TITLE PAGE

INFORMATION LITERACY SKILLS AND USE OF ELECTRONIC INFORMATION RESOURCES BY UNDERGRADUATE STUDENTS OF FEDERAL UNIVERSITIES IN NORTH EAST ZONE, NIGERIA

BY

AMINU AHMED BUBA

(SPS/13/MLS/00046)

SUPERVISOR

M.A. KAMBA Ph.D

A DISSERTATION SUBMITTED TO THE DEPARTMENT OF LIBRARY AND INFORMATION SCIENCES BAYERO UNIVERSITY KANO IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER IN LIBRARY AND INFORMATION SCIENCE (MLIS)

MARCH 2018

DECLARATION

I hereby declare that this work titled "Information Literacy Skills and Use of Electronic Information Resources by Undergraduate Students of Federal Universities in North-East Region Nigeria" is the product of my research efforts undertaken under the supervision of Manir M.A Ph.D and has not been presented anywhere for the award of degree or certificate. All sources have been duly acknowledged.

Aminu Ahmed Buba

SPS/13/MLS/00046

CERTIFICATION

This is to certify that the research work for this dissertation and the subsequent write-up by Aminu Ahmed Buba in the Department of Library and Information Sciences Bayero University Kano were carried out under my supervision.

---------- ----------

Dr Manir Abdullahi Kamba **DATE**
SUPERVISOR

---------- ----------

Dr E. C. Madu **DATE**
EXTERNAL EXAMINER

---------- ----------

Dr Ahmed Mohammad **DATE**
INTERNAL EXAMINER

---------- ----------

Dr S. M. Gwarzo **DATE**
H.O.D

APPROVAL PAGE

This is to certify that this work has been examined and approved as meeting the requirements of the School of Postgraduate Studies, Bayero University Kano for the award of Master of Library and Information Sciences (MLIS)

----------	**----------**
Dr E. C. Madu **EXTERNAL EXAMINER**	**DATE**
----------	**----------**
Dr Ahmed Mohammad **INTERNAL EXAMINER**	**DATE**
----------	**----------**
Dr Manir Abdullahi Kamba **SUPERVISOR**	**DATE**
----------	**----------**
Dr S. M. Gwarzo **H.O.D**	**DATE**
----------	**----------**
DEAN SCHOOL OF POSTGRADUATE STUDIES	**DATE**

ACKNOWLEDGEMENTS

My ultimate praise and gratitude goes to Allah (SWT) for giving me wisdom and health to conduct this research and for everything. My sincere gratitude and utmost appreciation goes to my supervisor Dr Manir Abdullahi Kamba who throughout the period of my research gave me his time, contribution, and moral support to ensure this work has reached the desired standard. Thank you and God bless.

My prayer and appreciation goes to my beloved family, my adorable parents, my beautiful sisters and reliable brothers for their patience, understanding, moral support and tireless prayers all through this research work. May Allah in His infinite mercy continue to bless you all.

I take this opportunity to thank all my lecturers in the Department of Library and Information Sciences, Bayero University Kano whom had contributed immensely towards the successful completion of my work. Thank you and God bless you all.

My sincere gratitude goes to Mallam Isa Sali Song who encouraged me to enroll in the Masters program and to Professor Ghaji Badawi, who made sure I concluded my programme without a hitch. Thank you.

My appreciation goes to all my course mates; the journey would not have been tolerable without your support and input and contributions, thank you all, and to all my colleagues in Federal University Dutse Library, thank you for the prayers and well wishes. I also wish to express my sincere appreciation to Auwal, Adamu, Bilkisu, Abdul, Usman, Salihu, Hussaini, Baffa, Fati, Sagir, Farida, Firdausi, Judy, Hamza, Shehuji and Ibson to mention but a few, this work could not have been a success without your immense contributions. Thank you.

DEDICATION

This study is dedicated to my father, Alhaji Ahmed Z. Buba, who was my greatest support and strength throughout my life and especially during the period of study.

