mail; knowing about the culture of other ethnic groups, races, etc.; and chatting with people.

On ‘accessing educational information for self development’, the researcher observed this to be more prevalent in libraries with Internet connectivity such as Jigawa, Oyo, Akwa Ibom and Rivers states. The researcher also discovered that users in Akwa Ibom state public library used EBSCOhost database to access educational information for self development. The researcher’s interaction with users in some of the libraries visited also confirmed that users were more interested in accessing information from the Internet for use in their educational pursuits. Table 3 (page 92) on extent of utilization of ICTs in library operation shows that ICTs were utilized to a high extent for accessing online resources and reference service in states with Internet connectivity. Similarly, table 2 (page 90) disclosed that library staff strongly agreed that one of the benefits of utilizing ICTs (precisely the Internet) was that it enabled users self education. supporting this finding, Eve and Brophy (2000), and Ted and Bird (2004) also discovered how the Internet have been impacting life-long learning among public library users in U.K., while Oyieke (2008) also found students of Kenya University to be benefiting from Internet e-resources for their formal and informal learning needs. The situation was however different in libraries without Internet connectivity, as most of them expressed disenchantment with the absence of this facility and wished the library authorities would provide them soon.

Keeping abreast with current news and Internet browsing are related purposes. ICT facilities and precisely, Internet is being used to a high extent by users to access information for this purpose in public libraries such as those in Jigawa, Oyo, Akwa Ibom and Rivers states. Public libraries in states without Internet facilities found it difficult to access current news through this medium and were sad about this situation. It is obvious that current news and events are more accessible through the Internet and the more they are provided in public libraries the better the services will become. The action of the government of Netherlands (2008) and that of U.K. government as captured by Blake (2005), in which 1115 and 4300

public libraries respectively were connected to the Internet aptly sends the message to public library authorities in Nigeria to be awake to this responsibility.

Similarly, the Internet also provides library users the latitude to download information for personal use. The researcher's interaction with users in the libraries visited, notably Jigawa, Oyo, Akwa Ibom, and Rivers states public libraries confirmed this, as most of those interrogated said they use flash drives in downloading information for personal use on their desk or laptops. Hence, the Internet is a must-have in public libraries in Nigeria.

Word processing is a common activity for which ICT facilities are used. It is about the easiest activity a computer is used for. Thus, the availability of computers in most of the public libraries enable users the privilege of word processing. Table 1 (page 86) shows that apart from Abia state, all the other libraries have computers and most of them provide word processing services for a fee. The researcher's personal interaction with heads of public libraries and users in the libraries visited showed that some public libraries, such as those in Jigawa, Plateau, Zamfara, Adamawa, Imo and Rivers states public libraries charge for word processing. This, according to the heads of libraries is to augment cost of stationeries procured.

ICTs were used to a low extent in sending and receiving email by public library users in Nigeria. Again, this is an Internet facility and only public libraries with this facility can avail users the opportunity of benefiting on this aspect. In this case, it is only Jigawa, Oyo, Akwa Ibom and Rivers states public libraries that allow users the privilege of this service. When interrogated, users in these libraries indicated they seldom use the Internet for this purpose. However, some users confessed using it to send important messages such articles, lecture notes and other scholarly works. This finding contradicted the discovery of Armah (2009) on the same issue, who, in a study on how students, lecturers and research fellows have been using the Internet services provided by three Universities in Ghana found that most

of the respondents used the services mainly (to a high extent) for sending and receiving information. This researcher observed that perhaps the introduction of social media networks such as face book, twitter, you tube, and the like has reduced the strength of email as an ICT communication device. This is because some users said they prefer using the social media networks to access information than through the email.

The findings of this study disclosed that ICT facilities were utilized to a low extent for knowing about the culture of other ethnic groups, race, etc. and chatting with people (through social media networks such as face book, twitter etc.). Personal observation and interaction with users by the researcher in some of the libraries visited (Akwa Ibom, Jigawa, Oyo and Rivers states) also revealed that some users utilize ICT facilities for this reason, but minimally. This perhaps is an indication that users of ICT facilities in public libraries use them for what they perceive as more urgent and important reasons that may impact on their lives, such as for self development, keeping abreast with current events and downloading information for future use.

The responses from the interview excerpts further consolidate this position as most of the users said they use ICT facilities in public libraries for doing school assignments, accessing current information and connecting friends through social media (face book, twitter, you tube and the like).

Barriers to effective utilization of ICTs in public libraries in Nigeria (staff and Users' perspectives)

A number of factors were identified by staff and users as hindering effective utilization of ICTs in public libraries as seen on Table 5 (page 96). Both staff and users identified barriers to do with facilities (inadequate technological and ICT infrastructure) as the greatest challenge. Table 1 (page 86) clearly portrays the true position of this state of affairs, as only four libraries (Jigawa, Zamfara, Adamawa and Oyo states public libraries)

have substantial number of ICT facilities to be reckoned with. This means that majority do not possess the desired number of ICT facilities to provide any meaningful service that would impact on individuals and the society. The researcher's visit to some of these libraries further confirmed this revelation as most of the libraries do not have ICT facilities that would enable the provision of any meaningful ICT- driven library services. The findings of studies by Ochogwu (2002), Nwachukwu (2005), Okiy (2005) and Onyeneke (2007) support this finding, when they also identified inadequate ICT facilities as the major barrier to ICT utilization in academic libraries.

Inadequate funds for acquiring or procuring ICT resources was identified as a major barrier to effective utilization of ICTs in public libraries in Nigeria. The responses from the structured interview revealed that most public libraries do not allocate substantial amounts for ICT facilities and services in their libraries, and this explains the poor state of ICT facilities in these libraries. For example, the responses showed that only Jigawa, Zamfara and Imo states public libraries allocate 45%, 10% and 5% of their budgets respectively, for ICT development in their libraries annually. Akwa Ibom state public library allocates, but did not state the percent or amount, while the other states have zero allocation for ICT development in their libraries. While library staff strongly agreed that there are benefits to be derived in utilizing ICTs in public libraries in Nigeria (table 2, page 90), table 3 (page 92), which is on extent of ICT utilization in library operations) shows that most of the libraries were not using ICTs in their operations. The researcher gathered from interaction with library staff that this was mainly due to funding problem to acquire ICT facilities. This finding is corroborated by the findings of studies by Chisenga (2004), Nwachukwu (2005) and Onyeneke (2007), who discovered funding to be a major barrier in providing ICT facilities in public and academic libraries, respectively. It is therefore obvious that adequate funding is necessary if public libraries are to provide efficient and effective ICT-driven service.

Inadequate telecommunication facility in libraries is another major barrier to effective ICT utilization in public libraries in Nigeria (table 5, page 97). The researcher observed in most of the libraries visited that this facility, which includes intercom, GSM, facsimile and Internet is grossly lacking. Table 1 (page 86), which is on ICT availability also shows that only 5 libraries have this facility (Yobe, Oyo, Akwa Ibom, Jigawa and Rivers states public libraries), while the others do not. The findings of Atinmo (2000) and Haliso (2007) supports this finding when they found that poor telecommunication infrastructure was a great impediment to ICT utilization in academic libraries.

Another barrier to effective utilization of ICTs in public libraries has to do with staff low level of ICT literacy and computer skills acquisition. In this regard, the responses from the structured interview show that only few libraries organize ICT literacy programmes for staff. These libraries include Jigawa, Zamfara, Imo, Ekiti, Oyo, Akwa Ibom, Abia and Rivers states public libraries. The researcher further learnt that these programmes are held at least once in a year, which is not good enough to acquaint them with the necessary skills to assist users. The researcher also interacted with staff in some of the libraries visited and confirmed that training programmes were rarely held for them on ICT utilization in libraries. Studies by Okiy (2005), Nwachukwu (2006) and Haliso (2007) also discovered that low level of computer literacy among staff of university libraries did not allow them to effectively utilize ICTs.

