ACCESS AND UTILIZATION OF ELECTRONIC INFORMATION RESOURCES BY UNDERGRADUATE STUDENTS IN UNIVERSITY LIBRARIES IN GOMBE STATE, NIGERIA

BY

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OCTOBER, 2018

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P15EDLS8027

A DISSERTATION SUBMITTED TO THE POSTGRADUATE SCHOOL AHMADU BELLO UNIVERSITY, ZARIA
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER DEGREE IN LIBRARY SCIENCE (MLS)

DEPARTMENT OF LIBRARY AND INFORMATION SCIENCE,
FACULTY OF EDUCATION,
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ZARIA, NIGERIA

OCTOBER, 2018

DECLARATION

I declare that this dissertation titled "ACCESS AND UTILIZATION OF ELECTRONIC INFORMATION RESOURCES BY UNDERGRADUATE STUDENTS IN UNIVERSITY LIBRARIES IN GOMBE STATE, NIGERIA" has been written by me in the Department of Library and Information Science, Ahmadu Bello University, Zaria. The information derived from the literature has been duly acknowledged in the text and a list of references provided. No part of this dissertation was previously presented for another degree or diploma at this or any other institution.

FELIX, USMAN MANJACK	_____	_____
Name of Researcher	Signature	Date

CERTIFICATION

This is to certify that this dissertation titled "ACCESS AND UTILIZATION OF ELECTRONIC INFORMATION RESOURCES BY UNDERGRADUATE STUDENTS IN UNIVERSITY LIBRARIES IN GOMBE STATE, NIGERIA", written by FELIX Usman Manjack has met the regulations governing the award of the degree of Master of Library Science (MLS) Degree of the Ahmadu Bello University, Zaria and is approved for its contribution to knowledge and literary presentation.

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DEDICATION

This research work is dedicated to the memory of my beloved Daddy, and to my beloved Mummy and Siblings for their love and support during the period of this study.

ACKNOWLEDGEMENTS

To God be the glory, honor and adoration for great things he has done in making this research work a reality. I wish to express my gratitude to God Almighty for granting me the grace and wisdom to successfully complete this program. Praise be unto God forever. I want to use this medium to commend the good leadership of our able Head of Department, Library and Information Science; Dr. Habibu Mohammed. My profound gratitude goes to my tolerant supervisors Dr. Babangida Umar Dangani and Dr. Sani Abdu Fari for their guidance, patience and constructive criticisms which indeed enhanced the quality of this work and to the Postgraduate Coordinator, Dr. (Mrs.) M. F. Mohammed for the smooth running of Postgraduate programs in the Department.

My special appreciation goes to my able lecturers Prof. Zakari Mohammed, Prof. Tijjani Abubakar, Prof. Umar Ibrahim, Prof. (Mrs.) H. M. Daudu, Dr. Abdullahi Ibrahim, Dr. Gbaje Ezra, Dr. Abu Yusuf, Dr. Baba S. Adiku, Dr. Lawal Abdulkadir, Dr. (Mrs) Maimunah Izah, Mal. M. M. Hayatu, Mal. Lawal Z. Umar, Mal. Abdulkarim Aliyu Bube, Mal. Jibrin Abdulrahman, Mal. Aliyu A. Lawan and Mal. Idris Adamu Dauda, for their contributions and encouragement towards the successful completion of this study.

I want to use this medium to thank and appreciate the management of the Federal University, Dutsin-ma (FUDMA) for the opportunity granted to me to go for this study. I am grateful and may God bless and increase FUDMA. The management and staff of FUDMA Library, Mr. Yunusa Jajere, Mr. Abdulmumini, Haj. Hajara Yakubu, Miss Tihyaunin Dang Luka, Mr. Kabir Ibrahim, Mrs. Hakeemat Bello, Mrs. Blessing E. Kozah, Mr. Samaila Sani, Mr. Iorfa Terungwa, Mr. Garba Danladi Duru, Haj. Sherifat Abdul, Mr. Mustapha Haruna, Mr. Musbahu Suleiman, Mr. Kamaladdeen Sani, Mr. Abubakar Musa Garba, Mr. Shamsu Aliyu, Miss. Hope Melody Alidu, Mr. Ali Bala, Mr. Nasiru Ya'u, Mr. Yusuf Sabiu, Mr. Nura Sani, Mani Umar among others. I am indebted to you all for your prayers and words of encouragement.

I will like to acknowledge my course mates (Postgraduate class of 2015/2016 session), Mr. Abdullahi Sarki (our able class representative), Mr. Apagu Leviticus, Mr. M.T.Othman, Mr. Atiku Abubakar, Mr. Aminu A., Mr. Abel Ogbonyomi, Mr. Habeeb A., Mr. Aliyu Bege, Mr. Segun Joshua, Mr. B. S. Amaha, Mr. Saidu Danjuma, Mrs. A.G. Fatima, Mrs. B.A. Uwaisu, Mrs. I.O. Anaele, Mrs. Habiba Suleiman, Miss. Saratu Ahmed, Miss. A.E. Veronica, Mrs. M.

Jamila and Miss. A. Lajori for a good time we spent together and nice having you as class mates; you have affected my life positively. See you on the other side.

I am indebted to my family members, Daddy Kenan Manjack, Daddy Nathan Manjack, Elkanah Kenan, Suleiman Nuhu, Morgan Kenan, Danladi Felix, Hannatu Gambo, Robinson Nathan, Ibrahim Nuhu, Emilda Morgan (my in-law) among others for their support, motivation and prayers towards the success my studies. I am indeed privileged to have you as a family that shows concerned and ensures the success of every member of the family.

My utmost appreciation goes to my loving and caring parents, Mr. Felix Manjack (gone to be with the Lord) and Mrs. Aishatu Felix. Thank you so much for raising me aright and teaching me to do good to all. I remain grateful to you.

Lastly, I want to extend my warmest appreciation to all who have been there for me in the course of this research work, I say thank you, time would not allow me to mention your name here. Please accept my sincere appreciation. Love you all.

ABSTRACT

This study examined Access and Utilization of Electronic Information Resources by Undergraduate Students in University Libraries in Gombe State, Nigeria. Five research questions and three null hypotheses were formulated and tested with respect to the type of electronic information resources; what types of electronic information resources are available for undergraduate students in university libraries in Gombe State; to what extent undergraduate students access electronic information resources in university libraries in Gombe state, to what extent are undergraduate students satisfied with electronic information resources in university libraries in Gombe State, what are the challenges faced by undergraduate students in accessing EIRs in university libraries in Gombe State. A Cross- sectional survey research design was adopted for the study, a total of 2,970 registered undergraduate students were used as the population and 297 registered undergraduate students library users were selected for the study. Questionnaire was used to collect data for this study. The data collected were presented and analyzed using mean and standard deviation for the research questions and T-test for the hypotheses. The study found among others that types of electronic information resources available in university libraries in Gombe State are E-books, TEEAL, HINARI, AGORA, etc with electronic books having the highest response rate; undergraduate students in the Universities in Gombe State accessed Electronic Books, CD-ROMs, Science Direct, E-magazines, etc to the high extent. The study concluded that the types of electronic information resources available in university libraries in Gombe State are: E-books, TEEAL, HINARI, AGORA, JSTOR, E-journals, OARE, Science Direct, CD-ROMs, E-newspapers, E-magazines. Lastly, this study recommended among others that, Since electronic books are available in all the universities studied, the university libraries management in Gombe State should intensify the availability of other types of EIRs especially CD-ROMs by supplying more through purchase or library consortium between the two libraries.

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LIST OF ABBREVIATIONS

AGORA:	Access to Global Online Research in Agriculture
CD-ROM:	Compact Disc Read Only Memory
DVD:	Digital Video Disc
EIRs:	Electronic Information Resources
FUDMA:	Federal University, Dutsin-ma
FUK:	Federal University, Kashere
GSU:	Gombe State University
HA:	Highly Accessible
HINARI:	Health Network Access Research Initiative
HS:	Highly Satisfied
HU:	Highly Utilize
ICT:	Information and Communication Technology
JSTOR:	Journal Storage
MLS:	Masters of Library Science
NOUN:	National Open University of Nigeria
OARE:	Online Access to Research in the Environment
OPAC:	Online Public Access Catalogue
RA:	Rarely Accessible
RS:	Rarely Satisfied
RU:	Rarely Utilized
SD:	Standard Deviation
SN:	Serial Number
SPSS:	Statistical Package for Social Sciences
TEEAL:	The Essential Electronic Agricultural Library

TETFund:	Tertiary Education Trust Fund
U:	Undecided

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Library automation has greatly influenced the way information is being accessed and used. Libraries and information centres are becoming more attractive as a result of Information and Communication Technologies (ICTs) that have broken every barrier that hinders access to information. It is obvious that some of the information resources in university libraries are accessed 24/7 and beyond the physical boundary of libraries. Abinew and Vuda (2013) opined that libraries have transformed into digital and virtual libraries where books, journals and magazines have changed into e-books, e-journals, and e-magazines. This has increased the global dissemination of information.

Dissemination of timely and up-to-date information is made easier with the advent of these technologies which aid the transmission of electronic information resources. Swain and Panda (2009) states that rapid advancement of Information and Communication Technology (ICT) has brought revolutionary changes in the information scenario giving rise to a number of options for the user community to handle varied information resources conveniently and effortlessly. Advancements in technology have enabled new forms of handling information and have created more dynamic and flexible tools for managing and making it accessible than the print formats. This has created a major shift from the traditional set up of library which focuses on the physical collection of information resources, to a stage where information is predominantly stored in digital formats. This advancement has caused changes both in the way users access information and the way libraries provide and manage resources. (Luka, 2015)

Electronic information resources are information materials in the library that can only be accessed electronically, with the use of Information and Communication Technology (ICT) facilities (Ukachi, 2013). Electronic information resources that are often consulted in the

University libraries include: Internet, CD-ROM databases, online databases, Online Public Access Catalogues (OPACs), electronic journals, electronic books and digitized materials. Multiple access speed, richer in content, reuse, timeliness and anywhere access are some of the features of electronic information resources.

Electronic resources refer to those materials that require computer access, whether through a personal computer, mainframe, or handheld mobile phone device, (Dongardive, 2015). They may either be accessed remotely or locally. Some of the most encountered types include e-journals, e-books, databases, indexing and abstracting databases, reference databases (bibliographies, dictionaries, encyclopedias etc.) e-images, etc.

According to Ani, Ngulube and Onyancha (2014) Electronic information resources refer to as electronic resources or e-resources; they are information stored in electronic format on computer or computer related facilities (CD-ROMs, digital libraries or the Internet). This is consistent with the description of electronic information resource by Thanuskodi (2012) as a generic term for electronic information stored both offline or online. These resources are slowly replacing the use of print media as a result of their ability to provide one with timely and up-to-date information. Electronic resources such as e-journals, e-books, e-databases, web resources, e-serials amongst others are easily accessible in remote areas. Electronic resources have become an increasingly important part of university libraries collection. The library patrons prefer to use more electronic resources and computerized services compared to conventional materials for their needs. The advent of computer networks and the worldwide web, the availability of digital libraries and the transition from print to electronic publishing have brought about increased use of electronic resources. Electronic resources provide access to information that might be restricted to the user because of geographical location or finances. Such electronic resources include electronic books, electronic journal articles, newspaper, theses, dissertations, etc

Access and utilization of electronic information resources is a factor that is considered to be largely influenced by the nature of electronic information environment that is available and prevalence in a given university. The electronic information environment is enabled by widespread application of information and communication technologies (ICTs) in the university, towards effectiveness and efficiency in research process. Angello and Wema (2010) simply define information and communication technologies as tools used to access electronic information resources. Access and utilization of electronic information resources is enabled by the state of ICT or electronic information environment in a given university.