TABLE OF CONTENTS

LIST OF TABLES

ABSTRACT

The study was conducted to investigate the information literacy skills and use of electronic information resources by undergraduate students of Federal Universities in North-East Zone, Nigeria. The study used a quantitative methodology using cross-sectional survey design. The population of the study consisted of 61,842 undergraduate students of the federal universities in the North-East zone, Nigeria. A sample size of 2,484 respondents was used for the study, using Sloven's Formula. A structured questionnaire was the instrument used to collect the data relevant to the study. The data collected were analysed using descriptive and inferential statistics. The findings revealed that the undergraduate students under study were aware of the information literacy programmes, and that they have undergone information literacy training for two or more hours a day. The findings also showed that majority of the undergraduate student possess effective information literacy skills on the use of electronic information resources. The study also showed that undergraduate students employ search strategies such as using Boolean operators, keyword search, and random selection of websites and that Google and yahoo search engines were the major search engines used by the students. It was also found that undergraduate students make use of e-resources such as e-journals, e-mail, social media, e-reference and database. The research further discovered several challenges associated with the use of electronic resources by undergraduate students to include inadequate power supply, excessive academic workload and poor internet connectivity. The result of the chi-square test in the hypothesis shows that there is a significant relationship between the information literacy programmes and information literacy skills possessed by the undergraduate students at χ^2= 5.725, df=478, n=189, p=.000. It also showed that there is a significant relationship between the information literacy skills and the type of electronic information resources used at X^2= 7.627, Df=648, N=189, P=.000. The study recommends that the Nigerian University Management should provide more robust Internet connectivity; the library management as well should provide stable electricity in order to promote and enhance the use of the electronic information resources, and that information literacy programmes should be infused as a stand-alone course in the University curriculum.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Information society is characterized by a constantly increasing volume of information due to advancements in information and communication technologies. The extent to which electronic resources are utilized by undergraduate students depends largely on some factors pertaining to the users, especially information literacy and subject background. This made Syamalamba (2011) to note that users of electronic information resources needs to develop requisite information literacy skills to identify evaluate and use the relevant information effectively.

On this note, information literacy skills has become a veritable need for users of information in the global world in an era of information explosion, and there is the need for the undergraduate students to be equipped with these skills in order to harness the wealth of resources available in the globe. As such, undergraduate students need to acquire new information literacy skills and competencies. Electronic information resources according to Okon, Patrick & Bosire (2014) simply referred to as electronic resources or e-resources are information stored in electronic format in computer or computer related facilities (CD-ROMs, digital libraries or the Internet).

This shows that the benefits of electronic information resources cannot be under estimated. However, the level of awareness and use of electronic information resources in Nigerian tertiary institutions appears to be very minimal (Okon, et al. 2014). This could be attributed to low level of information literacy skills among users. In addition to this challenge according to Okon, et al. (2014) is lack of equitable access to information and communication technologies, particularly robust and reliable Internet connectivity, and the global databases which lead to lack of efficient

access to information for research. It is this premise that calls for the need to teach information literacy skills to undergraduate students with the goal of assisting the students to identify and select relevant information using appropriate search strategies and being able to evaluate, organize and synthesize the information into a meaningful presentation. Integrating information literacy across curricula is an opportunity and a challenge for which every institution in Nigeria should embrace in order to enhance the utilization of electronic information resources.

To this regard, the diverse environment which undergraduates confront in academic institutions today increases the complexity, as not only the format of information, but also the number of resources seems to grow exponentially. It was based on this premise that Kumar & Singh (2011) stated that the rapid changes in the use of electronic information resources have become the vital part of various information needs of information users. Today, the development of digital environment expands the sources of information through which undergraduate students use. Supporting the above statement, Clara (2012) stated that effective and proficient information literacy skills and standard resource use practices are critical to the academic success of undergraduate students. Similarly, use of information by undergraduate students in this information explosion era involves the interaction of the users with the electronic information environment which requires a set of information literacy skills.

In line with the above statement, Baro & Keboh (2012) posited that Information literacy skill is the ability to recognize when information is needed to solve problem, ability to formulate search strategy and skills to identify the correct source of relevant information needed. as well as conducting the search itself to yield use for information. Therefore, information literacy programmes are important as they prepare the undergraduate students in the world of the changing nature of information access and use.