Low level of ICT awareness among library users is another barrier that is impeding effective utilization of ICTs in public libraries in Nigeria. Although table 5 (page 97), which is on barriers to effective utilization of ICTs in public libraries indicated this as a barrier, table 4 (page 95) on extent of use of ICT facilities for various purposes in public libraries disclosed that users utilize ICT facilities for these purposes to a high extent, which suggests their level of ICT awareness was average. However, interaction with users by the researcher

in some of the libraries visited, notably Jigawa, Oyo, Imo, Akwa Ibom and Rivers states public libraries reveal that users ICT awareness was generally low. The findings of scholars such as Nwachukwu (2005), Onyeneke (2007) and Haliso (2007) support this discovery when they also found a general lack of ICT awareness among users as a barrier to ICT utilization in Nigerian academic libraries.

The study also discovered staff resistance to ICT introduction as not constituting barrier to effective ICT introduction in public libraries in Nigeria. The researcher's personal interaction with staff in some of the libraries visited, notably Adamawa, Akwa Ibom, Jigawa, Oyo and Rivers states public libraries revealed that staff were very enthusiastic about the introduction of ICTs in their libraries. This is further buttressed by the results in table 2 (page 90) on perceived benefits of using ICTs in public libraries in Nigeria, where library staff strongly agreed that there are benefits in introducing ICTs in public libraries in Nigeria. In the same vein, the findings of Adekunle, Omoba and Tella (2007) and Mathew (2011) supports this discovery when they also found that library staff have positive attitude toward ICT application and services in their libraries.

Similarly, the findings of the study showed that users' resistance to ICT introduction did not constitute a barrier to ICT introduction in public libraries in Nigeria. The researcher interacted with users in some of the libraries visited (Adamawa, Jigawa, Akwa Ibom, Oyo, Imo and Rivers states public libraries) and noted that they were quite happy with the introduction of ICT facilities in these libraries. Ingutia-Oyieke (2008) also found that university students in Kenya were not averse to ICT introduction in the libraries but rather complained of lack of skills to access and use ICT facilities in these libraries, while Rutevan and Eghwubare (2010) discovered that Delta State University library users who owned mobile phones suggested its incorporation into the library services as it would promote a good relationship between library users and staff and enhance library services.

Frequent changes and modifications of ICTs is not a barrier to ICT utilization in public libraries in Nigeria. The researcher observed that ICTs generally are updated with recent versions containing more and qualitative devices, which have high and reliable performance. In most cases, they are often preferred to older versions because of this reason. Interaction with users in the libraries visited further confirmed that both staff and users prefer recent versions of ICT facilities because they are improvements on the earlier ones.

In summary, it can be deduced from the findings that both library staff and users considered barriers to do with ICT facilities and skills acquisition as impediments to effective utilization of ICTs in public libraries in Nigeria, while attitudinal factor was not considered a serious barrier. Similarly, the responses from the structured interview schedule, the researcher's observation in the libraries visited (notably, Akwa Ibom, Jigawa, Adamawa, Imo, Oyo Rivers states public libraries) and interaction with users in these libraries further confirmed this to be true. For instance, the responses by most users from excerpts of the interview revealed that lack of adequate funding to procure enough ICT facilities and poor ICT literacy were major barriers to effective ICT utilization in public libraries in Nigeria.

However, the hypothesis test for mean rating of staff and users on barriers to effective utilization of ICTs in public libraries in Nigeria revealed that there is significant difference between the response of staff and users on the barriers to effective utilization of ICTs in public libraries in Nigeria. This contradicts the findings in table 5 (page 97) which showed that both staff and users shared similar views on the barriers to effective utilization of ICTs in public libraries in Nigeria.

Strategies for enhancing ICT utilization in public libraries in Nigeria

Some strategies were proffered by both staff and users for enhancing ICT utilization in public libraries in Nigeria, as depicted in table 6 (page 99). Strategies to do with skills acquisition were more emphasized than those to do with facilities. Although table 4 (page 95) generally showed that users utilized ICT facilities to a high extent for various purposes in public libraries (which suggest some knowledge of ICT use) the researcher's observation and interaction with users in most of the libraries visited (notably, Jigawa, Adamawa, Oyo, Akwa Ibom, Imo and Rivers states public libraries) revealed that both staff and users' skills to do with computer and ICT utilization was low, which justified this suggestion. Many scholars have also emphasized the need for training library staff and users on ICT literacy, in their findings. They include Spacey, Goulding and Murray (2003), Chisenga (2004), Okore (2005), Nwachukwu (2006), Ugwuanyi and Ezeani (2010) and Matthew (2011).

The strategy to do with improving facilities was also emphasized as both staff and users concurred that at least 10% of the libraries budget be allocated to developing ICT facilities in public libraries in Nigeria. Table1 (page 86), which revealed the poor situation of ICT facilities in public libraries explains why facilities should be improved. The researcher's observation in the libraries visited also confirmed this finding, and shows that there is an urgent need to improve ICT facilities in public libraries in Nigeria, as this will ensure better library operation and enhance effective and efficient service to users. The responses from the interview excerpts also showed that most staff suggested adequate funding and partnering with other agencies to provide ICT facilities as strategies for enhancing ICT utilization in public libraries in Nigeria. Findings by Chisenga (2004) and Ugwuanyi and Ezeani (2010) also revealed that public and academic libraries respectively, need to be adequately funded to enable them procure ICT facilities.

The suggestion to do with planning for better ICT facilities in public libraries through developing effective ICT policy and partnering with other agencies in providing ICT facilities is apt. Table 1 (page 86) on ICT availability clearly justified the need for this. The response from the structured interview revealed that only Jigawa and Zamfara states public libraries have a written ICT policy, which is not well articulated. Similarly, interaction with some heads of the libraries visited (Benue, Plateau, Adamawa, Jigawa, Zamfara, Imo, Abia and Rivers states public libraries) revealed they do not partner with other agencies in providing ICT facilities and services. Works that support this findings are those by Chisenga (2004), Dilroshan (2006) and Ingutia-Oyieke (2008) who suggested the the crafting of an ICT policy for public and academic libraries respectively, while Onyeneke (2007) advocated sharing of resources among libraries of tertiary institutions in Nigeria.

There was a suggestion to do with attitudinal factor, which the researcher did not consider a serious issue. Table 2 (page 90), which clearly showed that staff generally agreed that there are benefits in using ICTs in public libraries and table 4 (page 95), which generally revealed users utilized ICT facilities in public libraries for various purposes to a high extent suggest that both staff and users are fully aware of the benefits of utilizing ICTs in public libraries.

The hypothesis test for mean rating of staff and users on strategies that could be employed to enhance ICT utilization in public libraries in Nigeria revealed that there is no significant difference between the responses of staff and users on this aspect of the study. This result also supports the findings in table 7 (page 100), which showed that both staff and users concurred on strategies that could be employed to enhance ICT utilization in public libraries in Nigeria,

Implications of the Study

Utilization of Information and Communication Technologies (ICTs) in libraries is no more a luxury but a necessity if they are to make impact in their constituencies. This is due to the dynamic nature of the environment, which has been reduced to a global village, as a result of universal usage of Information and Communication technologies (ICTs) in all spheres of human endeavour. The utilization of ICTs in public libraries is even more compelling given the catholic nature of their clientele and the need for them to be responsive to their diverse and changing information needs. This study has demonstrated that public libraries in Nigeria need to employ the use of ICT facilities and resources if their services must improve and make the desired impact on their operations and services to users.