Swain and Panda (2010) states that owing to the technological revolution and advent of modern information and communication technologies (ICT), the student community no longer relies upon the traditional library services. They are, however, encouraged to trust in electronic resources with a presumption that the wealth of information available in electronic formats can utterly accomplish their scholastic needs as a better substitute to traditional print services.

The use of Electronic Information Resources (EIRs) is necessary for undergraduates mainly because they provide better, faster and easier access to information than information accessed through print media. Electronic information resources help to expand access, increase usability and effectiveness and establish new ways for students to use information to be more productive in their academic activities. Tella, Tella, Ayeni and Omoba (2007) emphasize that electronic information has many functions and benefits that are capable of positively influencing the academic performance of both students and researchers in the university as well as other higher educational institutions. However, it is imperative that the students should be familiar with the use and exploitation of the resources for a quicker and more effective usage.

Electronic information resources available in university libraries play a prominent role in facilitating access to required information by the users in an easy and expeditious manner.

According to Negahban and Talawar (2009), electronic information resources, in reality have become the backbones of many university libraries. They serve as a motivating factor to students as they provide them opportunity to transmit, acquire or download process and disseminate information on any subject of interest. They can be used by any user through online access via networks or authentication methods at any time by comfortably sitting at home or in a class. They indeed play significant roles in academic libraries as they are mostly used for the promotion of academic excellence and research. Electronic Information Resources open up the possibility of searching multiple files at one time, a feat accomplished more easily than when using printed equivalents.

Electronic resources are now used to supplement printed information resources in university libraries. The major benefit of electronic resources in the libraries besides ease of access to the needed information is that access can be done remotely without physical visit to the library. Thus, electronic resources promote efficiency in dissemination of information for learning, teaching and research purposes in the universities (Thanuskodi, 2012). Again, e-resources are more easily updated than the print resources. The act of providing access to electronic resources by the university libraries to the patrons is referred to as electronic information services. Appleton (2006) perceives electronic information services as delivery of information tools/products to "requesting users electronically" usually by computer mediation.

Access to information is important because except an information source is made accessible to users, it cannot be used. Accessibility of information materials is one of the prerequisites of information utilization. Resources may be available in the library and even identified bibliographically as relevant to one's subject of interest, but the user may not be able to lay hands on them because of accessibility problems. Obviously, accessibility constraints that could be experienced in the use of EIRs include: inadequate provision of infrastructure, Internet connection problem, online database subscription problem, library electronic resources use

policy and indifference behaviour of staff towards assisting users. Bhatia (2011) opines that electronic resources available in a library play a prominent role in facilitating accessed to required information to the users in an easy and expeditious manner. Electronic resources have become more popular for meeting the instant desire of users, having quick access to information and efficient retrieval facilities. Bankole, Ajiboye and Otunla (2015) posited that information could be accessed through a range of information and communication technology tools. These tools include the computers, digital libraries, the Internet, electronic networks and the CD-ROMs. The computer has been a major tool that enables access and use of e-resources. Hawthorne (2008) asserts that library profession has recognized the potential of computers to make library resources more accessible early in the development of computer technology.

Dadzie (2007) states that electronic resources are invaluable learning tools that complement the print based resources in a traditional library setting. Their advantages include: access to information that might be restricted to the user due to geographical location or finances, access to more current information, and provision of extensive links to additional resources related contents. This rapid emergence and development of electronic information technologies, therefore, makes it possible to envision radically different ways of organizing the collections and services the library has traditionally provided. Vasishta and Jyoti (2007) opines that EIRs are commonly available under two major categories:

- Subscribed Electronic Information Resources: To access this category of EIRs, some subscription amount/fee has to be paid to the publisher/owner.
- Free Electronic Information Resources: Such resources are freely available on the Internet and can be divided into sub-categories like Open Access journals/Free journals; Information available at Institutional Repositories; Organizational or Individual's websites; Individual Blogs/Professional Discussion Forums.

1.2 Statement of the Problem

Electronic information resources have brought new innovations in librarianship where library users can now access information and resources beyond the physical library space. According to Sharma (2009) the advent of information and communication technologies such as the Internet, electronic resources have brought a widely accepted scholarly resources for both students and teachers. Technological advances have brought about radical changes in the way modern organizations operate, and the library is no exception. It has influenced the way libraries gather, store, organize, retrieve and disseminate information. Electronic Information Resources (EIRs) play vital roles in teaching and learning process in the academic environment and provide assistance to users. EIRs like e-books, e-journals, e-magazines, databases etc have indeed become more important for the academic community in accessing up-to-date information at the right time and in the right format. They enable users have access to first-hand information characterized by being timely, current, easy to access and, even from remote places (Ukachi, 2013).

A lot of money is being invested by Tertiary Education Trust Fund (TETFUND) for library development intervention. For instance, TETfund disbursed one billion, three hundred and seventeen million and four hundred thousand naira (N1.3bn) to some universities as first tranche in December, 2017 for library development (TETfund Monthly Digest, 2017). However, statistics from the two university libraries in Gombe State shows the following records:

- Between 2015/2016 and 2016/2017 academic sessions, the library records only 37.6% rate of EIRs access and utilization in Gombe State University (E-library's users book register, 2017)
- Between 2015/2016 and 2016/2017 academic sessions, the library records only 21.4% rate of EIRs access and utilization in Federal University, Kashere (E-library's users book register, 2017)

Based on these facts, it is obvious that EIRs are under-utilize. This concurs with the assertion of Ferdinand, Eghworo, and Paul (2015) and Adeniran (2013) who reported a low utilization of EIRs by undergraduate students at the Federal University of Petroleum Resources Effurun and Redeemer's University, Nigeria respectively. It is therefore on this basis that this study is set to investigate Access and Utilization of Electronic Information Resources in the University Libraries in Gombe State.

1.3 Research Questions

The study answered the following research questions:

1. What types of electronic information resources are available for undergraduate students in university libraries in Gombe State?
2. To what extent do the undergraduate students access electronic information resources in university libraries in Gombe State?
3. To what extent do the undergraduate students utilize electronic information resources in university libraries in Gombe State?
4. To what extent are undergraduate students satisfied with electronic information resources in university libraries in Gombe State?
5. What are the challenges faced by undergraduate students in accessing electronic information resources in university libraries in Gombe State?

1.4 Research Hypotheses

The study tested the followings null hypotheses:

HO_1: There is no significant difference in the extent to which the undergraduate students access EIRs in the university libraries in Gombe State.

HO_2: There is no significant difference in the extent to which the undergraduate students utilize EIRs in the university libraries in Gombe State.

HO_3: There is no significant difference in the extent to which the undergraduate students are satisfied with the EIRs in the university libraries in Gombe State.

1.5 Objectives of the Study

The study achieved the following objectives:

1. To identify the types of electronic information resources available for the undergraduate students in the university libraries in Gombe State.
2. To find out the extent to which the undergraduate students access electronic information resources in the university libraries in Gombe State.
3. To identify the extent to which the undergraduate students utilize electronic information resources in the university libraries in Gombe State
4. To determine the extent of the undergraduate students satisfaction with electronic information resources in university libraries in Gombe State.
5. To find out the challenges faced by the undergraduate students in accessing electronic resources in university libraries in Gombe State.

1.6 Significance of the Study

The study examined utilization and access to electronic information resources by undergraduate students; the results could serve as a reference point in addressing the issue of electronic information resources usage and access by undergraduate students.

The findings are expected to inform management in decision making about effective electronic information resource provisions. The report will also serve as reference materials for the formulation and implementation of policies and directions on utilization and access to electronic information resources in university libraries in Gombe State and other university libraries around the globe. Also, the results of this study would provide policy makers and decision makers with a considerable knowledge on current issues of using EIRs so that appropriate measures and decisions can be taken to ensure maximum and efficient use. The

outcome of this study is expected to bring about enhanced access and utilization of the libraries' EIRs by the undergraduate students thereby leading to improved academic performances and research output.

In addition, the findings would contribute to the existing literature on EIRs and other researchers, especially in the field of library and information science who will want to carry out further research in this area of study will also find this study very relevant.

1.7 Scope of the Study

The study focused on access and utilization of EIRs (both online and offline) in university libraries in Gombe State. Gombe State has four (4) Universities, namely: Federal University, Kashere, Gombe State University, University of Science and Technology, Kumo and National Open University of Nigeria (NOUN).

The study was limited to Federal University, Kashere and Gombe State University, this is because as at the time of this study the University of Science and Technology, Kumo has not taken up and the National Open University of Nigeria (NOUN) was not included because is not a conventional university. The two Universities selected for the study have computerized libraries that provide electronic information resources service for the patrons.

1.8 Operational Definition of Terms

The following terms are defined operationally within this study:

Access: Access means to obtain or retrieve information electronically.

Electronic Information Resource: Information resources like journal, book, database that can be accessed on the Internet, computer, CD-ROM, digital/virtual libraries or related computer/electronic networks.

Undergraduate Student: This refers to students pursuing first degree in a degree awarding institution.

University Library: This refers to libraries established to support teaching, learning and research in a university environment.

Utilization: An act of making use of information in electronic format.

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CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Introduction

This Chapter reviews literature related to the study of electronic information resources under the following sub-headings:

2.2 Concept of Electronic Information Resources

2.3 Types of Electronic Information Resources

2.4 Access to Electronic Information Resources

2.5 Utilization of Electronic Information Resources

2.6 Satisfaction With Electronic Information Resources

2.7 Challenges in Accessing Electronic Information Resources.

2.8 Summary of the Review.

2.2 Concept of Electronic Information Resources

Electronic information resources (EIRs) are digitized information, facilitated by computers, network connectivity, electricity and other peripheral components and most importantly human beings. These resources come in different formats such as text, videos, audio, graphics, tables, pictures, etc. With the development of electronic information sources and services, a new dawn has begun in the lives of librarians as well as users. Dhanavandan and Tamizhcheivan (2012) defines electronic resources as resources in which information is stored electronically and it can be accessible through electronic systems and network environment. Electronic resources is a very broad term that includes a variety of different file formats. Instant access is quite possible with electronic resources within few seconds.

Electronic resources are information resources that can be accessed electronically via the Internet or digital media. According to Bankole, Ajiboye and Otunla (2015), electronic information resources consist of information resources provided in electronic formats such as

Internet, CD-ROM databases, e-books e-journals, Online database, Online Public Access Catalogues, and other computer –based electronic networks. Electronic resources can be accessed remotely via the World Wide Web or delivered locally. Electronic information resources may be defined as information resources that are available and can be accessed electronically through computer networked facilities such as online library catalogues, the Internet and the World Wide Web, digital libraries and archives, government portals and websites, CD-ROM databases, online academic databases, such as Medline or Commercial databases such as Lexis Nexis (Ekwelem, Okafor and Ukwoma, 2009 cited in Jonathan and Udo, 2015).