Recently, access to information resources has become an increasingly sophisticated issue due to emergence and development of e-resources that develops series of challenges to library users especially undergraduate students. Studies show that, undergraduate students are battling with the paradigm shift created as a result of digital technologies and other multi-media platform. This problem includes the undergraduate students' inability to search, access, locate, organize and evaluate needed information for their use efficiently and effective.

It was in this light that information literacy skills was introduced to bridge the prevailing gaps in searching for valuable information for day to day activities, decision making process and the ability for undergraduate students to navigate and manipulate information for their use. Therefore, the introduction of Information literacy programme has increased the vast use of the information created, organized, processed and ready for users in academics library. Kumar & Singh (2011) stated that, in order to utilize the growing range of electronic information resources, students must acquire and practice the skills necessary to exploit them. The skills required to maximize the potential of these resources are much greater than those required for searching printed sources.

Hence this study tends to investigate the role of information literacy skills and competencies on the use of electronic information resources by undergraduate students in the Federal Universities in North Eastern region, Nigeria. The findings of the study would expose the undergraduate students to the potentials of the use of electronic information resources, particularly with regards to getting the efficient skill in harnessing the vast information buried in the electronic world. To attain this, the study adapted quantitative research methodology using cross-sectional survey design to develop numeric measures of analysis to gather data that can be easily organized and manipulated into reports for analysis. The findings would contribute to an understanding of the

role of information literacy skills and competencies to the use of electronic information resources. Research models that have been developed to explain information literacy skills and competencies on the use of electronic information resources were studied in order to identify the research approach that was used for this study.

1.2 Statement of the Problem

The provision of information is the main objective of every university library, and with the current development in electronic information resources, university libraries in Nigeria are now providing resources in the electronic formats. This situation has changed the information seeking strategies of undergraduate students in this information explosion age. With the abundant potentials embodied in the use of electronic information resources, lacking requisite skills affects the undergraduate student's ability to use and harness the immeasurable advantages embedded to satisfy their information needs. To corroborate this view, Mittal & Bala (2013) identified problems in the adoption and usage of electronic information resources which include low basic information literacy skill and competencies levels.

Studies conducted by Okon et al. (2014) and Abubakar & Adetimirin (2015) showed that different types of electronic information resources such as Internet, databases, CD-ROM, Telefax, CD ROM, electronic journals etc are available to the undergraduate students in Nigerian university libraries. However, despite the numerous electronic information resources available, it is not certain whether they are used by the undergraduate students in North-Eastern Nigeria. This uncertainty is a reason for undertaking the study.

In support of the above statement, many studies conducted showed the impact of information literacy skills on the use of electronic information resources by undergraduate students.

Unfortunately, observations and available literature such as Oduwole & Idowu (2012) and Aina (2014) have indicated low use of electronic information resources by the students. Thus, Nigerian undergraduate students seem to be alienated in global use of electronic information resources in spite of digital revolution and efforts made by the university libraries to provide the resources and necessary tools for exploiting them at their disposal. This condition of under utilization of the electronic information resources could therefore be attributed to lack of requisite information literacy skills and competencies by the undergraduate students.

In addition, observation from preliminary investigation showed that the undergraduate students are finding it difficult to utilize the electronic information resources as a result of their inability to navigate through the complex world in the present global information explosion. It is in view of these that the researcher aims to carry out an investigation to determine the information literacy skills possessed by the undergraduate students on the use of electronic information resources in the Federal Universities in North-East zone.

1.3 Research Questions

The following research questions guided the conduct of the study:

1. What are the information literacy programmes available in the Federal Universities in the North-East, Nigeria?
2. What are the information literacy skills on the use of electronic information resources possessed by undergraduate students in Universities under study?
3. What are the Search Strategies employed by undergraduate students to use the electronic information resources in the universities under study?

4. What are the techniques used by undergraduate students to evaluate the information resources under study?
5. What type of electronic information resources are used by the undergraduate students under study?
6. What are the challenges associated with the use of electronic information resources among the undergraduate students under study?