The findings of the study have implication for heads of public libraries in Nigeria (Directors of heads of public library services in the various states), who are directly responsible for the provision of ICT facilities in their libraries. They must ensure that ICT resources are adequately provided, not only to enhance their operations but satisfy the needs of users. The findings will also educate the heads of public libraries on the various ICT facilities that are available in libraries and their benefits.

The implication of the findings on state governments is obvious. As the financiers or funding authorities of public libraries in the country, they are expected to ensure that ICT facilities are provided in these libraries if they are to function efficiently and effectively. This study has revealed to them that public libraries are not utilizing ICTs in their services and operations simply because they are not being adequately provided; and where they are provided they are not good enough to satisfy users' needs.

The implication of the findings for researchers is that they can utilize the information that has been generated and identify gaps that need further researching.

Recommendations

The following recommendations have been based on the findings, discussions and implications of the study:

1. State governments in Nigeria should make funds available to public libraries to enable them procure ICT facilities and resources in their libraries.
2. Public library authorities in Nigeria should allocate at least 20% of their budget for developing ICT facilities, resources and services in their libraries.
3. Public libraries should partner with other agencies in ensuring the provision of ICT facilities in their libraries.
4. Public library authorities should sponsor their staff to ICT- related workshops and seminars in order for them to be current with best practices.
5. Workshops/Seminars on ICT literacy and skills should be organized on regular basis for library users by public libraries.
6. Public libraries should update staff and users on recent ICT innovations or developments through notices or bulletin boards, pamphlets, fliers and websites (where available).
7. Public libraries should formulate ICT policy or strategy as a means of guiding them in providing ICT services.
8. Public libraries should create e-mail addresses and websites as a means of enhancing information services delivery, use of e-resources and networking.

Limitations of the Study

The findings of the study was limited by the following factor:

The researcher originally planned to reach Yobe State, being one of the samples of his study but could not due to security problems.

Suggestions for Further Research

In view of the limitations of the study, the following suggestions are made for further research:

1. A study including ICT use by children.

2. A study of ICT facilities and use by the visually impaired.

Conclusion

The findings of this study have been very revealing of the scenario of ICT utilization in public libraries in Nigeria. That the ICT facilities available in public libraries in Nigeria are mostly computer facilities and audio-visual media/equipment and are utilized more in library administration and management. There is minimal usage of ICT in technical and reader services. Most public libraries do not have adequate ICT facilities that should warrant effective and efficient provision of services to users and that those that have them were not using them effectively for the benefit of users. However, users were moderately satisfied with the ICT facilities in public libraries that have them, most especially with facilities such as Internet connectivity, VCDs/DVDs and CD-ROMs. It shows that users were utilizing these facilities to access information for their personal development and keeping abreast with current news and events.

It is interesting to note that the libraries investigated agreed with the benefits that accrue with ICT utilization in libraries as highlighted in the study but also consented that they are used to a limited extent in library operations and services. It is obvious that lack of adequate ICT facilities is the major problem in most public libraries. This is partly due to poor funding from the appropriate authorities. Lack of skills in ICT constituted another major problem to ICT utilization in public libraries in Nigeria, as indicated by the study. Without the necessary skills in the application of ICT facilities, both staff and users will not be able to exploit the content of these facilities and benefit maximally from them.

The research has exposed the deplorable situation of ICT facilities in public libraries in Nigeria. In addition, it has showed that without updated ICT and management skills, even funding and facility building in libraries will not yield maximum benefit to users and staff. It has shown that where greater facilities are more available as in Oyo, Jigawa, Adamawa, Zamfara, Akwa Ibom, Rivers and Imo states, public libraries are better able to offer effective library operations and services. Finally, the study has corroborated the tenet of Library 2.0 theory of being interactive and communally innovative as a means of sustaining the library's viability.

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APPENDIX A

UTILIZATION OF INFORMATION AND COMMUNICATION TECHNOLOGIES (ICTS) IN PUBLIC LIBRARY SERVICES IN NIGERIA.

QUESTIONNAIRE FOR LIBRARY STAFF

(LIBRARIANS AND LIBRARY OFFICERS

SECTION (A) **– Bio-data**

1. Highest Educational Qualification (Please tick (√) as appropriate).

( ) Certificate in library and information science

( ) Diploma in library and information science

( ) HND in library and information science

( ) BA, BSC, B. ED, BLS, library and information science

( ) MLS, - MLIS (Master of library and information science)

( ) PhD - library and information science

(2) Position (Please tick ( ) as appropriate).

( ) Director of library service

( ) Chief librarian

( ) Principal librarian

( ) Senior librarians

( ) Librarian I

( ) Librarian II

( ) Chief library officer

( ) Principal library officer

( ) Senior library officer

( ) Higher library officer

( ) Library officer

SECTION (B) – Research Questions

CLUSTER (a) **-Perceived Benefits of Using ICTs in the Public Libraries**

Instruction – Please tick (√) appropriately the response that most closely reflects your opinion.

What are the benefits of using ICTs in public libraries?

S/N	Benefits of using ICTs in public libraries.	Strongly Agree	Agree	Disagree	Strongly Disagree
1.	Provision of speedy and easy access to information.				
2.	Provision of remote access of information to users.				
3.	Provision of round the clock access to users.				
4.	Provision of access to unlimited information from different sources.				
5.	Provision of more up to date information.				
6.	Provision of information flexibility to be used by individuals according to their requirements.				
7.	Facilitation of reformation and combining of data from different sources.				
8.	Enable users Self education, especially through internet and its multimedia resources.				
9.	Facilitate cooperation and formation of library networks.				
10.	Increases efficiency in library operation and service.				

CLUSTER (b) **– Extent of Utilization of ICTs in Library Operations.**

Instruction – Please tick (√) appropriately the response that most closely reflects your opinion.

To what extent does your library utilize ICTs in the following library operations?

S/N	Library Operations	Highly Utilized	Somewhat Utilized	Not Much Utilized	Not Utilized
11.	Acquisitions.				
12.	Cataloguing and classification.				
13.	Serials control.				
14.	Circulation control.				
15.	Reference service.				
16.	Library management and administration.				
17.	Inter- library co-operation and lending.				
18.	Accessing on line resource.				
19.	Accessing off line resources.				
20.	Developing on line resources.				
21.	Developing off line resources.				

CLUSTER (c) **– Barriers to Effective Utilization of ICTs in Public Libraries**

Instruction **–** Please tick (√) appropriately the responses that most closely reflect your opinion.

To what extent do the following constitute barriers to effective utilization of ICTs in public libraries?

S/N	**Barriers**	**Very Great Extent**	**Great Extent**	**Slight Extent**	**No Extent**
22.	Staff low level of computer literacy.				
23.	Inadequate telecommunication facilities in the library.				
24.	Inadequate ICT infrastructure.				
25.	Low level of ICT awareness among users.				
26.	Low level of ICT skills of staff.				
27.	Staff resistance of ICT introduction in libraries.				
28.	Users' resistance to introduction of ICTs in libraries.				
29.	Frequent changes and modifications of ICTs.				
30.	Inadequate funds to acquire or procure ICT resources.				
31.	Inadequate technological infrastructure (Low internet connectivity, inadequate supply of electricity, inadequate number of personal computers and peripheral etc.)				

CLUSTER (d) **– Strategies for Enhancing ICT Utilization in Public Libraries**

Instruction – Please tick (√) appropriately the responses that most closely reflect your opinion.

What strategies could be employed to enhance ICT utilization in public libraries?