According to Yakubu and Olatoye (2015) electronic resources are the information on devices such as net, hard disc, flash drive and CD ROMS. It could be in form of database application created for a particular organization that manages data and allows easy access, fast storage and retrieval of that data. Database can be edited to suit one's purpose or interest. Shariful (2012) is of the view that electronic information resources are those resources that deal with both born electronic and digitized materials which can be either accessible from the library's in-house database or from the world-wide-web. The born electronic materials include: e-books, e-journals, e-newspapers, e-magazines, e-projects, e-theses, e-dissertations, e-reports, website, and other related materials which can be considered necessary by the users or even by the library management itself. On the other hand, electronicized materials mean converting the materials from other formats into electronic format.

Electronic resources According to Ku (2008), refers to those materials that require computer access, whether through microcomputer, mainframe, or other types of computers, and that may either be locally mounted or accessed remotely via the Internet. Electronic information resources as a term, is frequently and interchangeably used with such other terms as electronic resources, virtual resources, online resources, and digital resources. Electronic information

resources have been useful to university communities both in the developed and the developing nations of the world. Electronic information resources are now a major resource in every university library and it has significantly transformed information handling and management in academic environments and university libraries in particular (Bankole, Ajiboye and Otunla, 2015)

Sivathaasan and Velnampy (2013) stated that electronic information resources encompass, e-books, e-journal, e-databases, e-papers, e-reference sources, e-learning tools, emailing list, e-reports, e-publishing, e-advertising, OPAC, e-news, e-image, e-music, and numerous other materials in electronic form. Furthermore, they are those kind of documents in digital formats which are made available to library users through a computer based retrieval system. Thanuskodi (2012) opines that EIRs are the source of information. It can be defined as resources that include documents in electronic or e-format that can be accessed via Internet. They are available in various forms like e-books, digital libraries, online journal, magazine, e-learning tutors, on line test e-journals, e-discussions, e-news, data archives and e-mail on line chatting and deliver a collection of data, be it text, image collection, other multimedia products like numerical, graphical mode. The Online Dictionary of Library and Information Science (2004) defines electronic information as material consisting of data and/or computer program(s) encoded for reading and manipulation by a computer, by use of a peripheral device directly connected to the computer such as a CD-Rom drive or remotely via network such as the internet. The category includes software applications, electronic texts, bibliographic databases, institutional repositories, web sites, e-books, collections of e-journals, etc.

Electronic resources are easily accessible in the remote areas and solve storage problems and control the flood of information (Munira and Bushra, 2010). This has increased the global dissemination of information. EIRs can be accessed remotely via the World Wide Web or delivered locally. Electronic information resources is made up of a range of products that may

exist in different forms such as CD-ROMs, and resources available on the Internet such as online databases, web pages, etc. and they provide libraries with vast resources for their user populations (Gupta, 2011).

Electronic information resources have become essential for the university studies and are very popular to most of the students because they can provide a number of advantages over traditional print based sources. Tella, Tella, Ayeni and Omoba, (2007) states the advantages of networking and use of electronic resources as follows: 'the information needed can be delivered from the most appropriate source to the user; the user can re-specify his or her needs dynamically; the information is obtained when it is wanted, so becomes "just in time" rather than "just in case"; the user selects only the information needed to answer the specific question and, finally, the information is stored only if the user wishes, and very often by the user, not the library. Another important advantage of electronic resources is that more than one user can access them at the same time. Articles can be downloaded and printed simultaneously by more than one reader, depending upon access rights and permission. EIRs also carry the potential power to increase the learning opportunities offered to students. As the role of libraries continues to change, librarians are making more and more electronic information resources available for use.

2.3 Type of Electronic Information Resources

The technological advancement has made users to be more diverse in information seeking; university libraries are challenged to meet these needs by providing appropriate electronic information resources. The following are types of EIRs usually found in university libraries

2.3.1 Online Databases

The most effective way to provide access to electronic books/journals in University Libraries is through subscription to online databases which can be accessed through the internet. Online databases are a collection of electronic information sources (e-journals/e-books) by publishers

from various fields and disciplines (Afolabi, 2007 cited in Dongardive, 2015). Some of these databases are provided free of charge to libraries in developing countries by their publishers or vendors. It comprises of e- books, e- journals by various publishers in the field of social sciences, humanities, natural sciences, etc. Some of these resources are provided at no cost to libraries in developing countries, while others require some fee payable as subscription. However, accesses to these databases provide researchers with thousands of scholarly journals articles in one field of specialization or research (Bozimo 2007). Online databases are essential in contemporary research processes in university libraries. Some of these databases include: JSTOR, ARDI, SCIENCEDIRECT, HINARI, AGORA, OARE, etc. Access to these databases provides undergraduates with scholarly articles in their respective fields of study.

2.3.2 Digital Information

Digital information implies digital conversion of library resources. It is a recent development thereby information materials in paper format are converted by machine into electronic form in order to have quick and easy access to them by electronic means (Ellis and Oldman, 2005). Nevertheless, as special and valuable collections are confined to certain institutions, researchers from different institutions, research centres, etc have to travel a long way to access the materials (Ellis and Oldman, 2005). Ellis and Oldman (2005) cited in Journal of Library and Information Science'(2008) opined that researchers from different institutions further away from counties such as Dundee, Aberdeen or Belfast, felt that digitized resources would allow them to get hold of materials more easily without problem. Hence, digitalization of certain materials in the library would be a huge benefit in terms of accessibility to relevant information.

2.3.3 Electronic Journals

Electronic journals (e-journals) which have undoubtedly become one of the most used technological innovations form a major part of these electronic resources. Electronic journals

(e-journals) according to Johnson, Evensen, Gelgand, Lammers, Sipe and Zilper (2012) are journals provided in a digital format for access via an internet browser, a computer or other electronic device. Electronic journals provide efficient access to information and, thus they are easy to distribute to library patrons than traditional print. Electronic journals According to Mgobozi and Ocholla (2002) as cited in Ernest (2015) electronic journals may be divided into two types (online and web-based electronic journals).

Online electronic journals are the ones produced electronically but also have print versions. The whole issue may be distributed electronically to a mail list, or only the table of contents and abstracts may be provided, with specific information pertaining to how one can obtain the full electronic text of an article. Web-based electronic journals are those that are digital in form. These are produced, processed, edited, stored, reviewed and distributed to subscribers electronically without print versions.

Journals made available in electronic form have now become an accepted norm for many academic institutions in the world. It is therefore the responsibility of an academic institution to make these resources available to all its authorized users in-house, on campus and remotely. This development has therefore resulted to the growing number of electronic journals, pre-print (e-print), archives, and electronic books.

E-journals have many advantages. Maxymuk (2004) enumerates some of the advantages: they take up no physical space on limited shelving; they are accessible at any time; they can be accessed from almost any workstation that can connect remotely to the institution's network; they can be searched and browsed; they can be printed on demand and they often can be downloaded as electronic files.

2.3.4 Compact Disc-Read Only Memory (CD-ROM) Databases

CD-ROM databases allow users access to relevant databases without vigorous internet connectivity in libraries. A CD-ROM is an e-resource format that contains up to 650-900

Mega-Bytes (MB) of information on a single-sided and single-layered optical disc (Johnson et al., 2012). It is a CD that can be read by a computer with an optical drive. The 'ROM' part of the term means the data on the disc is 'read-only', or cannot be altered or erased. Because of this feature and their large capacity, CD-ROMs are a great media format for retail software. CD-ROMs share the same technology as audio CDs, but they are formatted differently, allowing them to store many types of data (Johnson et al, 2012). It is therefore cost effective than online databases, as information can conveniently be accessed offline without paying for telecommunication fee. CD-ROM databases are of great value over print if the system is networked, as library patrons at their respective terminals could access information without coming to the library (Oduwole 2001).

A Compact Disc (CD) is a laser – read (also termed optically read) data storage device on which audio, video or textual material can be stored. One application for the CD that is important to information dissemination is the CD-ROM which is used for the storage of computer text programs. CD-ROM databases are important tools for identifying the bibliographic details of potentially useful documents and ensure easy access to large volumes of literature for research.

Majid and Tan (2002) stressed that the amazing technological advancements have opened new horizons for information creation, duplication, storage, access, distribution and presentation. The pace at which information sources are being produced and converted into electronic form is tremendous. Digitization of information is resulting in access to unbelievable volumes of information. It is almost impossible to damage it by scratches or blow, fingerprints, extreme climate condition or dust. The data are permanently retained when the disc is produced. Magnetic field or electromagnetic waves do not influence the record. The user cannot alter the information once it has been burnt in. No information is lost if there is power cut. It is possible to record on CD-ROM text, figures, graphs and digital pictures. The CD-ROM technology has

dominated a lot of discussion in library and information service. This is due to its enormous advantages.

CD-ROM is an aspect of information technology used mostly in developing nations it does not depend on expensive infrastructure such as telecommunication networks or large computer systems.

2.3.5 Electronic Books

According to Johnson *et al*. (2012) electronic books (e-books) are books that are provided in a digital format for checkout or use via an internet browser, a computer, or another electronic device like an e-book Reader. An e-book is based both on emulating the basic characteristics of traditional books in an electronic format. An e-book can take the form of a single monograph or a multi-volume set of books in a digital format that allows for viewing on various types of monitors, devices, and personal computers. E-books have become an important part of the learning environment in tertiary institutions. Their importance continues to grow, and the number of academic libraries supporting digital collections grows with it. One area that is well recognized as benefiting from e-books is distance learning. Online education makes higher education more affordable and accessible; the number of students enrolling for online education program is constantly increasing. Students can complete or advance their education while they work (Minčić-Obradović, 2011). Questia is one example of companies that offer web access to e-books.

An e-book can be accessible anytime, anywhere via the Internet, requiring no device but a personal computer to access the content, also the copyright protection is ensured regardless of whether the content is accessed via the Internet or via a downloadable reader that allows access to the book offline. In the 21st century, students lay more emphasis on using electronic books rather than the hard copy or print. And this came as a result of the advantages the electronic books have over the printed version which includes straightforward, easy access to content; on-

demand availability; cannot be lost, stolen, or damaged; capabilities to search within a book and across a collection of books; links to other resources, including dictionaries and thesauri; no physical space requirements; no device requirements for access to the content; access to content using standard web browsers; customizable search interfaces; easily transported; and access from anywhere.

2.3.6 Online Public Access Catalogue (OPAC)

Library OPACs first emerged in the late 1970s and early 1980s respectively. OPAC has virtually replaced the manual card catalogue in most libraries. OPAC is an information retrieval system characterized by short bibliographic records, mainly of books, journals, and audio-visual materials available in a particular library (Thanuskodi, 2012). An OPAC is an online database of materials held by a library or group of libraries. It is a computerized library catalog available to the public. Most OPACs are accessible over the Internet to users all over the world. Users search a library catalogue principally to locate books and other material physically located at a library. The basic purpose of the OPAC is to create a database of library holdings which provides an online catalogue to help users easily identify and find resources. OPAC has multiple access points where users can access bibliographic records. For example, searches can be done by using author name, title, key words and call marks.