1.4 Research Objectives

The main objective of the study was to investigate the information literacy skills and use of electronic information resources by undergraduate students in North-East Zone, Nigeria. While the specific objectives of the research are to:

1. Identify the types of information literacy programmes available in the Federal Universities in the North-East, Nigeria.
2. Find out the information literacy skills possessed by undergraduate students in Universities under study.
3. Determine the types of information search strategies employed by undergraduate students when searching for the electronic information resources.
4. Explore the various techniques used by undergraduate students to evaluate the electronic information Resources found.
5. Investigate the types of electronic information resources used by the undergraduate students under study.
6. To identify the challenges associated with the use of electronic information resources among the undergraduate students under study.

1.5 Research Hypotheses

The following hypothesis was formulated to further guide the study:

Ho_1 There is no significant relationship between the types of information literacy programmes in the universities and literacy skills possessed by the undergraduate students.

Ho_2 There is no significant relationship between information literacy skills and the type of electronic information resources used by undergraduate students.

Ho_3 There is no significant relationship between the literacy skills of the undergraduate students and the search strategies used.

Ho_4 There is no significant relationship between search strategies and utilization of electronic information resources.

1.6 Significance of the Study

The findings of this study would contribute to the existing literature and body of knowledge in library and information science and serve as reference for future research. The findings would also be of benefit to undergraduate students, the library management and librarians in the universities and other academic libraries, librarians working in the electronic information resources sections of libraries, the university management, educational planners and administrators, the general public, and researchers.

The findings of the study would sensitize undergraduate students on the need to acquire the relevant information literacy skills necessary for effective use of Electronic Information Resources. The findings of the study would improve the use of the Electronic Information

Resources by the undergraduate students thereby leading to improved academic performances and research output as well as the ability to favorably compete with counterparts in other developed parts of the world.

Library management and the librarians in universities and other academic libraries would find this study very relevant as it would reveal to them the major shortcomings of undergraduate students in using the Electronic Information Resources available in the libraries. This would enable library management to correct the problem areas thereby enhancing students' use of the resources. Furthermore, the outcome of this study would present the library management and librarians with practical information on the relationship that exist between undergraduate students' information literacy skills and their use of Electronic Information Resources, thereby providing them with strategies to adopt which would positively enhance the students' utilization of these resources. It would equally widen the knowledge of the library management in the overall management of the libraries.

1.7 Scope and Limitations of the Study

The study covered all the six Federal Universities in the North-East Zone Nigeria. Other types of Universities such as State Universities and Private Universities were excluded from the study. The study also covered the undergraduate students in the Federal Universities. Thus, postgraduate students, diploma or other professional studies students were excluded from the study. The Federal Universities covered in the study are Modibbo Adama University of Technology, Yola, Adamawa State, Federal University Kashere, Gombe State, University of Maiduguri, Borno State, Federal University Gashua, Yobe State, Federal University Wukari, Taraba State, and Abubakar Tafawa Balewa University, Bauchi, Bauchi State.

Another limitation was that, the north-east zone, Nigeria, which is the area of the study, has been recently submerged in insurgency, as such; some of the data may not have been captured completely due to difficulty in having access to the respondents and institutions, hence the researcher had to get information on when it is safer to visit such places. However, the researcher was able to employ the services of research assistants who got the necessary data required.

1.8 Operational Definition of Key Terms

E-resource: Refers to electronic information resources, those resources stored electronically and can be accessible through electronic devices and network environment.

Evaluation: In the context of this study, evaluation deals with the Criteria used to evaluate electronic information resources.

Information Literacy Programmes: These are programmes designed to inculcate information literacy skills to users of the electronic information resources.

Information Literacy skills: This is a set of abilities requiring individuals to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information.

Search Strategies: This is a structured organization of terms used to search a database.

Undergraduate Student: A university student who has not yet taken a first bachelor degree.