S/N	**Strategies for enhancing ICT utilization in public libraries**	**Strongly Agree**	**Agree**	**Disagree**	**Strongly disagree**
32.	Allocation of at least 10% of the libraries budget to developing ICT facilities.				
33.	Encouragement of computer literacy acquisition among users by organizing in house training for them.				
34.	Training staff on acquiring ICT skills.				
35.	Developing effective ICT policy for sustenance and development of library service.				
36.	Partnering with other agencies in providing ICT services.				
37.	Explaining the benefits of utilizing ICTs in public libraries to both staff and users.				
38.	Updating staff and users on recent developments in ICT innovations.				
39.	Organizing in- house literacy programmes for library users and staff.				

APPENDIX B

UTILIZATION OF INFORMATION AND COMMUNICATION TECHNOLOGIES (ICTs) IN PUBLIC LIBRARY SERVICES

IN NIGERIA

QUESTIONNAIRE FOR LIBRARY USERS

SECTION (A) **– Bio – data**

1. Highest Educational Qualification (tick (√) appropriately please)

( ) Primary school certificate

( ) GCE, SSCE, NECO, WASC etc

( ) OND, NCE, Diploma etc

( ) BA, Bsc, HND, etc.

( ) MA, Msc, etc.

( ) Ph. D

2. Occupational status:

( ) students

( ) unemployed

( ) Civil Servant / Public servant

( ) Business

( ) Other (s), please specify ----------

SECTION (B) – Research Questions

CLUSTER (a) - **Extent of Utilization of ICT Facilities in Public Libraries by Users.**

Instruction – Please tick (√) appropriately the response that most closely reflects your opinion.

To what extent do you utilize ICT facilities in public libraries for the following purposes?

Extent of use of ICT facilities by library users

S/N	Use of ICT facilities in public libraries	Very Great Extent	Great Extent	Slight Extent	No extent
1.	Word processing.				
2.	Internet browsing.				
3.	Sending and receiving E-mail.				
4.	Chatting with people.				
5	Accessing educational information For self development.				
6.	Keeping abreast with current news, events etc.				
7.	To know about the culture of other ethnic groups, races etc.				
8.	Downloading and storing information for personal use.				

CLUSTER (b) – **Barriers to Effective Utilization of ICTs in Public Libraries.**

Instruction – tick (√) appropriately, the response that most closely reflects your opinion.

What are the barriers to effective utilization of ICTs in public libraries?

S/N	Barriers	Strongly Agree	Agree	Disagree	Strongly Disagree
9.	Low level of computer literacy on users' side.				
10.	Inadequate telecommunication facilities in library, e.g. mobile phones, intercom.				
11.	Inadequate infrastructure, e.g. electricity, accommodation (lighting, ventilation, floor).				
12.	Lack of ICT awareness among staff.				
13.	Low level of ICT skills of staff.				
14.	Staff resistance to ICT introduction in libraries				
15.	Users' resistance to ICT introduction in Libraries				
16.	Frequent changes and modifications of ICTs.				
17.	Inadequate funds to acquire or procure ICT resources.				
18.	Inadequate ICT facilities e.g. computers, Internet connectivity.				

CLUSTER (c) **– Strategies for Enhancing ICT Utilization in Public Libraries**

Instruction – tick (√) appropriately the response that most closely reflects your opinion.

How can ICT utilization be improved in public libraries?

S/N	Ways of improving ICT utilization in public libraries	Strongly Agree	Agree	Disagree	Strongly Disagree
19.	Allocation of at least 10% of the libraries budgets to developing ICT facilities.				
20.	Encouragement of computer literacy acquisition among users by organizing in-house training programmes for them.				
21.	Training staff on acquiring ICT Skills.				
22.	Developing effective ICT policy for sustenance and development of library service.				
23.	Partnering with other agencies in providing ICT service.				
24.	Explaining the benefits of utilization ICTs in public libraries to both staff and users.				
25.	Updating staff and users on recent developments in ICT innovations.				
26.	Organizing in - house literacy programmes for library users and staff.				

APPENDIX C

STRUCTURED INTERVIEW SCHEDULE

UTILIZATION OF INFORMATION AND COMMUNICATION TECHNOLOGIES (ICTS) FOR IMPROVED PUBLIC LIBRARY SERVICES IN NIGERIA

1. What ICT facilities are available in your library?

2. What is the frequency of usage of ICT facilities in your library by users?

3. What in your opinion is the literacy level of both users and staff in your library?

4. Do you organize in-house training, seminars and workshops? How often does your staff attend such training? What impact do such programmes have on library services?

5. What forms of ICT training do you organize for library users?

6. What amount or percentage of your budget do you allocate for developing ICT services? Is this funding adequate to provide the necessary service using ICTs? If not, how do you go about providing ICT-based library services in your library?

7. Do you have a written ICT policy or strategy in your library? If yes, do it enable you to provide library services? If not, what guides you in providing library services with ICTs?

8. Do you have a website for your library? If yes what kind of information do you have on the website? If no, what are the reasons for not opening a website?

9. Do you have an e-mail address? If yes, what do you use it for? If no, what could be the reason(s) for not having one?

10. Could you comment generally on how ICT utilization can be improved in public libraries?

APPENDIX D

OBSERVATION CHECKLIST

UTILIZATION OF INFORMATION AND COMMUNICATION TECHNOLOGIES FOR IMPROVED PUBLIC LIBRARY SERVICES IN NIGERIA

	ICT Facilities in Public Libraries	Available	Nos	Not available
A.	**Computer Facilities**			
1.	Projectors			
2.	Computers			
3.	Scanners			
4.	Printers			
5.	UPS			
B.	**Computer Software Resources**			
6.	Storage media			
7.	Online databases			
8.	CD-ROMs			
9.	Library application software			
10.	Internet Connection			
C.	**Audio-Visual Media/Equipment**			
11.	Satellite connection			
12.	Digital Cameras			
13.	Radio			
14.	Television			
15.	Audiotapes			

16. 17. 18.	DVD/VCD Video tapes Photocopiers			
D. 19. 20.	**Communication Media** Telephone (Intercom) GSM			

APPENDIX E

INTERVIEW QUESTIONS FOR STAFF AND USERS OF PUBLIC LIBRARIES IN NIGERIA

1. Are you satisfied with the quantity and quality of ICT facilities in the library? Give reasons (Library users).

2. Why do you use the library? (Library users).

3. Do you see the need for the use of ICTs in library operations? Give reasons (Library staff).

4. What in your opinion are the benefits of using ICTs in public libraries? (Library staff).

5. What do you think are the barriers to effective utilization of ICTs in public libraries in Nigeria? (Library staff and users).

6. What strategies do you think could be employed to enhance effective utilization of ICTs in public libraries in Nigeria? (Library staff and users).

APPENDIX F

LETTER OF ADMINISTRATION OF QUESTIONNAIRE

Library Department,

National Institute for Policy & Strategic Studies, Kuru

P.M.B. 20024 Bukuru.

Plateau State.

……

……

……

Dear Sir/Madam

RESEARCH "ON UTILIZATION OF INFORMATION AND COMMUNICATION TECHNOLOGIES (ICTs) IN PUBLIC LIBRARY SERVICES IN NIGERIA"

I am a post graduate (Ph.D) student of University of Nigeria Nsukka. I am conducting a study to ascertain the **Utilization of Information and Communication Technologies (ICTs) in Public Library services in Nigeria.**

I would be glad if you could kindly fill in this questionnaire and send it back to me by E-mail (emma_mamman@yahoo.com), postage or through the person that brought it.

Thank you for your anticipated co-operation.