2.4 Access to Electronic Information Resources

Access to information is important because, except an information source/resource is made accessible to users, it would remain unused. Access to electronic resources is very crucial for academic excellence and participation in the information and knowledge societies. Access to EIRs refers to an act of locating and proximity to electronic information resources. Aina (2011) stated that accessibility determines the speed at which an information output in any formats is obtained. Therefore, good information resources should be received and retrieved to meet the desired need. Some of the electronic resources require password and User ID for them to be

accessible while some can be accessed without any restrictions. Accessibility of information materials is one of the basics for information utilization. Seth and Parida (2006) assert that the availability of a resource does not automatically translate to its use but its accessibility. It is also important that the capability of the resources available in the library to satisfy the needs of undergraduates and faculty members lie on its accessibility. This implies that the gains and benefits accruable from the use of electronic information resources can only be obtained if the resources are not just only made available but, also accessible to users.

Aguolu and Aguolu (2002) stated that resources may be available in the library and even identified bibliographically as relevant to one's subject of interest, but the user may not be able to lay hands on them. Ugah (2008) opines that the more accessible information sources are, the more likely they are to be used and readers tend to use information sources that require the least effort to access. He went further to explain accessibility by citing Osundina (1974), who studied the relationship between accessibility and library use by undergraduates in Nigeria and noted that the problem of Nigerian students is not the question of wanting to use the library, but whether or not the university library can provide for their needs, and whether there is access to what is provided. Popoola (2008) agrees with this position when he identifies accessibility as one of the pre-requisites of information use. Ugwu (2008) explains further in his study that the problems of transmission, storage, and display of information have been combined with the problem of getting information to users quickly. Aina (2014) in her study finds that only 40 (47.1%) and above of respondents had full accessibility to Academic Journal, Ebscohost and JSTOR databases. AJOR, Electronic Resources for Research Methods and International Research Journal were averagely accessible to the respondents 30 (35.3%), 36(42.4%), 38 (44.7%) respectively. The study also reveals that the following databases were not accessible to respondents with Book boon 19 (22.4%), Dissertation and Theses 19 (22.4%), DOAJ 55 (64.7%), HINARI 20 (23.5%), SAGE 23(27.1%), World Bank Open Knowledge Repository 31

(36.5%) and National Virtual Library databases 25 (29.4%). This implies that despite the fact that these resources were subscribed to and respondents were aware of them, still they are not all fully accessible due to one challenge or the other such as inadequate internet facility and electricity supply.

Ugwu and Onyegiri (2013) stated that "accessibility of these resources is re-defining the vision and mission of university libraries today". University libraries nowadays are providing access to databases online for their users to facilitate learning, research, and development. It is acceptable that a large number of databases are accessible on the internet which can be accessed free of charge in the universities, (Khan, Zaidi and Bharati, 2009 as cited in Ernest, 2015)

Access to EIRs is associated with several aspects, such as service availability at any time and from any location, speed of information delivery, availability of user-friendly interfaces and technologies, support from the library, navigation functionalities, IT infrastructure, and authentication processes (Bishop, 1995 and McKnight, 1997 cited Ukachi, 2013). ICT enhanced access to electronic information resources in a given university library.

However, users tend to use information resources that require easy access. Aguolu and Aguolu (2002) noted that availability of an information source does not necessarily imply its access, because the source may be available but access to it might be prevented for one reason or the other. There has been a tremendous improvement in the accessibility to electronic contents as compared to earlier times when print information was the order of the day. Nowadays, there are a lot of channels available to scholars by which they can locate and access published literature, bibliographic databases among others. Amjad, Ahmed and Naeem (2013) observed that accessibility of electronic information resources in a University library is very common and users are also using electronic information resources more than print resources. In order to remain relevant in the current information age, undergraduates and faculty members have to

adopt the use of electronic resources to enhance their teaching, learning and research activities. Atinmo (2000) states that one important issue that is affecting access and use has been the need for library managers to carry out feasibility study and staff training before embarking on provision of ICT facilities. Aguolu and Aguolu (2002) reveal that efforts are being made worldwide to promote access to information in all formats; they lament the attendant of underdevelopment such as power failure, machine breakdowns, and lack of spare parts and technicians, which intermittently stall the performance of the modern gadgets of information storage and transfer in developing countries.

Accessibility of electronic information resources encompasses accessibility to a network connection, a computer, and other necessary equipment found to be directly related to the use of information resources and users' selection of an information channel to pursue information. Nwezeh (2010) stated that university libraries in developing countries are adjusting to the new essentials of rapid access to information to help their users.

2.5 Utilization of Electronic Information Resources

Electronic information resources have become a major part of the university libraries collection in the fulfillment of its roles of teaching, learning and research. University libraries make available a wide array of electronic information resources for use by the undergraduates, postgraduates, researchers and staff for various academic purposes. These purposes include; doing class assignments, writing term papers, augmenting class works, retrieving current literature for studies, following blog discussions on subject area of interest, searching for scholarship opportunities, searching for internship placement and for research purposes. Whitmire (2001) posited that the use of electronic resources is influenced by students' use of the library. The more a student uses the library the more familiar he becomes with its resources, including its electronic resources.

Oyedapo and Ojo (2013) carried out a study on the use of electronic resources at Obafemi Awolowo University, Nigeria under-utilization of the electronic resources was observed. The major reason for the under-utilization of electronic resources was poor searching skills. Baro Endouware and Ubogu (2011) also studied the awareness and use of online information resources by medical students at Delta State University in Nigeria and found that scholarly electronic journal databases were under-utilized. Users cited lack of awareness of the existing resources as the primary problem they had. Okello and Magara (2008) supported this notion of under-utilization and found that the obstacle to access and utilization of electronic journals by Makerere students in Uganda as well as students in other higher learning institutions was lack of awareness about the resources.

Undergraduates used EIRs for different purposes. Kumar and Kumar (2008) in their study discovered that the purpose of accessing electronic information resources is to support learning and also to write project work. Ansari and Zuberi (2010) added that many students use e-resources for research. Others also use them to perform assignments, prepare for examinations and to gain subject knowledge. Similarly, Cothran (2011) asserted that graduate students use Google Scholar more since they find it easy to learn and easy to navigate. Also, the design and interface of search engines are user-friendly and it is a useful resource for their research.

Ojo and Akande (2005) in their study examined students' access, usage and awareness of electronic information resources at the University College Hospital (UCH) Ibadan, Nigeria. The study reveals that the level of usage of the electronic information resources by students for academic activities is not high. A major problem however identified is lack of information retrieval skills for exploiting electronic resources, thus making the level of usage of resources by medical students very low. Emerole and Ogugua (2007) in their study of library use study found out that there is low patronage of library services especially in the area of use of EIR as many users have not fully realized the potentials of the library in this information age. On the

contrary view, Alhassan and Macaulay (2015) in a study on the availability and utilization of electronic resources by university students in Niger State, shows that electronic resources like the internet, e-mail, online databases, electronic databases and electronic journals were highly used by the respondents in the two universities, while others like CD-ROM databases, electronic journals, Online Public Access Catalogue (OPAC) and electronic books were rarely used. The study also reveals that the undergraduate students used the electronic resources for various purposes, such as online application/registration, research, communication with friends and colleagues, sourcing materials for project writing, completing assignments, and for other personal purposes.

Ndinoshiho (2010) assessed the use of electronic information services by undergraduate students at the University of Namibia's Northern Campus. The findings revealed that majority of the students used the internet, but e-databases were significantly underutilized. The students used electronic resources to obtain academic information and current awareness, and the major constraints faced were the shortage of computers, unreliable internet connection, and lack of skills. The access and utilization of electronic resources by students at the East African School of Library and Information Science, Makerere University, Uganda was carried out by Okello-Obura and Magara (2008). The study found out that students derived a lot of benefits from electronic resources as they were able to gain access to a wider range of information and that access to quality information improved their academic performance.

The use of electronic information resources by Nigerian students was studied by Okiki and Ashiru (2011). The study found out that the students were motivated to use electronic resources for their research projects, gain quick access to information and to search for new things. The major problems encountered by respondents in gaining access to and using electronic resources were slow internet connectivity, frequent incessant power outage and few computers with internet facilities. Adeniran (2013) studied the usage of electronic resources at Redeemers

University in Nigeria and found that even though respondents were aware of the different types of electronic information resources available in the university library; their use rate of these resources was low. The factors that hampered effective utilization of electronic resources were large mass of irrelevant information, the need to filter the results from search, download delay, failure to find information and inadequate or lack of search skills. The study concluded that electronic resources has impacted positively on the academic performances of the undergraduates, but recommended the need for them to acquire more skills in the use of electronic resources.

Gakibayo, Ikoja-Odongo and Constant (2013) assess students utilization of electronic information resources in Mbarara University Library, Uganda. They found that the use of electronic resources was constrained by lack of computer and information literacy skills, inadequate number of computers and slow internet connectivity. The frequency of use of these resources indicated that the University would have to do a lot to improve on electronic resources use in the institution.

Tariq and Zia (2014) in their study on the use of electronic information resources by the students of Faculty of Science, University of Karachi, Pakistan reveals that they used electronic resources for class assignments and to get updated. The major hindrance to access and use were power failure, slow network connection and subscription issues. Furthermore, the users also need to get trained for an effective use of these resources.

According to Bassi (2011) The Use of Electronic Resources in University Libraries of Adamawa State, Nigeria' shows that Internet was the most highly used EIRs representing 392(41.5%), while e-books and e-journals represents 165(17.23%) and 125(13.09%) respectively. The least responses are e-theses and dissertations which have a frequency of 18(1.88%) This might be attributed to small number of postgraduate students in this study.

Use and impact of electronic resources at the University of Lagos is a study carried out by Egberongbe (2011). The study found that EIRs such as databases, e-newspapers and e-magazines were not used very much. Furthermore, the study showed that lecturers and research scholars were aware of EIRs. Awareness of EIRs indicated user knowledge of the availability of the EIRs, and that they made use of them. The study showed that the majority of scholars did not get training in the use of EIRs. The study also reveals that the level of IT skills among lecturers, scholars and Library staff was variable and low. Most users used informal methods for training themselves; for example one on one consultations. It was also observed that groups of users were not getting proper encouragement by university management to participate in training programmes. The results of this study revealed that EIRs were preferred by some respondents because they were more useful, time saving, easy to use, more informative and less expensive. Gakibayo, Ikoja-Odongo and Okello-Obura (2013) emphasized that libraries are integral part of universities and had a critical role to play in supporting the core mission of the University which are teaching, learning and research. Electronic Information Resources made available by University libraries to university communities; faculty, staff, students and other authorized users are for activities that support the University's mission. One may therefore conclude that these studies have shown that EIRs are widely used in universities, but there is a relationship between computer literacy and use of EIRs. Where IT resources were lacking and computer skills were low, less use was made of EIRs. Most academics and students surveyed were computer literate to some extent, but they needed to develop their searching skills.

In a study of awareness, accessibility and use of electronic databases, Aina (2014) found out that only Academic Journal, Ebscohost, and JSTOR, were fully utilized with 38 (44.7%), 40 (47.1%) and 36 (42.4%) respectively. Finding also depicts that the following electronic databases were not utilized: SAGE 23 (27.1%), World Bank Open Knowledge Repository 31 (36.8%), International Research Journal and National Virtual Library with 25 (29.4%) each.