Utilization: Ability to use electronic information resource in the conduct of research.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.0 Introduction

This chapter deals with the review of related literature on information literacy skills and electronic information resources. The review was conducted in the following subheadings:

2.1 Concept and Significance of Information Literacy and Electronic Information Resources

2.2 Information Literacy Programmes Available

2.3 Information Literacy Skills and Competencies on the use of Electronic Information Resources

2.4 Information Search Strategies used for Seeking Electronic Information Environment

2.5 Techniques for Evaluating Electronic Information Resources

2.6 Types of Electronic Information Resources used by Undergraduate Students

2.7 Challenges Associated with the Use of Electronic Information Resources.

2.8 Theoretical and Conceptual Framework

2.9 Summary of the Review and Uniqueness of the Study

2.1 Concept and Significance of Information Literacy and Electronic Information Resources

Information literacy is a fluid concept, shaped by our experiences, and changes in our information rich society. The concept of 'information literacy' cannot be traced to the work of a single author, a single study, a single stream of research, nor a single driving force or cause, such as poverty, disease, illiteracy, or unemployment. Rather, the idea reflects a convergence of thinking from many developments, disciplines, sectors and areas of research.

But the term 'information literacy' according to Anunobi & Udem (2014) was first coined in 1974 by Paul Zurkowski, the former president of the United State Industry Association. The Society of College, National and University Libraries (SCONUL) in the UK has in 2012 described 'information literacy' as the demonstration of an awareness of how to gather, use, manage, synthesize, and create information and data in an ethical manner and having the information skills to do so effectively, SCONUL (2012). While The American College of Research Libraries ACRL (2013) defines information literacy as "the set of skills needed to find, retrieve, analyze, and use information".

Similarly, Daniel (2010) described information literacy as the knowledge and skills necessary to correctly identify information needed to perform a specific task or solve a problem, cost-efficiently search for information, organize or reorganize it, interpret and analyze it once it is found and retrieved, evaluate the accuracy and reliability of the information, including ethically acknowledging the sources from whence it was obtained, communicate and present the results of analyzing and interpreting it to others if necessary, and then utilize it for achieving actions and results. This buttressed the assertion of Mansoor and Kamba (2010) that information is vital for development, information can eradicate ignorance and help achieve economic, social, political, and cultural objectives towards the development of the entire community. Information literacy is also observed by Rubinic (2014) as a phrase used to describe the techniques and skills known by the information literate for utilizing the wide range of information tools as well as primary sources in moulding information solutions to their problems.

Generally, information literacy is about a person's ability to operate effectively in an information society. This involves critical thinking, an awareness of personal and professional ethics, information evaluation, conceptualizing information needs, organizing information, interacting

with information professionals and making effective use of information in problem solving, decision making and research. It is the process of empowering students or anybody to learn rather than about being dependent on the teacher for acquiring knowledge and skills. In another instance, Abbas (2014) described information literacy as synonymous with concepts such as library skills, computer literacy, information skills, information competency, information fluency, information power, digital literacy, ICT literacy, media literacy, and academic research skills.

It is on this premise that Spiranec & Zorica (2010) opined that information literacy evolved in the domain of library sciences, and as a result, a number of popular definitions come from library associations. In view of this, American Library Association [ALA] (1989) defined information literacy as “a set of abilities requiring individuals to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information.” In a similar view, Ahmadpour (2014) cited Eisenberg (2008) who sees information literacy as "the set of skills and knowledge that allows users to find, evaluate, and use the information needed, and also to filter out the information not needed." The emphasis on this definition is to do with filtering of irrelevant information due to advancement in information technology and complexity of the information environment.

While the above definitions are limited in their perspectives to view information literacy merely as set of skills that can be achieved individually, Diehm and Lupton (2014) on the other hand, described information literacy as a set of strategies, steps and techniques that can be acquired and demonstrated. Similarly, University of Idaho (2012) is of the opinion that Information Literacy is the ability to identify what information is needed, understand how the information is organized, identify the best sources of information for a given need, locate those sources, evaluate the

sources critically, and share that information. The definitions above view information literacy as quantifiable. The submissions describe information literacy as sets of numerable skills.

Accordingly, Daniel (2010) stated that descriptions of information literacy take the form of differing interpretations, frameworks illustrating the information process, lists of attributes or skills, and models designed to support the development of information literacy. And also explained that to be an information literate it requires knowing how to clearly define a subject or area of investigation; select appropriate terminology that expresses the concept under investigation; formulate a search strategy that takes into consideration different information sources and the various ways information is organized; analyze the data collected for value, relevancy, quality and suitability; and subsequently turn them into knowledge".