Sincerely yours,

E. S. Mamman

APPENDIX G

Population of Public Libraries in Nigeria

	GEOPOLITICAL ZONES IN NIGEIRA	S/N	STATE PUBLIC LIBRARIES IN NIGERIA
1.	North Central	1	Benue
		2	Kogi
		3	Kwara
		4	Nassarawa
		5	Niger
		6	Plateau
2	North East	7	Adamawa
		8	Bauchi
		9	Borno
		10	Gombe
		11	Taraba
		12	Yobe
3	North West	13	Jigawa
		14	Kaduna
		15	Kano
		16	Katsina
		17	Kebbi
		18	Sokoto
		19	Zamfara
4	South East	20	Abia
		21	Anambra
		22	Ebonyi

		23	Enugu
		24	Imo
5	South West	25	Ekiti
		26	Lagos
		27	Ogun
		28	Ondo
		29	Osun
		30	Oyo
6	South South	31	Akwa Ibom
		32	Bayelsa
		33	Cross River
		34	Delta
		35	Edo
		36	Rivers

APPENDIX H

Sample of State Public Libraries in Nigeria Chosen for the Study

S/N	Geo-Political Zones	State Public Libraries in Nigeria
1.	North Central	Benue State Public Library Plateau State Public Library
2.	North East	Adamawa State Public Library Yobe State Public Library
3.	North West	Jigawa State Public Library Zamfara State Public Library
4.	South East	Abia State Library Public Imo State Public Library
5.	South West	Ekiti State Public Library Oyo State Public Library
6.	South South	Akwa Ibom State Public Library Rivers State Public Library

APPENDIX I

Distribution of librarians, Library Officers, and Users in the 36 State Public Libraries in Nigeria.

	STATE	NO. OF LIBRARIANS	NO. OF LIBRARY OFFICERS	NO. OF REGISTERED LIBRARY USERS
1.	Abia	9	12	390
2.	Adamawa	7	23	304
3.	Akwa Ibom	12	24	492
4.	Anambra	5	23	483
5.	Bauchi	8	15	321
6.	Bayelsa	6	20	268
7.	Benue	9	19	231
8.	Borno	12	18	206
9.	Cross River	5	6	425
10.	Delta	7	12	378
11.	Ebonyi	7	8	318
12.	Edo	5	7	309
13.	Ekiti	4	2	391
14.	Enugu	6	11	215
15.	Gombe	4	15	224
16.	Imo	4	12	344
17.	Jigawa	5	17	223
18.	Kaduna	5	50	255
19.	Kano	50	60	517
20.	Katsina	6	14	458

21.	Kebbi	4	15	216
22.	Kogi	5	11	302
23.	Kwara	9	25	221
24.	Lagos	6	13	732
25.	Nassarawa	2	4	500
26.	Niger	4	8	304
27.	Ogun	5	7	260
28.	Ondo	4	9	311
29.	Osun	3	7	342
30.	Oyo	4	8	303
31.	Plateau	3	11	534
32.	Rivers	5	6	251
33.	Sokoto	2	8	268
34.	Taraba	4	7	374
35.	Yobe	8	15	320
36.	Zamfara	4	11	224
	Total	**244**	**537**	**12,234**

Source: *Phone calls to Directors of Library Boards in Nigeria.*

APPENDIX J

Distribution of Librarians, Library Officers and Registered Users in the Sample of the Study

S/N	STATE	NO. OF LIBRARIANS	NO. OF LIBRARY OFFICERS	NO. OF REGISTERED LIBRARY USERS
1.	Abia	9	12	390
2.	Adamawa	7	23	304
3.	Akwa Ibom	12	24	492
4.	Benue	9	19	231
5.	Ekiti	4	2	391
6.	Imo	4	12	344
7.	Jigawa	5	17	223
8.	Oyo	4	11	303
9.	Plateau	3	12	534
10.	Rivers State	5	6	251
11.	Yobe	8	15	320
12.	Zamfara	4	11	224
	Total	**74**	**164**	**4,007**

Source: *Phone calls to Directors of Library Boards in Nigeria.*

APPENDIX K

COMMENTS FROM LIBRARIANS THAT VALIDATED THE MAIN INSTRUMENTS (QUESTIONNAIRE)

S/N	NAME	POSITION	COMMENTS
1	Prof. Michael Afolabi	HOD, Dept of Library and Information Science, University of Uyo, Akwa Ibom State	Mamman, you should provide instructions for completion of each section/ question in the instruments. I also suggest you use numbering 5-1 in descending order (likert scale), where 4 and 2 are in between the two extremes.
2	Prof. Emmanuel Dawha	HOD, Dept. of Library and Information Science, University of Maiduguri, Maiduguri	Mamman, I have thoroughly gone through your questionnaires. On "level /extent of use of ICTs in library operations," I suggest you get answer options that fit "extent of use or levels" e.g. Highly utilized, adequately utilized, fairly utilized, not utilized. Similarly, why not use" reasons for use of ICT facilities in public libraries". Sounds better in my opinion, than " need for ICT facilities in public libraries"
3	Prof. Innocent Ekoja	University Librarian, University of Abuja, Abuja.	Hello Mamman, I have gone through your questionnaires and made some input the way I feel it should be. There should be five options, NOT four, for users' Reponses. Remember Likert's 5-scale.

APPENDIX L

RELIABILITY OF (MAIN) INSTRUMENT (QUESTIONNAIRE) TEST

Reliability for library users combine sections

Scale: ALL VARIABLES

Reliability Statistics	
Cronbach's Alpha	N of Items
0.891	36

Item Statistics			
	Mean	Std. Deviation	N
B1	3.1083	1.00248	120
B2	3.4	0.88308	120
B3	3.2667	0.88625	120
B4	2.675	0.92729	120
B5	3.2917	1.09541	120
B6	3.1583	1.06901	120
B7	3	0.97877	120
B8	3.1417	0.91941	120
C9	2.8833	0.98034	120
C10	2.8833	1.07049	120
C11	2.775	1.19848	120
C12	2.675	1.2378	120
C13	2.6	1.04036	120
C14	2.6667	1.07947	120
C15	3.1	0.93844	120
C16	3.3083	0.85794	120
C17	3.15	1.17859	120
C18	2.9417	1.0635	120
D19	2.9	1.21343	120
D20	3.5333	0.77608	120
D21	3.3333	1.02833	120
D22	3.2333	1.04	120
D23	3.1667	0.98553	120
D24	3.7333	0.44978	120
D25	3.6	0.67466	120
D26	3.7333	0.63968	120
D27	3.6333	0.66868	120
D28	3.4667	0.86037	120
E29	2.4333	1.17918	120
E30	2.525	1.12244	120
E31	2.4	1.05639	120
E32	2.75	1.16857	120
E33	2.8333	1.13266	120
E34	2.925	1.08591	120
E35	2.8667	1.15906	120
E36	2.8583	1.16168	120

Reliability for section B

Scale: ALL VARIABLES

Reliability Statistics	
Cronbach's Alpha	N of Items
0.861	8

Item Statistics			
	Mean	Std. Deviation	N
B1	3.1083	1.00248	120
B2	3.4	0.88308	120
B3	3.2667	0.88625	120
B4	2.675	0.92729	120
B5	3.2917	1.09541	120
B6	3.1583	1.06901	120
B7	3	0.97877	120
B8	3.1417	0.91941	120

Reliability for section C

Scale: ALL VARIABLES

Reliability Statistics	
Cronbach's Alpha	N of Items
0.905	10

Item Statistics			
	Mean	Std. Deviation	N
C9	2.8833	0.98034	120
C10	2.8833	1.07049	120
C11	2.775	1.19848	120
C12	2.675	1.2378	120
C13	2.6	1.04036	120
C14	2.6667	1.07947	120
C15	3.1	0.93844	120
C16	3.3083	0.85794	120
C17	3.15	1.17859	120
C18	2.9417	1.0635	120