This is an indication that the rate at which respondents were aware of electronic resources was not the same way these resources were used. Similarly, Ferdinand, Eghworo and Paul (2015) revealed in their study that 12 (4.5%) of the 267 (100%) respondents used the CD-ROM facility regularly, 17 (6.4%) used it occasionally, 99 (37.1%) used it rarely while 139 (52.1%) indicated that they did not use it at all. Also, 52 (19.5%) confirmed that they use the online database regularly, 153 (57.3%) used it occasionally, 50 (18.7%) used it rarely while 12 (4.5%) said they never used it. Meanwhile, 93 (34.8%) said they used electronic books regularly, 124 (46.4%) used it occasionally, 42 (15.7%) used it rarely while 8 (3%) said they did not use it at all. 240 (89.9%) of them used the Internet regularly, 25 (9.4%) used it occasionally, 2 (0.8%) used it rarely while 0 (0%) said they did not use it at all. 78 (29.2%) of them indicated that they used e-journals regularly, 73 (27.3%) used it occasionally, 85 (31.8%) used it rarely while 31 (11.6%) did not use e-journals at all. This reveals that majority of the respondents did not make use of the electronic information resources available in FUPRE library regularly.

The effective and efficient use of electronic information resources requires necessary relevant computing skills. In a study of faculty's use of electronic resources, Waldman (2003) found out that the use of e-resources is influenced by factors such as computing skills of academics, their age, and gender. This assertion disagrees with the study of Tyagi (2011) which states that the ability to use e-resources efficiently depends on basic computer skills, knowledge of what is available and how to use it.

2.6 Satisfaction With Electronic Information Resources

Library user satisfaction implies how users feel after using the information resources and services and their willingness to return to the library when next they need information (Ikenwe and Adegbilero-Iwari, 2014). Users' satisfaction could be considered as the satisfaction users derive from the library by using the electronic information resources to fulfill their information

needs for their various daily activities. User satisfaction is one of the methods of evaluating the effectiveness of library services (Cullen, 2001).

Recognizing the satisfaction of undergraduates on the access and use of EIRs helps the Library management to understand its user's extent of satisfaction for proper planning. Dhanavandan, Esmail, and Nagarajan (2012) conducted a study to determine the level of satisfaction with EIRs by using the questionnaire tool among the students and faculties of Krishnasamy College of Engineering and Technology Library, India. Nearly 150 questionnaires were distributed among the faculty and students, and 118 (78.7%) were responded. The study found that the overall assessment of service quality and user satisfaction was rated as moderate. On the contrary, Tiemo and Ateboh (2016) in their study on users` satisfaction with library information resources and services: a case study of college of health sciences Library Niger Delta University, Nigeria, reported that users were dissatisfied with electronic information resources services, especially the CD-ROMs and the online data bases.

2.7 Challenges Faced in the Use of Electronic Information Resources

There are several challenges faced in access and use of electronic information resources. Bhatt and Rana (2011) identified that the most common problems with e-resources are low speed connectivity, lack of awareness about statutory provision for accessing e-resources by the institutions, technical problems, unavailability of sufficient e-resources, doubts in permanency, high purchase price and lack of legal provision. A similar study by Egberogbe (2011) revealed that some of the factors hindering the use of e- resources in university libraries include; lack of strategic planning, adequate or reliable funding, lack of use of internet to provide information services to users and lack of consistent training for users in new ICT services. Agaba, Kigongo-Bukenya and Nyumba (2004), in their study found out that inadequacy of facilities is another problem faced by users of electronic resources, thereby leading to congestion in libraries.

Several studies have identified a number of problems associated with the use of EIRs. These problems range from lack of or inadequate resources, mainly computers, and poor internet connectivity, inappropriate usage to lack of appropriate skills among users. In a study by Kwafoa, Osman and Afful-Arthur (2014) it was found out that the challenges facing faculty members in accessing online academic resources are charges to access EIRs (18.31%), lack of proper guidance (19.31%), slow nature of the internet (35.92%) and Lack of knowledge about tools and techniques used for searching and retrieving EIRs (8.45%). This meant that there is the need to intensify awareness creation and education on the accessibility and usage of the library's online academic databases. Other researchers have shown that the use of the internet and other EIRs by undergraduates was limited by inadequate number of computers and access points (Luambano and Nawe, 2004 and Malekani, 2006).

The study of Iwehabura (2009) shows that lack of adequate knowledge and skills in some aspects, including searching and evaluation affected the use of various EIRs in Tanzanian University libraries. The study recommends the development of ICT infrastructures, that librarians and teaching staff become role models and mentors to students in using EIRs, and that teaching staff adopt an active learning and student-centered approach in their teaching as well as strengthening information literacy programmes as intervention measures for improving students' skills in using EIRs. Alhassan and Macaulay (2015) reported in their study that, limited access to computer terminals, lack of IT knowledge to effectively utilize the services, non-assistance from library staff to facilitate easy access and network failure were some of the hindrances to effective use of EIRs in university libraries.

2.8 Summary of the Review

The study reviewed literature related to access and utilization of electronic information resources on the following sub-headings, concept of electronic information resources, types of electronic information resources, access to electronic information resources, utilization of

electronic information resources, satisfaction with electronic information resources and the challenges faced in accessing EIRs.

Electronic information resources is simply defined as any information resources that require computer access, whether through microcomputer, mainframe, or other types of computers, and that may either be locally mounted or accessed remotely via the Internet. EIRs comprises information resources such as e-journals, e-books, CD-ROMs, OPACs, digital resources etc. Access to EIRs is the basis for its utilization and is facilitated by availability of computers, and other necessary facilities directly related to the access and use of the electronic resources. The utilization of EIRs is influenced by the students' use of library and requires computing skills for effective use. Satisfaction with EIRs could be seen as one of the methods of evaluating the effectiveness of library services.

However, none of the literature reviewed deal specifically with the variables of the study (undergraduate students' access to EIRs, utilization of EIRs, and satisfaction with EIRs) in university libraries in Gombe State, Nigeria. As a result of this, there is a need to explore undergraduate's access and utilization of EIRs in University libraries in Gombe State. This is the gap observed which this study is meant to bridge.

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CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter discussed the research methodology adopted for the study. They are discussed under the following sub-headings:

3.2 Research Methodology Adopted for the Study

3.3 Population of the Study

3.4 Sample and Sampling Technique

3.5 Instrument for Data Collection

3.6 Validity of the Instrument

3.7 Reliability of the Instrument

3.8 Procedure for Data Collection

3.9 Procedure for Data Analysis.

3.2 Research Methodology Adopted for the Study

This study adopted a quantitative research methodology. Quantitative research methodology refers to observations and measurements that can be made objectively and repeated by other researchers. It deals with the collection of objective numerical data using deductive reasoning, this move from the general to the specific. This method allows the results of a study to be generalized from the sample perspective to the entire population. (Amoaful, 2011)

3.2.1 Research Design Adopted for the Study

Research design is a plan or strategy for conducting a research (Abdullahi, 2015). The design provides the overall structure for the procedures that the researcher follows the data the researcher collects among others. Cooper and Schindler (2006) posit that research design is the plan and structure of investigation to obtain answers to research questions. For the purpose of this study, cross-sectional survey design was used. Cross-sectional survey design is a research

approach in which the researcher investigates the state of affairs of a population at a certain point in time (Bethlehem, 1999 cited by Zheng, 2015). This is considered appropriate because the population of the study is heterogeneous in nature in terms of gender, age, course of study etc.

3.3 Population of the Study

Population is the totality of the items or objects under study. It often connotes all the members of the target of the study as defined by the aims and objectives of the study (Popoola, 2011). Therefore the population of the study comprised of all registered undergraduate library users in the two University libraries in Gombe State. The Federal University, Kashere (FUK) has 928 registered undergraduate students' library users and Gombe State University (GSU) has 2,042 registered undergraduate students' library users as at 2016/2017 academic session.

Table 3.1: Population of the Study

GSU		**FUK**	
Levels	**Population Size**	**Levels**	**Population Size**
100	499	100	328
200	517	200	271
300	406	300	166
400	334	400	163
500	286	-	-
TOTAL	**2,042**		**928**
GRAND TOTAL	**2,970**		

Source: Student's Registration Record in the Reader's Services Section of the two libraries during the 2016/2017 Academic Session

3.4 Sample Size and Sampling Technique

A sample is a group of relatively smaller number of people selected from a population for investigation purpose (Alvi, 2016). The sample of this study consisted of 297 undergraduates' library users in university libraries in Gombe State. This sample is considered adequate for the study because Neuman (2006) stated that for equal accuracy, a researcher can select 10% of population above 1000 and 30% of population below 1000.

Stratified sampling technique was used in selecting the registered undergraduate students' library users from the two university libraries under study. This technique is chosen because the population has different strata. Two hundred and ninety seven (297) was selected with fairly equal representation from different strata for the study. The number is found adequate because it is sufficiently large enough to be a representative of the study population.

Table 3.2: Sample Size of the Study

GSU			**FUK**		
Levels	**Population Size**	**Sample Size**	**Levels**	**Population Size**	**Sample Size**
100	499	50	100	328	33
200	517	52	200	271	27
300	406	40	300	166	17
400	334	33	400	163	16
500	286	29	-	-	-
TOTAL	**2,042**	**204**		**928**	**93**
GRAND TOTAL	**297**				

3.5 Instrument for Data Collection

Questionnaire was used as the instrument for data collection for this study. Questionnaire is a research instrument consisting of a series of questions for the purpose of gathering information from respondents (Amankwah, 2014). Questionnaire was appropriate because the respondents are literate; they can easily and conveniently fill the questionnaire. The questionnaire was a closed-ended type which provides the respondents with options that best describes or indicates his/her feelings about the questions.

The researcher adapted the instrument and was categorized into sections A-E. Section A contained one (1) item on the personal information of the respondents; Section B covered fourteen (14) items on the type of electronic information resources available for undergraduate students in Gombe State university libraries. Section C comprised thirteen (13) items on the extent of access to electronic information resources in the university libraries in Gombe State, Section D focused on the extent of use of electronic information resources in the university libraries in Gombe State. This was made up of thirteen (13) items. Section E comprised of questions on the extent of undergraduate students satisfaction with electronic information resources in the university libraries in Gombe State, and was made up of thirteen (13) items. Section F contained questions on challenges faced in accessing electronic information resources with eight (8) items.

3.6 Validity of the Instrument

Validity is the degree to which a measuring instrument measures what it is design to measure. To obtain the validity of the instrument, the researcher subjected the instrument to research experts, supervisors and colleagues for validation. The instrument was corrected and their comments/suggestions were incorporated to arrive at the final copy of the instrument. Faced and content validities were used.

3.7 Reliability of the Instrument

Reliability refers to consistency of any result between independent measurements of the same phenomena. It is concerned with how consistent the result will be when the same measuring instrument is used repeatedly (Okpo, 2012). The reliability of the instrument was established by conducting a pilot study at the Federal University Dutsinma, using fourteen (14) registered undergraduate students' library users. The reliability coefficient of 0.88 was obtained using Cronbach's Alpha reliability method and analysed using Statistical Package for Social Sciences (SPSS) version 20. This implies that the instrument selected was reliable for this study.