To this regards, it is worthy to note that there are however no real consensus on the universal or general definition of information literacy. Ahmadpour (2014) citing Mackey and Jacobson (2011) argued that the current definitions of information literacy are not comprehensive enough. Information literacy is about empowering and educating information consumers so that they are knowledgeable about information in a way that is relevant to their lives. It enables individuals to use this knowledge to evaluate information and make informed decisions.

Perhaps the best known and accepted definition of information literacy is provided by ALA (1989) which stated that information literate people are able to recognize when information is needed. They are also able to identify, locate, evaluate, and use information to solve a particular problem. This definition has been widely used and further developed by other definitions. As can be seen from the definition by the Association of College and Research Libraries (ACRL, 2010)

where they define information literacy as “the set of skills needed to find, retrieve, analyze, and use information”.

From the definitions above, it can be deduced that, information literacy programmes emphasizes critical thinking and the necessity of being able to recognize the quality of a given message. An important feature of information literacy is it's connectedness with technological changes. Where there is a special need to know how to use the information technology to access information. This is explained by Spiranec & Zorica (2010), who observed that information literacy has appeared, spread and developed as a reflection of shifts in information environments and technological changes. It was further noted that information literacy is not a transfer of knowledge and information but a process of knowledge construction and reflection.

However for the purpose of this study, presentation by Chidinma (2013) who defined information literacy as “the possession of library user skills, the knowledge of resources and the skills to access them through diverse facilities and sources, the knowledge of basic referencing styles, copyright laws, evaluation guides, the possession of computer, internet and internet navigational skills and possession of critical, analytical, organizational skills to use resourced materials to solve informational needs” will be used. Information literacy is as such very essential for acquiring information in the present information explosion age, and it is of equal relevance in every society the world over and its relevance to undergraduate students cannot be over emphasized.

Abubakar (2012) maintained that, information literacy is becoming increasingly important in the contemporary environment of rapid technological developmental change and proliferations of information. Špiranec & Zorica (2010) stated that Information literacy education emphasizes

critical thinking and the necessity of being able to recognize the quality of a given message. A crucial feature of information literacy is it's connectedness with technological changes. Information literacy has appeared, spread and developed as a reflection of shifts in information environments and technological changes. They further noted that information literacy is not a transfer of knowledge and information but a process of knowledge construction and reflection. This helped to create a shift of focus from librarians as knowledge transferors to information users as knowledge constructors.

Information literacy seeks to solve problems associated with information overload through the provision of a skills set to assist individuals in recognizing "when information is needed and have the ability to locate, evaluate, and use effectively the needed information" ACRL (2000), ALA (1989). It can be seen from the projection by Onhwakpor (2013), that the technical development in the libraries calls for information literacy skills for students who once a while, come in contact with the physical institutional libraries. Information literacy is therefore needed for the individual to access information in this digital age.

Nina (2014) stated that information literacy is the ability of the individual to recognize the need for information, knows how to find, evaluate, use and subsequently communicate information effectively to solve particular problems or to make decisions. It is the ability of the individual to access information from the Internet or the World Wide Web, Online database, for research. To be information literate, it requires a new set of skills. These include how to locate and use information needed for problem solving and decision making effectively and efficiently. It is very clear that information literacy is a prerequisite for Undergraduate students to access the digital library.

2.2 Information Literacy Programmes

Due to information explosion it has become increasingly clear that students cannot learn everything they need to know in their field of study, within a few years, at school or the university. Information literacy equips them with the critical skills necessary to become independent lifelong learners. The family of 21st Century "survival literacies" includes six categories: The Basic or Core functional literacy fluencies (competencies) of reading, writing, oralcy and numeracy, Computer Literacy, Media Literacy, Distance Education and E-Learning, Cultural Literacy and Information Literacy. The boundaries between the various members of this family overlap, but they should be seen as a closely-knit family. Bruce (1997) has defined several concepts influencing and coexisting with information literacy.