Reliability for section D

Scale: ALL VARIABLES

Reliability Statistics	
Cronbach's Alpha	N of Items
0.812	10

Item Statistics			
	Mean	Std. Deviation	N
D19	2.9	1.21343	120
D20	3.5333	0.77608	120
D21	3.3333	1.02833	120
D22	3.2333	1.04	120
D23	3.1667	0.98553	120
D24	3.7333	0.44978	120
D25	3.6	0.67466	120
D26	3.7333	0.63968	120
D27	3.6333	0.66868	120
D28	3.4667	0.86037	120

o

Reliability for section E

Scale: ALL VARIABLES

Reliability Statistics	
Cronbach's Alpha	N of Items
0.752	8

Item Statistics			
	Mean	Std. Deviation	N
E19	2.4333	1.17918	120
E20	2.525	1.12244	120
E21	2.4	1.05639	120
E22	2.75	1.16857	120
E23	2.8333	1.13266	120
E24	2.925	1.08591	120
E25	2.8667	1.15906	120
E26	2.8583	1.16168	120

Reliability for Library staff all sections

Scale: ALL VARIABLES

Reliability Statistics	
Cronbach's Alpha	N of Items
0.919	39

Item Statistics			
	Mean	Std. Deviation	N
B1	3.4333	0.72793	30
B2	3.7333	0.44978	30
B3	3.3667	0.7184	30
B4	2.8	0.80516	30
B5	3.8333	0.37905	30
B6	3.6	0.56324	30
B7	3.3667	0.66868	30
B8	3.5333	0.62881	30
B9	2.9	0.92289	30
B10	2.6333	1.09807	30
C11	2.4333	1.22287	30
C12	2.3333	1.21296	30
C13	2.3333	0.84418	30
C14	2.5333	1.07425	30
C15	2.8333	1.01992	30
C16	3.1667	0.94989	30
C17	3.0667	1.25762	30
C18	2.6333	1.09807	30
C19	2.4333	1.16511	30
C20	2.6333	1.0662	30
C21	2.4	1.03724	30
D22	2.9	1.21343	30
D23	3.5333	0.77608	30
D24	3.3333	1.02833	30
D25	3.2333	1.04	30
D26	3.1667	0.98553	30
D27	3.7333	0.44978	30
D28	3.6	0.67466	30
D29	3.7333	0.63968	30
D30	3.6333	0.66868	30
D31	3.4667	0.86037	30
sE32	3.2	1.09545	30
E33	2.6667	1.1547	30
E34	2.4667	1.30604	30
E35	2.5333	1.33218	30
E36	2.5	1.19626	30
E37	2.6	1.10172	30
E38	3.0333	1.0662	30
E39	3.4333	0.85836	30

Library staff Questionnaire

Reliability for section B

Reliability Statistics	
Cronbach's Alpha	N of Items
0.816	10

Item Statistics			
	Mean	Std. Deviation	N
B1	3.4333	0.72793	30
B2	3.7333	0.44978	30
B3	3.3667	0.7184	30
B4	2.8	0.80516	30
B5	3.8333	0.37905	30
B6	3.6	0.56324	30
B7	3.3667	0.66868	30
B8	3.5333	0.62881	30
B9	2.9	0.92289	30
B10	2.6333	1.09807	30

Reliability for section C

Scale: ALL VARIABLES

Reliability Statistics	
Cronbach's Alpha	N of Items
0.868	11

Item Statistics			
	Mean	Std. Deviation	N
C11	2.4333	1.22287	30
C12	2.3333	1.21296	30
C13	2.3333	0.84418	30
C14	2.5333	1.07425	30
C15	2.8333	1.01992	30
C16	3.1667	0.94989	30
C17	3.0667	1.25762	30
C18	2.6333	1.09807	30
C19	2.4333	1.16511	30
C20	2.6333	1.0662	30
C21	2.4	1.03724	30

Reliability for section D

Scale: ALL VARIABLES

Reliability Statistics	
Cronbach's Alpha	N of Items
0.812	10

Item Statistics			
	Mean	Std. Deviation	N
D22	2.9	1.21343	30
D23	3.5333	0.77608	30
D24	3.3333	1.02833	30
D25	3.2333	1.04	30
D26	3.1667	0.98553	30
D27	3.7333	0.44978	30
D28	3.6	0.67466	30
D29	3.7333	0.63968	30
D30	3.6333	0.66868	30
D31	3.4667	0.86037	30

Reliability for section E

Scale: ALL VARIABLES

Reliability Statistics	
Cronbach's Alpha	N of Items
0.836	8

Item Statistics			
	Mean	Std. Deviation	N
E32	3.2	1.09545	30
E33	2.6667	1.1547	30
E34	2.4667	1.30604	30
E35	2.5333	1.33218	30
E36	2.5	1.19626	30
E37	2.6	1.10172	30
E38	3.0333	1.0662	30
E39	3.4333	0.85836	30

APPENDIX M

RESULT OF HYPOTHESES TEST

Hypothesis 1

There is no significant difference between the response of staff and users on the barriers that hinder the effective ICT utilization in public libraries in Nigeria.

	Status	N	Mean	Std. Deviation	t	df	Sig. (2-tailed)	Remark
Itemd22	Staff	215	2.86	0.96	-2.67	474	.008	S
	Users	366	3.10	0.93				
Itemd23	Staff	215	2.92	0.96	-5.51	474	.000	S
	Users	366	3.38	0.81				
Itemd24	Staff	215	3.05	0.99	-3.02	474	.003	S
	Users	366	3.30	0.82				
Itemd25	Staff	215	2.83	0.94	-2.82	474	.005	S
	Users	366	3.08	0.91				
Itemd26	Staff	215	2.83	0.94	-3.83	474	.000	S
	Users	366	3.16	0.84				
Itemd27	Staff	215	2.35	1.11	-6.76	474	.000	S
	Users	366	3.00	0.92				
Itemd28	Staff	215	2.27	1.08	-6.39	474	.000	S
	Users	366	2.88	0.96				
Itemd29	Staff	215	2.41	1.09	-1.46	474	.146	NS
	Users	366	2.56	0.99				
Itemd30	Staff	215	3.16	1.06	-.27	474	.785	NS
	Users	366	3.18	0.92				
Itemd31	Staff	215	3.11	1.06	-2.75	474	.006	S
	Users	366	3.36	0.85				
Overall	Staff	215	2.78	0.66	-6.11	474	.000	S
	Users	366	3.10	0.47				

Hypothesis 2

There is no significant difference between the response of staff and users on the strategies that could be employed to enhance ICT utilization in public libraries in Nigeria.

	Status	N	Mean	Std. Deviation	t	df	Sig. (2-tailed)	Remark
Iteme32	Staff	215	3.7006	.52083	1.455	474	.146	NS
	Users	366	3.6149	.65755				
Iteme33	Staff	215	3.5988	.58144	.961	474	.337	NS
	Users	366	3.5372	.70899				
Iteme34	Staff	215	3.7545	.49658	2.238	474	.026	NS
	Users	366	3.6375	.56810				
Iteme35	Staff	215	3.5150	.56883	-.482	474	.630	NS
	Users	366	3.5437	.64632				
Iteme36	Staff	215	3.5150	.62917	.941	474	.347	NS
	Users	366	3.4531	.71298				
Iteme37	Staff	215	3.4790	.67519	-.539	474	.590	NS
	Users	366	3.5146	.69128				
Iteme38	Staff	215	3.5449	.68289	-.330	474	.742	NS
	Users	366	3.5663	.67393				
Iteme39	Staff	215	3.4371	.67257	2.448	474	.015	NS
	Users	366	3.2589	.80034				
Overall	Staff	215	3.5681	.39640	1.228	474	.220	NS
	Users	366	3.5158	.46717				

t-test for hypothesis 1

Group Statistics

	Status	N	Mean	Std. Deviation	Std. Error Mean
Itemd22	Staff	215	2.8623	.95637	.07401
	Users	366	3.1036	.93052	.05294
Itemd23	Staff	215	2.9162	.95950	.07425
	Users	366	3.3754	.81474	.04635
Itemd24	Staff	215	3.0479	.98671	.07635
	Users	366	3.3042	.82455	.04691
Itemd25	Staff	215	2.8323	.93559	.07240
	Users	366	3.0809	.90629	.05156
Itemd26	Staff	215	2.8323	.94201	.07289
	Users	366	3.1553	.84235	.04792
Itemd27	Staff	215	2.3533	1.10899	.08582
	Users	366	2.9968	.92054	.05237
Itemd28	Staff	215	2.2695	1.07791	.08341
	Users	366	2.8835	.95653	.05442
Itemd29	Staff	215	2.4132	1.09349	.08462
	Users	366	2.5566	.98735	.05617
Itemd30	Staff	215	3.1557	1.06407	.08234
	Users	366	3.1812	.91852	.05225
Itemd31	Staff	215	3.1138	1.06091	.08210
	Users	366	3.3592	.85114	.04842
Overalld	Staff	215	2.7796	.65799	.05092
	Users	366	3.0997	.47314	.02692