3.8 Procedure for Data Collection

The researcher collected introductory letter from the Head of Department, Library and Information Science, Ahmadu Bello University, Zaria to allow for access to the two institutions under study. The questionnaire was administered by the researcher across the student's levels with the help of two (2) research assistants from each institution. The research assistants were trained on how to administer, retrieve and return the completed questionnaires to the researcher. The researcher's phone number was written on the questionnaire to enable the respondents reach the researcher on any difficulty that concerned the filling of the questionnaire. The questionnaires were administered within two (2) weeks to enable the respondents have adequate time to fill the questionnaire.

3.9 Procedure for Data Analysis

The data collected were analysed using mean and standard deviation for the research questions. For research questions 2, 3 and 4, five items Likert Scale was used, hence the benchmark for the descriptive analysis was 3.0. Hypotheses 1 to 3 were analysed using t-test to test the significant difference between the variables at 0.05 level of significant. This is suitable for the data analysis because it showed the significant difference of the variables and also because of the two groups involved in the study.

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CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND DISCUSSION

4.1 Introduction

This Chapter presents the data collected, analyzed and discussed. The Chapter is divided under the following sub-headings:

4.2 Response Rate

4.3 Descriptive Analysis

4.4 Inferential Analysis

4.2 Response Rate

A total of two hundred and ninety seven (297) copies of questionnaire were distributed to the respondents. Two hundred and seventy five (275) copies of the questionnaire were duly completed, returned and found useful for analysis. This represents 92.6% response rate. Table 4.1 presents the distribution of the response rate.

Table 4.1: Response Rate

S/N	Universities	Number of Questionnaire Distributed	Number of Questionnaire Returned	Percentage of Questionnaire Returned
1.	Gombe State University	204	185	62.3
2.	Federal University Kashere	93	90	30.3
TOTAL		297	275	92.6

Source: Field Survey, 2018

From Table 4.1, 92.6% response rate was realized. This was due to the fact that the researcher, with the help of two research assistants in each university administered and collected the questionnaire back. The researcher as well as the research assistants used to follow up the

distributed questionnaires. However, some respondents left with the questionnaire, when the researcher and the research assistants went round to retrieve them and found neither the questionnaire nor the respondents.

4.3 Descriptive Analysis

This section presents the data collected and analyzed using descriptive statistics. The data analyzed in this section was collected using the five (5) research questions which guided this study. Mean and standard deviation were used in analyzing the data collected.

However, research questions 1 and 5 were analyzed without the use of Likert Scale. This is because the items in the questionnaire for these questions did not require the extent of the belief of the respondents while research questions 2, 3 and 4 were analyzed using Likert Scale because the questions require the responses about the extent of belief of the respondents.

4.3.1 Types of Electronic Information Resources for the Undergraduate Students in the University Libraries in Gombe State

The first research question is to find out the types of electronic information resources for undergraduate students in the university libraries in Gombe State. In order to answer this research question, a list of electronic information resources was provided for the respondents to tick as many types as possible. Table 4.2 presented the data collected and analyzed.

Table 4.2: Types of EIRs for the Undergraduate Students in University Libraries in Gombe State

S/N	Electronic Resources	Universities		Total	Mean	S. D
		GSU	FUK			
1	Electronic Books	174	86	260.0	130.0	62.2
2	TEEAL	121	42	163.0	81.5	55.9
3	HINARI	113	56	169.0	84.5	40.3
4	AGORA	158	63	221.0	110.5	67.2
5	JSTOR	73	38	111.0	55.5	24.7
6	Electronic Journals	179	79	258.0	129.5	63.9
7	OARE	102	47	149.0	74.5	38.9
8	Science Direct	128	52	180.0	90.0	53.7
9	CD-ROMs	25	49	74.0	37.0	16.9
10	Electronic Newspapers	172	83	255.0	127.0	62.9
11	Electronic Magazines	151	79	230.0	115.0	50.9
12	Institutional Repository	148	62	210.0	105.0	60.8
13	DVD	43	14	57.0	28.5	20.5

Source: Field Survey, 2018. **Key**: FUK = Federal University, Kashere, GSU = Gombe State University, SD = Standard Deviation

Table 4.2 presented the types of electronic information resources in the University libraries in Gombe State. The Table has shown that electronic journals with frequency of 179 have the highest response rate more than any others in GSU, E-books have 174, E-newspapers have 172, AGORA have 158, E-magazines have 151, Institutional Repository have 148, Science Direct have 128, TEEAL have 121, HINARI have 113, JSTOR have 73, DVD have 43 and CD-ROMs with frequency of 25 have the lowest response rate. In FUK the electronic books with frequency of 86 have the highest response rate more than any others, E-newspapers have 83, E-journals and E-magazines have 79 each, AGORA have 63, Institutional Repository have 62, HINARI have 56, Science Direct have 52, CD-ROMs have 49, OARE have 47, TEEAL have 42 and DVDs with frequency of 14 have the lowest response rate.

From the mean, electronic books with the mean of 130.0 have the highest mean. This finding is in line with the studies of Jonathan and Udo (2015), and Bassi and Camble (2011) who found out that e-book had the highest percentage of the respondents in the south east of Nigerian Federal Universities and University libraries of Adamawa State respectively. CD-ROMs with the mean of 37.0 have the lowest mean. This is contrary to the finding of Dhanavandan and Tamizhchelvan (2012) who reported that CD-ROM had 71.43% of the respondents. This result showed that all the types of electronic information resources listed are available in the University libraries in Gombe State. The implication of this finding is that, undergraduate students in the Universities in Gombe State can access and use electronic information resources since it's meant for them.

4.3.2 Extent to which Undergraduate Students Access Electronic Information Resources in the University Libraries in Gombe State

This section sought to find out the extent to which undergraduate students' access electronic information resources. In order to achieve this objective, lists of electronic information resources were provided for the respondents to indicate their extent of access using five points Likert Scale of measurement. For convenience and ease of data presentation and analysis, the five points Likert

Scale were collapsed to 3 points. They are: Highly Accessible (HA), Rarely Accessible (RA) and Undecided (U). This is presented in table 4.3

Table 4.3: Extent at which Undergraduate Students Access EIRs in University Libraries in Gombe State

S/N	Electronic Resources	Universities						Total	Mean	S. D
		GSU			FUK					
		HA	RA	U	HA	RA	U			
1	Electronic Books	122	53	10	59	28	3	275	5.7	1.8
2	TEEAL	93	59	33	42	38	10	275	4.8	2.1
3	HINARI	82	69	34	42	39	9	275	4.7	1.9
4	AGORA	81	77	27	47	37	6	275	4.8	1.9
5	JSTOR	84	75	26	50	30	10	275	4.9	2.0
6	Electronic Journals	92	79	14	48	36	6	275	5.1	1.7
7	OARE	79	85	21	46	35	9	275	4.8	1.9
8	Science Direct	97	80	8	50	36	4	275	5.3	1.8
9	CD-ROMs	102	78	9	57	27	2	275	5.5	1.7
10	Electronic Newspapers	87	81	17	52	30	8	275	1.3	1.9
11	Electronic Magazines	86	89	10	49	37	4	275	4.9	1.8
12	Institutional Repository	67	94	24	41	39	10	275	4.6	1.9
13	DVD	75	65	45	35	38	17	275	4.3	2.1

Source: Field Survey, 2018. **Key:** HA = Highly Accessible, RA = Rarely Accessible, U = Undecided, SD = Standard Deviation

Table 4.3 has shown the responses of the respondents on the extent of access to electronic information resources by undergraduate students in the university libraries in Gombe State. The Table showed that in GSU, electronic books with the frequency of 122 have most responses, CD-ROMs have 102, Institutional Repository have 94, TEEAL have 93, E-journals have 92, E-magazines have 89, E-newspapers have 87, OARE have 85, JSTOR have 84, HINARI have 82, AGORA have 81 while Science Direct with frequency of 8 have the least responses indicating undecided. In FUK, electronic books with the frequency of 59 have large responses, E-newspapers have 52, AGORA and Science Direct have 50 each, e-magazines have 49, E-journals have 48, AGORA have 47, OARE have 46, TEEAL and HINARI have 42 each, Institutional Repository have 41 while CD-ROMs with the frequency of 2 have few responses indicating undecided.

From the mean part, electronic books with the mean of 5.7 have the highest mean. This finding is not in line with the study of Ibrahim (2014) on accessibility and use of electronic information resources and services in MTN Universities connect libraries in Nigerian Universities who found that majority of the students accessed electronic newspapers more than electronic books. However, electronic newspapers with the mean of 1.3 have the least mean. This finding concurs with that of Aina (2014) on the awareness, accessibility and use of electronic databases among academic staff of Babcock University Business School, who reports that electronic newspapers were averagely accessible to the respondents. This implies that undergraduate students in the universities in Gombe State prefer to access electronic books the most; this could be attributed to the fact that this electronic resource might contained most of the information the students required.

4.3.3 Extent to which Undergraduate Students Utilize Electronic Information Resources in the University Libraries in Gombe State

The objective of this question is to identify the extent to which undergraduate students utilize electronic information resources. To achieve this objective, electronic information resource were outlined for the respondents to indicate their extent of use using five points Likert Scale of

measurement. For convenience and ease of data presentation and analysis, the five points likert scale were collapsed to 3 points. They are: Highly Utilize (HU), Rarely Utilize (RU) and Undecided (U). This is presented in table 4.4

Table 4.4: Extent to which Undergraduate Students Utilize EIRs in University Libraries in Gombe State.

S/N	Electronic Resources	Universities						Total	Mean	S. D
		GSU			FUK					
		HU	RU	U	HU	RU	U			
1	Electronic Books	97	70	18	43	38	9	275	5.0	1.9
2	TEEAL	89	76	20	40	41	9	275	4.9	1.8
3	HINARI	55	87	13	40	45	5	275	4.9	1.7
4	AGORA	87	88	12	42	39	9	275	4.9	1.9
5	JSTOR	85	88	12	44	40	6	275	5.0	1.8
6	Electronic Journals	80	99	6	40	46	4	275	5.1	1.7
7	OARE	93	88	4	46	40	4	275	5.3	1.7
8	Science Direct	94	83	8	48	39	3	275	5.3	1.7
9	CD-ROMs	102	78	5	51	37	2	275	5.3	1.82
10	Electronic Newspapers	92	86	7	46	40	4	275	1.2	1.8
11	Electronic Magazines	80	82	23	31	37	12	275	4.7	1.9
12	Institutional Repository	97	80	8	53	34	3	275	5.4	1.8
13	DVD	102	78	5	48	38	4	275	5.2	1.8

Source: Field Survey, 2018. **Key:** HU = Highly Utilize, RU = Rarely Utilize, U = Undecided, SD = Standard Deviation

Table 4.4 indicated that majority of the respondents in GSU showed that CD-ROMs and DVD with the frequency of 102 each have the highest responses, E-journals have 99, E-books and Institutional Repository have 97 each, Science Direct have 94, AGORA and JSTOR have 88 each, TEEAL have 87, E-magazines have 82 while OARE with the frequency of 4 have lowest responses. Respondents in FUK indicated that institutional repository with the frequency of 53 have the highest responses, Science and DVD have 48 each, E-journals and OARE have 46 each, HINARI have 45, JSTOR have 44, E-books have 43, E-newspapers have 40, e-magazines have 37 while CD-ROMs with the frequency of 2 have the lowest responses.