1. Computer literacy
2. IT literacy
3. Library skills
4. Information skills
5. Leaning to learn

Despite the numerous potentials of information literacy in the present age, they are not usually up to standard as it is expected, most especially in developing countries like Nigeria. This is evident in the study of Onhwakpor (2013) who observed that there was problem in running literacy programmes due to some factors like lack of requisite skill by the instructors. Enite (2014) also observed that the type of user education given in Nigerian university system is not adequate and not up to standard when compared to what is obtainable in developed countries of the World. This could be due to the fact that information literacy is not given its right position in university education curriculum in the whole of Africa. Furthermore Enite (2014) in the same

study have wondered why information literacy courses are not widely borrowed in other faculties or department as it is done in other courses.

In the same vein, Baro & Zuokemefa (2011) discovered in their study that a lack of human resources to handle Information literacy training was identified as one of the key barriers to information literacy efforts. While Onhwakpor (2013) found that there is high level of computer illiteracy among Nigerian Librarians and educators thereby leading to a shortage of personnel for information technology to support information literacy programmes training.

Similarly, a study by Baro & Keboh (2012) revealed that only few schools have successfully integrated an information literacy course as a stand-alone course in their curriculum. Problems such as lack of personnel and facilities were mentioned in that study as obstacles to the integration of information literacy course in the curriculum. In the same vein, Onhwakpor (2013) reported that the librarians were handicapped by lack of computers, and even where they were available there was no Internet connectivity.

Information literacy education should create opportunities for self-directed and independent learning where students become engaged in using a wide variety of information sources to expand their knowledge, construct knowledge, ask informed questions, and sharpen their critical thinking. Constant advancement in information technology led to an increase in information resources and complexity of the digital information environment. It has become obvious that knowing how to use computers and access information is not sufficient for locating and extracting relevant information in such a complex environment.

Lwehabura and Stilwell (2008) identified challenges such as the lack of adequate resources, the lack of an information literacy policy, lack of proactive solutions among librarians, coupled with

the need for adequate library staffing and training, and insufficient collaboration between librarians and teaching staff in information literacy activities, as problems hindering the effectiveness of information literacy practice in Nigeria. Similarly, the writers pointed out that, to a large extent, information literacy instruction is weak in terms of its effectiveness in imparting information literacy knowledge and skills in Nigeria. Among the reasons given are:

a. There is no dedicated information literacy policy to guide information literacy practice;
b. There is a lack of awareness among students about the information literacy instruction sessions;
c. Instruction sessions are affected by time constraints because information literacy is not allocated official time in university academic timetables;
d. Attendance by students is voluntary and as a result not all students take advantage of the sessions that are in place;
e. There is lack of resources such as computers and CD-ROMs to support hands-on-practice.
f. Information skills sessions are not integrated into the curriculum.

According to Daniel (2010) the GST courses, such as 'Use of ICT' and 'Use of Library', which are integrated into the curriculum by nearly all universities as compulsory credit earning courses, are still not sufficient to equip students to function effectively in this digital age. Students merely read with the aim of passing those courses. The GST course contents need to be updated to include information literacy skills. For these reasons, university libraries need to organize other specialized information skills programmes such as use of databases, internet searching skills, training on referencing and citation patterns.

In the result of a study by Daniel (2010) respondents indicated mostly lack of interest in, and/or understanding of the concept and its importance and relevance in today's economies and societies as the major challenge to information literacy education and training courses with 92.6% responses. Other challenges selected by respondents were poor information and library infrastructure 63%, lack of funding/financial support 63%, lack of interest among students 55.6%, lack of interest among faculty 14 51.9%, lack of interest among librarians and information professionals 40.7%. There were additional challenges mentioned by some respondents which made up 18.5% of the responses. The additional challenges mentioned by respondents were similar to the ones given in the response options. These were lack of awareness of the concept, importance and necessity of information literacy in today's life and today's world, lack of organizational support, methodology of delivery, technological barriers, and lack of interest from faculty.

In a similar study by Anyaoku, Anunobi & Eze (2015), results showed that six items listed were considered challenges to information literacy acquisition. They include lack of capacity development or training opportunity, increasing work load, poor facilities, No provision for mentoring, and lack of regulation of curriculum on information literacy to ensure that it follows globally acceptable standards Item nine. Two items were not considered challenges by the respondents. They include Librarians do not engage themselves in capacity building and Nigerian Library Association does not provide continuing education training for librarians on information literacy skill.