Independent Samples Test

		t	df	Sig. (2-tailed)	Mean Difference
Itemd26	Equal variances assumed	-2.674	474	.008	-.24128
Itemd27	Equal variances assumed	-5.508	474	.000	-.45924
Itemd28	Equal variances assumed	-3.016	474	.003	-.25630
Itemd29	Equal variances assumed	-2.823	474	.005	-.24857
Itemd30	Equal variances assumed	-3.828	474	.000	-.32300
Itemd31	Equal variances assumed	-6.763	474	.000	-.64347
Itemd32	Equal variances assumed	-6.389	474	.000	-.61403
Itemd33	Equal variances assumed	-1.456	474	.146	-.14346
Itemd34	Equal variances assumed	-.274	474	.785	-.02554
Itemd35	Equal variances assumed	-2.748	474	.006	-.24545
Overalld	Equal variances assumed	-6.113	474	.000	-.32004

t-test for hypothesis 2

Group Statistics

	Status	N	Mean	Std. Deviation	Std. Error Mean
Iteme32	Staff	215	3.7006	.52083	.04030
	Users	316	3.6149	.65755	.03741
Iteme33	Staff	215	3.5988	.58144	.04499
	Users	366	3.5372	.70899	.04033
Iteme34	Staff	215	3.7545	.49658	.03843
	Users	366	3.6375	.56810	.03232
Iteme35	Staff	215	3.5150	.56883	.04402
	Users	366	3.5437	.64632	.03677
Item e36	Staff	215	3.5150	.62917	.04869
	Users	366	3.4531	.71298	.04056
Iteme37	Staff	215	3.4790	.67519	.05225
	Users	366	3.5146	.69128	.03933
Iteme38	Staff	215	3.5449	.68289	.05284
	Users	366	3.5663	.67393	.03834
Iteme39	Staff	215	3.4371	.67257	.05204
	Users	366	3.2589	.80034	.04553
Overalle	Staff	215	3.5681	.39640	.03067
	Users	366	3.5158	.46717	.02658

Independent Samples Test

		t-test for Equality of Means			
		t	df	Sig. (2-tailed)	Mean Difference
Iteme32	Equal variances assumed	1.455	474	.146	.08571
Iteme33	Equal variances assumed	.961	474	.337	.06159
Iteme34	Equal variances assumed	2.238	474	.026	.11695
Iteme35	Equal variances assumed	-.482	474	.630	-.02872
Iteme36	Equal variances assumed	.941	474	.347	.06190
Iteme37	Equal variances assumed	-.539	474	.590	-.03552
Iteme38	Equal variances assumed	-.330	474	.742	-.02143
Iteme39	Equal variances assumed	2.448	474	.015	.17823
Overalle	Equal variances assumed	1.228	474	.220	.05234

APPENDIX N

Excerpts of Results of Indepth Interview of Staff and Users of Public Libraries in Nigeria.

Availability of ICT facilities in public libraries in Nigeria

The findings of the indepth interview revealed that the number of ICT facilities in the library is grossly inadequate. The results showed that computer facilities such as computers, UPS, printers, scanners and PowerPoint projectors were the most available ICT facilities in public libraries, while computer software resources such as online database, internet connection, library application software and storage media were scarcely available. Responses from some of the users are given below:

…The present quantity of ICT facilities in the library is grossly inadequate. For example, even computers that one should expect to be available in sufficient quantity for users are not there, talk more then of facilities such as Internet, CD-ROMs, VCD/DVD and the like. There is obviously need for more ICT facilities in the library (User-Plateau state).

… I have visited libraries in academic institutions and the difference in clear. The number of ICT facilities in public libraries is just not enough. It is sad that government is not doing any thing about the condition of our public libraries. The public library is the poor man's access to information he can use to develop himself and state governments should provide ICT facilities like internet as this would enable people access lots of information (User- Imo state).

…. There is definitely need for more ICT facilities in our public libraries as the present provision is grossly inadequate. If you go to university libraries, you will see Internet services, CD-ROMs, VCDs and DVDs. But the story is sad in our public libraries. Msost of our public libraries have been neglected by their respective state governments. It is time they

provide enough ICT facilities so that people can access enough information and move with time (User-Zamfara state).

…The present number of ICT facilities is not enough to enable users benefit from the library services (User-Adamawa State)

…..It is a shame that government cannot provide ICT facilities in its public libraries (User – Abia State).

Benefits of using ICTs in public libraries

The results of the indepth interview indicated public library staff agreed overwhelmingly that there are benefits in utilizing ICTs in our public libraries. These benefits are provision of speedy and easy access to information, provision of more up-to-date information; increases efficiency in library operations and services; enable users self-education, especially through internet and its multi-media resources; facilitates co-operation and formation of library networks; provision of access to unlimited information, from different sources, provision of information flexibility to be used by individuals according to their requirements; facilitation of reformation and combination of data from different sources; may save or generate funds for the library; provision of round the clock access to users; helps in avoiding duplication of efforts within library and between libraries; provision of remote access of information to users; and provides marketing opportunity of library services. The responses that follow buttress this contention.

… It is very obvious that the introduction of ICTs in our public libraries will be beneficial to both staff and users, especially in the provision of more up-to-date information at a faster rate and with much ease. The Internet, especially, will assist in realizing this (Staff-Oyo state).

… Public libraries can use the ICT facilities in making money for the library. They can charge for the services they offer and the money realized can be used in maintaining the facilities and in purchasing computer consumables (Staff-Jigawa state).

…There are many benefits of using ICTs in public libraries. They include provision of vast amount of information, ability to store huge amount of information in hard discs, flash drives, CD-ROMs etc., it will facilitate networking among libraries and interlibrary cooperation and many others (Staff-Akwa Ibom state).

…..One important benefit of using ICT facilities in public libraries is that there will be enormous amount of information, which is accessible through the internet (Staff – Rivers State).

…..There is a lot to benefit from introducing ICTs in public libraries. Apart from enabling access to vast information resources, it will enable the sharing of these resources amongst libraries (Staff – Plateau State).

Utilization of ICT facilities in library operations

Although the findings of the indepth interview revealed poor usage of ICT facilities in public libraries operations, staff were positive that the provision of ICTs in public libraries will facilitate libraries operations such as acquisitions, cataloguing and classification, serials control, circulation control, reference service, library management and administration, interlibrary cooperation and lending, accessing online resources, accessing offline resources, developing online resources and developing offline resources. The following responses captured the feelings of public library staff on this:

… The introduction of ICTs in our public libraries will ease the burden of cataloguing and classifying books manually. Similarly, the charging and discharging of books to users will be faster (Staff-Ekiti state).