From the mean side, institutional repository with mean of 5.4 has the highest mean. This result is not in agreement with the study of Alhassan and Macaulay (2015) on availability and utilization of electronic resources by university students in Niger State who revealed that electronic journals were highly used by the respondents in the two Universities in Niger State. However, electronic newspapers with the mean of 1.2 have the lowest mean. The finding corresponds with that of Akporhnor and Akpojotor (2016) on the awareness and usage of electronic information resources among postgraduate students of Library and Information Science in Southern Nigeria who revealed that electronic newspapers were the least used electronic resources. It implies that undergraduate students in the universities in Gombe State used institutional repository the most to get information they required.

4.3.4 Extent of Undergraduate Students Satisfaction with the Electronic Information Resources in the University Libraries in Gombe State

The objective of this question was to determine the extent of satisfaction by the undergraduate students with the electronic information resources. In order to achieve this objective, list of electronic information resources were provided for the respondents to indicate their extent of satisfaction with them using five point Likert Scales of measurement. The scales were collapsed

into 3 points to ease analysis. They are Highly Satisfied (HS), Rarely Satisfied (RS) and Undecided (U). This is presented in table 4.5

Table 4.5: Extent of Undergraduate Students Satisfaction with EIRS in University Libraries in Gombe State

S/N	Electronic Resources	Universities						Total	Mean	S. D
		GSU			FUK					
		HS	RS	U	HS	RS	U			
1	Electronic Books	123	42	20	57	10	13	275	5.6	1.8
2	TEEAL	72	94	19	33	51	6	275	4.5	1.7
3	HINARI	58	106	21	27	55	8	275	4.3	1.7
4	AGORA	60	93	32	25	50	15	275	4.3	1.9
5	JSTOR	63	87	35	29	49	12	275	4.2	1.9
6	Electronic Journals	70	94	21	31	52	7	275	4.6	1.9
7	OARE	83	84	18	40	41	9	275	4.7	1.8
8	Science Direct	70	96	19	30	53	7	275	4.8	1.8
9	CD-ROMs	81	82	22	39	41	10	275	4.8	1.9
10	Electronic Newspapers	68	93	24	30	47	13	275	1.2	1.9
11	Electronic Magazines	77	87	21	35	42	13	275	4.6	1.9
12	Institutional Repository	76	78	31	28	41	21	275	4.4	2.1
13	DVD	62	69	54	28	39	23	275	4.1	2.2

Source: Field Survey, 2018 **Key:** HS = Highly Satisfied, RS = Rarely Satisfied, U = Undecided, SD = Standard Deviation

From Table 4.5 it is obvious that majority of the respondents in GSU indicated that electronic books with the frequency of 123 have highest the response rate, HINARI have 106, Science Direct have 96, TEEAL and E-journals have 94 each, AGORA and E-newspapers have 93 each, JSTOR have 87, Institutional Repository have 78, DVD have 69 while OARE with the frequency of 18 have lowest responses. On the part of FUK, with electronic books with the frequency of 57 have the highest response rate, HINARI have 55, Science Direct have 53, e-journals have 52, AGORA have 50, JSTOR have 49, e-newspapers have 42, CD-ROMs and Institutional Repository have 41 each, DVD have 39 while TEEAL with the frequency of 6 have the lowest responses.

From the mean section, electronic books have the highest mean of 5.6. The finding is related to the study of Thanuskodi (2011) on the Usage of Electronic Resources at Dr. T.P.M. library Madurai Kamaraj University who reported that most of the respondents were satisfied with electronic books. While electronic newspapers with the mean of 1.2 have the lowest mean. This finding implies that electronic book contents in the University libraries in Gombe state were relevant to the undergraduate students information needs.

4.3.5 Challenges Faced in Accessing Electronic Information Resources in the University Libraries in Gombe State

This question was set to find out the challenges faced in accessing electronic information resources by the undergraduate students. To achieve this, lists of challenges associated with electronic information resources were listed for the respondents to tick as many as possible. Table 4.6 presented the data collected and analyzed.

Table 4.6: Challenges Faced in Accessing EIRs in the University Libraries in Gombe State

S/N	Challenges Faced in the Use of Electronic Information Resources	Universities		Total	Mean	SD
		GSU	FUK			
1	Inadequate computers in the library	146	83	229.0	114.5	44.5
2	Lack of information on how to use E-resources	125	52	177.0	88.5	51.6
3	Insufficient search skills	94	26	120.0	60.0	48.1
4	Poor internet connectivity	168	71	239.0	119.5	68.6
5	Non-availability of required information	107	49	156.0	78.0	41.0
6	Power outages	183	78	261.0	130.5	74.2
7	Limited subscribed titles	122	57	179.0	89.5	45.9

Source: Field Survey, 2018. **Key:** FUK = Federal University, Kashere, GSU = Gombe State University

Table 4.6 indicates that majority of the respondents in GSU showed that the challenges they encountered the most in accessing electronic information resources were power outage with the frequency of 183, poor internet connectivity have 168, Inadequate computers in the library have 146, Lack of information on how to use E-resources have 125, Limited subscribe titles have 122, Non-availability of required information have 107 while insufficient search skills with the frequency of 94 have the lowest responses. On the part of FUK, respondents showed that inadequate computers in the library with frequency of 83 were the major challenges, Power outage have 78, Poor internet connectivity have 71, Limited subscribe titles have 57, Lack of information on how to use E-resources have 52, Non-availability of required information have 49 while insufficient search skills with a frequency of 26 have the lowest responses.

From the mean angle, power outages with the mean of 130.5 have the highest mean. This finding is similar to that of Ankrah and Atuase (2018), on the use of electronic resources by postgraduate students of the University of Cape Coast, who reported that most of the respondents were of the

view that power outages was the major challenge faced in accessing electronic information resources. However, insufficient search skills with the mean of 60.0 have the lowest mean. This meant that undergraduate students in the universities in Gombe State find it difficult to access and use electronic information resources because of the unstable power supply.

4.4 Inferential Analysis

This section presents the results of inferential analysis. Three null hypotheses were formulated and tested in the study using t-test inferential statistic in Tables 4.7, 4.8 and 4.9 respectively.

4.4.1 Null Hypothesis One

HO_1: *There is no significant difference in the extent to which the undergraduate students in the Universities in Gombe State access the EIRs in the university libraries.*

Table 4.7: Difference in the extent to which undergraduate students access EIRs in the University Libraries in Gombe State

	Universities	N	Mean	Std. Dev.	Std. Error	d.f	t-cal	t-crit	p-value
Access	**GSU**	185	42.35	10.29	0.76	273	1.36	1.98	0.18
	FUK	90	44.10	9.53	1.00				

Not significant at $p > 0.05$

Table 4.7 presents the significant difference between GSU and FUK on the access to electronic information resources. From the table, it can be seen that the p-value is 0.18. The alpha used was 0.05. From this table the, p-value is greater than the alpha. This means that the null hypothesis which stated that there is no significant difference in the extent to which the undergraduate students in the Universities in Gombe State access the EIRs in the university libraries is retained. The implication of this finding is that, all the undergraduate students in the universities in Gombe State have similar way of accessing electronic information resources.

4.4.2 Null Hypothesis Two

HO_2: *There is no significant difference in the extent to which the undergraduate students in the universities in Gombe State utilize the EIRs in the university libraries.*

Table 4.8: Difference in the extent to which undergraduate students utilize EIRs in the University Libraries in Gombe State

	University	N	Mean	Std. Dev.	Std. Error	d.f	t-cal	t-crit	p-value
Utilization	**GSU**	185	43.88	9.53	0.70	273	0.045	1.98	0.97
	FUK	90	43.82	8.94	0.94				

Not significant at $p > 0.05$

Table 4.8 has shown the significant difference between GSU and FUK on the utilization of electronic information resources. The p-value of 0.97 is greater than the alpha which is 0.05. Therefore, the null hypothesis which stated that there is no significant difference in the extent to which the undergraduate students in the universities in Gombe State utilize the EIRs in the university libraries is retained. This implies that the way undergraduate students in the universities in Gombe State utilized electronic information resources is significantly the same.

4.4.3 Null Hypothesis Three

HO_3: *There is no significant difference in the extent to which the undergraduate students in the Universities in Gombe State are satisfied with the EIRs in the university libraries.*

Table 4.9: Difference in the extent of undergraduate students' satisfaction with EIRs in the University Libraries in Gombe State

	University	N	Mean	Std. Dev.	Std. Error	d.f	t-cal	t-crit	p-value
Satisfaction	**GSU**	185	39.98	11.90	0.70	273	0.62	1.98	0.54
	FUK	90	39.04	11.59	0.94				

Not significant at $p > 0.05$

The result in Table 4.9 has revealed that the p-value is 0.54. The alpha used was 0.05. From this table, the p-value is greater than the alpha. This means that the null hypothesis which stated that there is no significant difference in the extent to which the undergraduate students in the universities in Gombe State are satisfied with the EIRs in the university

libraries is retained**.** This finding implies that the extent to which undergraduate students are satisfied with the electronic information resources provided in university libraries in Gombe State were not significantly different.

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CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presented a summary, conclusion and recommendations of the study. The Chapter is divided under the following sub-headings:

5.2 Summary of the Study

5.3 Summary of the Major Findings

5.4 Contributions to the Body of Knowledge

5.5 Limitations of the Study

5.6 Conclusion

5.7 Recommendations

5.8 Suggestions for Further Studies

5.2 Summary of the Study

This study was carried out to investigate access and utilization of Electronic Information Resources by Undergraduate Students in Universities in Gombe State, Nigeria. To achieve this, five research questions were raised and answered. They were: what types of electronic information resources are available for undergraduate students in university libraries in Gombe State; to what extent do undergraduate students access electronic information resources in university libraries in Gombe State; to what extent do undergraduate students utilize electronic information resources in the university libraries in Gombe State, to what extent are undergraduate students satisfied with electronic information resources in university libraries in Gombe state; what are the challenges faced in accessing electronic information resources in university libraries in Gombe state.

Cross- sectional survey research design was adopted for the study. The population of the study comprised all the registered undergraduate library users in the two university libraries in Gombe State. There are two thousand nine hundred and seventy (2,970) registered undergraduate students. Two hundred and ninety seven (297) registered undergraduate students library users were selected for this study. This represents 10% of the entire population. Questionnaire was used as the instrument for data collection. The data collected for the study were presented and analysed using mean and standard deviation for the research questions and t-test for the null hypotheses formulated.

5.3 Summary of the Major Findings

In the light of the data analyzed, it was discovered that:

1. Types of electronic information resources available in university libraries in Gombe State are: E-books, TEEAL, HINARI, AGORA, JSTOR, e-journals, OARE, Science Direct, CD-ROMs, E-newspapers, E-magazines, Institutional Repository and DVD, with electronic books having the highest response rate.
2. Undergraduate students in the Universities in Gombe State indicated that they accessed Electronic Books, CD-ROMs, Science Direct, E-magazines, TEEAL, AGORA, E-journals, Institutional Repository and DVD regularly.
3. Undergraduate students in the universities in Gombe State utilized Institutional Repository, OARE, Science Direct, CD-ROMs, DVD, E-journals, E-books, JSTOR, TEEAL, HINARI, AGORA and E-magazines to the high extent.
4. Undergraduate students in the universities in Gombe State were satisfied with Electronic Books, Science Direct, CD-ROMs, OARE, E-journals, E-magazines, TEEAL, Institutional Repository, HINARI, AGORA, JSTOR and DVD as far as electronic information resources are concerned.