… If ICTs are introduced into the library, it will enable the provision of more information in the library. Besides, library routine work in all the sections will be done with less burden and at a faster rate, because some ICT facilities such as application software contain modules on virtually all library activities, such as cataloguing and classification, acquisition, circulation control, serials control and a few others (Staff-Adamawa state).

….The introduction of ICTs in public library operations will encourage and facilitate inter library co-operation, because it will enable libraries know what they have in their various collections. So, if a user comes looking for a book that is not available in the library, we can look at the catalogue of other libraries in the computer (that is if the library is online) and see which libraries have the books and request them for the user or we can refer the user to the libraries (Staff-Rivers state).

…..The availability of ICT facilities in our public libraries will ease tasks that are done manually (Staff – Benue State).

…..ICT introduction in public libraries will encourage the sharing of information resources via the medium of networked catalogues (Staff – Abia State).

Utilization of ICT facilities in public libraries

Views of public library users were sought on why they utilize ICT facilities in public libraries. Majority of the respondents gave various reasons for which they utilize ICT facilities in public libraries which include the following: accessing educational information for self development, keeping abreast with current news events, news etc, internet browsing, downloading and storing information for personal use, word processing, sending and receiving e-mail, knowing about the culture of other ethnic groups, races etc., and chatting with people through social media. Some of the responses are as stated below:

…. I utilize ICT facilities in the library to look for information that would help me in doing assignments given to us by our lecturers. I sometimes use ICT facilities to know what is currently happening in the world (User-Oyo state).

….. I use ICT facilities, especially Internet to look for information on various topics that are of interest to me. I also download some of the information for future use (User-Rivers state).

…. I usually use the Internet to check my mails. Most times I go to facebook to chat with my friends (User- Jigawa-state).

… Since I do not own a desktop or lap top, I come to the library to use the computer in producing my assignments (Benue-state).

…..I use the Internet in the library to read news and interact with friends through social media such as face book and twitter (User – Akwa Ibom).

Barriers to effective ICT utilization in public libraries in Nigeria

The results of the indepth interview showed that both public library staff and users concurred on the same barriers as being a hindrance to effective utilization of ICTs in public libraries in Nigeria. These barriers include inadequate infrastructure e.g. electricity, accommodation and related facilities e.g. lighting, ventilation, floor; inadequate funds to acquire and procure ICT resources, inadequate telecommunication facilities in the library e.g. mobile phones and intercom; low level of skills of staff; staff low level of computer literacy; low level of ICT awareness among users; staff resistance to ICT introduction in libraries; users' resistance to ICT introduction in libraries; and frequent changes and modifications of ICTs. Some of their responses are given below:

… The barriers to effective utilization of ICTs in our public libraries has to do with lack of enough ICT facilities in our public libraries. When I say lack of enough ICT facilities, I am talking about inadequate computers, UPS, printers, scanners and the like. Secondly, there is the problem of inadequate infrastructure such as steady flow of electricity. Even if there are

enough ICT facilities, you wont be able to use them maximally when there is constant power failure (User-Zamfara state).

… I think the major barriers to effective utilization of ICTs in our public libraries are low level of computer literacy among public library staff and users, inadequate funding of public libraries to enable them buy the ICT facilities they need, and sometimes the staff may not welcome the introduction of ICT facilities into the library mainly because they do not know how to use them. So, these are problems that the authorities need to address (Staff-Imo state).

…. As long as adequate funds are not provided in our public libraries, we should not expect to see much by way of ICT facilities. You know that one of the important ICT facilities in libraries generally is the Internet. If you provide Internet connectivity in public libraries you are opening the door to huge amount of information to public library users. But this is not free of charge. You need money! (Staff- Akwa Ibom state).

…..Even if there is enough ICT facilities in public libraries, the epileptic power supply will render them useless if there is no alternative source of power (User – Plateau State).

…..I think a major problem in using ICTs in our public libraries has to do with lack of knowledge of how they function. So, ICT literacy is lacking amongst both staff and users (User – Rivers State).

…..Staff and users are not educated enough to understand how ICTs function. This will affect their ability to use these facilities when they are introduced in our public libraries (Staff – Abia State).

…..The biggest challenge in providing ICTs in our public libraries is that of funding. Government does not provide enough money to procure ICT facilities (User – Adamawa State).

……In my opinion, inadequate funding and poor ICT literacy are the bane of ICT utilization in our public libraries (Staff – Zamfara State).

……Public libraries are the most poorly funded among the various types of libraries in the country and this explains their deplorable ICT situation (User – Ekiti State).

……There is poor computer literacy education in our public libraries and even if ICT facilities were provided they would not be used effectively (Staff – Benue).

Strategies for enhancing ICT utilization in public libraries in Nigeria

Public library staff and users were sought to suggest strategies that could enhance effective utilization of ICTs in Public libraries in Nigeria. Majority of them suggested the following: Skills acquisition on ICT by staff of public libraries, allocation of certain percentage of the budget or fixed amount to developing ICT facilities; encouraging computer literacy among library staff and users through in-house training; updating staff and users on recent developments to do with ICTs; partnering with other agencies in providing ICT services; developing effective ICT policy for sustaining development of library services; educating users and staff on the benefits of utilizing ICTs in public libraries and organizing in-house literacy programmes for the library users and staff. Some of the responses of both staff and users are captured in the excerpts thus::

… Adequate funding to public libraries is a must if enough ICT facilitates are to be provided. State governments or whoever is responsible for managing public library services should allocate some reasonable amount of money yearly for developing ICT facilitates in our public libraries. This is the only way we can have enough ICT facilities in our public libraries. If you go to University libraries you will discover that they are doing better because they have ICT facilities like Internet, computers, photocopiers, printers, scanners and others. This is because money is allocated for procurement of these facilities (Staff-Akwa Ibom state).

… Apart from providing enough money to buy ICT facilities in our public libraries, there should be ICT literacy programmes that will educate staff and users on how ICT facilities

work. If this is not done, it will be a waste of money buying these facilities because they will not be put to proper use (User-Jigawa state).

….I want to suggest that government should partner with other rich agencies in providing ICT facilities in our public libraries. Government has a lot of responsibilities, so if they join hands with other agencies, ICT facilitates can be provided in our public libraries. For instance, we have foundations like Bill and Melinda Gates Foundation who can assist our public libraries with ICT facilities if it is contacted. Similarly, there are individuals and multi-national corporations such as Aliko Dangote, Adetula, MTN, GLO, and many others who can assist public libraries with ICT facilities. They should be contacted (User-Benue state).

……Once public libraries can have adequate funding from the appropriate authorities, everything required will be provided (Staff – Zamfara State).

……Providing enough funds to procure ICT facilities are desirable. But there is also the need to educate staff and users on how ICT facilities function, otherwise it will be a waste of financial resources (Staff – Abia State).

……I will advice governments to visit university libraries in the country. May be when they see how well stocked some of these libraries are with ICT facilities, they will be willing to provide adequate funds to public libraries to procure these facilities (User – Imo State).

……If governments do not have the money to give to public libraries to buy ICT facilities, they should seek the assistance of agencies and individuals such as TETFund, Dangote, Bill and Melinda Gates' Foundation and many others (User –Plateau State)

……Adequate funding and well organized programmes on ICT literacy are all public libraries in Nigeria need to have effective ICT-driven services in their domain (Staff – Ekiti State).

……The current trend globally in times of financial difficulties is to be resourceful. So public libraries should partner with other agencies in ensuring that ICT facilities are provided or look for charity from agencies and well-meaning individuals such as T. Y. Danjuma Foundation, Dangote, Bill and Melinda Gates Foundation etc. (User – Adamawa State).

…….State governments should not be shy in requesting for assistance from Multinational Corporations such as MTN, Shell oil, Total, Glo and many others (Staff – Benue State).