5. Major challenges faced in accessing electronic information resources were Power outage, Poor Internet connectivity, Inadequate computers in the library, Limited subscribe titles and Lack of information on how to use EIRs.
6. There is no significant difference in the extent to which undergraduate students access electronic information resources in the university libraries in Gombe State.
7. There is no significant difference in the extent to which undergraduate students utilize electronic information resources in the university libraries in Gombe State.
8. There is no significant difference in the extent of undergraduate students' satisfaction with electronic information resources in the university libraries in Gombe State.

5.4 Contributions to the Body of Knowledge

The following are the contributions to the body of knowledge in this study:

1. This study discovered that electronic books were the most highly accessible electronic information resources by the undergraduate students in university libraries in Gombe State. These electronic books are being accessed frequently than other EIRs. This implies that undergraduate students in these universities accessed these electronic books frequently.
2. This study provided the empirical evidence that the undergraduate students in the university libraries in Gombe State derived a lot of satisfactions from the electronic books they accessed and used. This is because they get require information that meet their information needs from the electronic books.

5.5 Limitations of the Study

The limitations experienced in the course of this study were at the time of administering my questionnaires. At FUK, the undergraduate students were writing their examinations and this led to the delay in filling the questionnaire as they were busy reading for exams.

Also, a similar situation was encountered in GSU where the undergraduate students were preparing for examinations to commence the following week.

5.6 Conclusion

From the analysis and summary of the findings of this study, it was concluded that, the types of electronic information resources available in university libraries in Gombe State are: E-books, TEEAL, HINARI, AGORA, JSTOR, E-journals, OARE, Science Direct, CD-ROMs, E-newspapers, E-magazines, Institutional Repository and DVD. Undergraduate students in the universities in Gombe State utilized Institutional Repository, OARE, Science Direct, CD-ROMs, DVD, E-journals, E-books, JSTOR, TEEAL, HINARI, AGORA and E-magazines to the high extent. Undergraduate students in the universities in Gombe State were satisfied with Electronic Books, Science Direct, CD-ROMs, OARE, E-journals, E-magazines, TEEAL, Institutional Repository, HINARI, AGORA, JSTOR and DVD as far as electronic information resources are concerned and the major challenges faced in accessing electronic information resources were Power outage, Poor Internet connectivity, Inadequate computers in the library, Limited subscribe titles and Lack of information on how to use EIRs.

5.7 Recommendations

This study recommends the following in line with the findings:

1. Since electronic books are available in all the universities studied, the university libraries management in Gombe State should intensify the availability of other types of EIRs especially CD-ROMs by supplying more through purchase or library consortium between the two libraries.
2. The management of the university libraries in Gombe State should endeavor to improve on the access to electronic resources especially the electronic newspapers by regular subscriptions and provision of adequate computers by purchase.

3. To improve or create desire for electronic newspapers utilization, the management of these universities should provide outlets for more electronic newspapers (e.g The Punch, The Nation, Vanguard, Sahara Reporters, This Day, The Guardian, Premium Times, The Sun, Daily Trust, Nigerian Tribune, Daily Post, Leadership Nigeria, Naij Newspaper, Daily Independent, etc). This is because users have diverse needs and preference.
4. The researcher recommended that the university libraries management in Gombe State should provide more electronic information. This would improve undergraduate students' satisfaction with electronic information resources
5. The researcher recommended that the university libraries management in Gombe State should ensure that power outages as the major challenge is minimized by mounting up inverter and or standby generator to provide 24 hours power supply.

5.8 Suggestions for Further Study

Based on the findings and conclusion of the study, the following areas/topics are suggested for further studies:

1. Awareness and Use of HINARI Database by undergraduate students in Faculties of Medicine and Pharmaceutical Sciences in Gombe State University, Gombe
2. Assessment of the Use of Electronic and Prints Information Resources by Undergraduate Students in Universities in Gombe State

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APPENDIX I 'A'

DEPARTMENT OF LIBRARY AND INFORMATION SCIENCE
AHMADU BELLO UNIVERSITY, ZARIA, NIGERIA

Vice Chancellor: **Professor Ibrahim Garba,** B.Sc. (Hons) Geology, M.Sc. (Mineral Exploration) ABU, Ph.D Geology (London), D.I.C., FNMGS
Ag. Head of Department: **Dr. Mohammed Habibu,** NCE (Niger), BLIS, MLIS, Ph.D (ABU), CLN, TRC
e-Mail: **lis@abu.edu.ng** Tel: 08174568401/09033706447

P15EDLS8027

12th April, 2018

The University Librarian
Gombe State University
Gombe State

Dear Sir,

INTRODUCTORY LETTER: FELIX, USMAN MANJACK

This is to certify that FELIX, USMAN MANJACK with Registration **Number P15EDLS8027** is a Postgraduate Student in this Department. He is currently engaged in a research titled **"Access and Utilization of Electronic Information Resources for learning in the University Libraries by the Undergraduate Students in Gombe State Nigeria"**. We would be grateful if you could kindly give him the assistance he requires for conducting the research work successfully.
Thanks for your cooperation.

Yours sincerely,

Dr. Habibu Mohammed
Head of Department

APPENDIX I 'B'

DEPARTMENT OF LIBRARY AND INFORMATION SCIENCE
AHMADU BELLO UNIVERSITY, ZARIA, NIGERIA

Vice Chancellor: **Professor Ibrahim Garba,** B.Sc. (Hons) Geology, M.Sc. (Mineral Exploration) ABU, Ph.D Geology (London), D.I.C., FNMGS
Ag. Head of Department: **Dr. Mohammed Habibu,** NCE (Niger), BLIS, MLIS, Ph.D (ABU), CLN, TRC
e-Mail: **lis@abu.edu.ng** Tel: 08174568401/09033706447

P15EDLS8027

12th April, 2018

The University Librarian
Federal University, Kashere
Gomba State

Dear Sir,

INTRODUCTORY LETTER: FELIX, USMAN MANJACK

This is to certify that FELIX, USMAN MANJACK with Registration **Number P15EDLS8027** is a Postgraduate Student in this Department. He is currently engaged in a research titled **"Access and Utilization of Electronic Information Resources for learning in the University Libraries by the Undergraduate Students in Nigeria"**. We would be grateful if you could kindly give him the assistance he requires for conducting the research work successfully.
Thanks for your cooperation.

Yours sincerely,

Dr. Habibu Mohammed
Head of Department

APPENDIX II

LETTER TO THE RESPONDENTS

Department of Library and Information Science,
Faculty of Education,
Ahmadu Bello University, Zaria.
30th January, 2018.

Dear Respondent,

I am a postgraduate student (Masters in Library Science) in the above named institution. I am currently conducting a research titled "**Access and Utilization of Electronic Information Resources by Undergraduate Students in Universities in Gombe State**"

Kindly assist in responding to the questions in this questionnaire as the information to be collected will be used for the purpose of research only and be treated confidentially.

Thank you in anticipation of your cooperation.

Yours Sincerely,



Felix Usman Manjack
P15EDLS8027
07030351749, 08029858426

APPENDIX III

RESEARCH QUESTIONNAIRE

INTRUCTION: Please tick [√] the answer(s) that you feel is/are appropriate

SECTION A: Personal Information

1. Name of Universities

Federal University Kashere [ ] Gombe State University [ ]

SECTION B: **Types of Electronic Information Resources Available for Undergraduates in the University Libraries in Gombe State**

2. What types of Electronic Information Resources are available for undergraduates in University Libraries in Gombe State? (Please tick as many as possible)

a. Electronic Books	[ ]	h. E-journals	[ ]
b. TEEAL	[ ]	i. CD-ROMs	[ ]
c. JSTOR	[ ]	j. Electronic Newspapers	[ ]
d. HINARI	[ ]	k. Electronic Magazines	[ ]
e. AGORA	[ ]	l. Institutional Repository	[ ]
f. OARE	[ ]	m. DVD	[ ]

g. Science Direct [ ] Others (Please specify)……..

SECTION C: Extent of Access to Electronic Information Resources in the University Libraries in Gombe State

3. To what extent do you access electronic information resources in University Libraries in Gombe State?

Please tick the appropriate box using the rating scale: **HA** - Highly Accessible; **A** – Accessible; **RA** - Rarely Accessible; **NA** - Not Accessible; **U** – Undecided

S/N	E-RESOURCES	RESPONSES				
		HA	A	RA	NA	U
1	Electronic Books					
2	TEEAL					
3	HINARI					
4	AGORA					
5	JSTOR					
6	Electronic Journals					
7	OARE					
8	Science Direct					
9	CD-ROMs					
10	Electronic Newspapers					
11	Electronic Magazines					
12	Institutional Repository					
13	DVD					

SECTION D: Extent of Utilization of Electronic Information Resources in the University Libraries in Gombe State

4. To what extent do you utilize electronic information resources in University Libraries in Gombe State?

Please tick the appropriate box using the rating scale: **HU** - Highly Utilize; **U** – Utilize; **RU** - Rarely Utilize; **NU** - Not Utilize; **UD** – Undecided

S/N	E-RESOURCES	RESPONSES				
		HU	U	RU	NU	UD
1	Electronic Books					
2	TEEAL					
3	HINARI					
4	AGORA					
5	JSTOR					
6	Electronic Journals					
7	OARE					
8	Science Direct					
9	CD-ROMs					
10	Electronic Newspapers					
11	Electronic Magazines					
12	Institutional Repository					
13	DVD					

SECTION E: Extent of Satisfaction with Electronic Information Resources in the University Libraries in Gombe State

6. To what extent are you satisfied with electronic information resources in University Libraries in Gombes state?

Please tick the appropriate box using the rating scale: **HS** – Highly Satisfied; **S** – Satisfied; **RS** – Rarely Satisfied; **NS** – Not Satisfied; **U** – Undecided

S/N	E-RESOURCES	RESPONSES				
		HS	S	RS	NS	U
1	Electronic Books					
2	TEEAL					
3	HINARI					
4	AGORA					
5	JSTOR					
6	Electronic Journals					
7	OARE					
8	Science Direct					
9	CD-ROMs					
10	Electronic Newspapers					
11	Electronic Magazines					
12	Institutional Repository					
13	DVD					

SECTION E: Challenges Faced in the Use of Electronic Information Resources in the University Libraries in Gombe State

7. Which of these challenges do you face in accessing and use of electronic information resources? (Tick as many as possible)

a. Inadequate computers in the library [ ] e. Non-availability of required information [ ]

b. Lack of information on how to use E-resources [ ] f. Power outages [ ]

c. Insufficient search skills [ ] g. Limited subscribed titles [ ]

d. Poor internet connectivity [ ] h Others (please specify)…….

APPENDIX IV

Reliability Test

Scale: All Variables

Case Processing Summary

		N	%
Cases	Valid	14	100.0
	Excluded[a]	0	.0
	Total	14	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.884	64