The study above is consistent with findings by Alakpodia (2010), which showed that only 37% of librarians at Delta State University in Nigeria use computers only in the workplace. She added that among the librarians that have a computer at work, only 7% are connected to the Internet.

Clearly, this is a major impediment to acquiring modern IL skills among the regional librarians. It is on that premise that Baro (2011) recommended the inclusion of a stand-alone information literacy course in Nigerian library school curricula.

Information literacy is important owing to the amount of information that is available in contemporary society. Simply being exposed to a great deal of information will not make people informed citizens; they need to learn how to use this information effectively, ACRL (2000). Information literacy allows users to cope with the data smog, by equipping them with the necessary skills to recognize needed information, where to locate it, and how to use it effectively and efficiently. Consequently it helps decision making and productivity which is beneficial to the society. Due to the information explosion and data smog all students and the society face many difficulties to locate, evaluate, use, and communicate information. Due to the expansion of internet services there are a lot of information that is not evaluated, unlike the printed sources. Hence the authenticity, validity, and reliability of this information is in doubt.

Information literacy programmes according to Duncan & Varcoe (2012), are delivered in colleges and universities across the world. These programmes are mostly designed and delivered by librarians sometimes in the classroom, sometimes outside, but usually in collaboration with teaching faculty. While the delivery methods may vary, what is constant is the definition and intended learning outcomes.

Over the years information literacy programme are designed and tailored to meet specific information need of the users rather than prescribed set of criteria, although the education system and institution must take seriously the challenges of the information age. However, it is observed by Baro & Keboh (2012) that there are more recent efforts to improve upon information literacy

initiatives particularly in Nigerian universities. As put forward by Diehm & Lupton (2014), information literacy programme instruction assist library users in identifying, and selecting necessary information, and using appropriate search strategies in evaluating, organizing and synthesizing the information acquired into a meaningful state.

Increasingly according to Ogunsola, Akindojutimi, & Omoike (2011) librarians have assumed the role of educators to teach their users how to find information both in the library and other electronic networks. Ezejiofor et al. (2011) as cited by Enite (2014) posits that Librarians should be seen as educators who have important roles to play in making students' master information retrieval and literacy skills.

According to IFLA (2012), the Information literacy on higher education level is based on four basic program approaches:

a. *Generic* extra**c**urricular classes and/or self paced packages

b. *Parallel* extracurricular classes and/or self paced packages that complement the curriculum.

c. *Integrated* Classes and packages that are part of the curriculum

d. *Embedded* Curriculum design where students have ongoing interaction and reflection with information.

Similarly, Bruce (1997) cited by Obiora, Amaka & Obiora (2015) argued that the critical elements of learning to be information literate are:

i. Experiencing information literacy (learning)

ii. Reflection on experience (being aware of learning)

iii. Application of experience to novel contexts (transfer of learning).

Curricula at all educational levels therefore need to include opportunities to experience reflect and apply learning to novel contexts (Obiora et al., 2015).

In the same vein, Jennifer (2010) observed that Librarians can work with faculty at the program and department levels to assist with integrating critical information literacy into institutional outcomes and to assess critical information literacy skills and competencies. The essential feature of these collaborations is mutual respect for each others' disciplinary values and content. Increasingly librarians have assumed the role of educator to teach their users how to find information both in the library and other electronic networks (Ogunsola et al., 2011). Ezejiofor et al. (2011) as cited by Enite (2014) posited that Librarians should be seen as educators who have important roles to play in making students' master information retrieval and literacy skills. Students who possess these skills become more accurate in comprehension and more efficient in rate.

According to Obiora et al. (2015) citing Madu (2013), Information literacy is increasingly becoming important in the contemporary environment of rapid technological change, as it is the de facto structure around which many academic libraries currently organize their instructional programs. As observed by Nina (2014), from precollege to faculty levels, libraries use variants on the information literacy concept to organize instructional initiatives. However, most material on the topic addresses undergraduate instruction.

Similarly, Abbas (2014) observed that in Nigeria University system, the most popular practice is the Stand-alone courses or classes normally conducted by an independent unit of the Universities known as General Studies Unit (GSU). This unit administers courses on information literacy

independent of other departmental courses. These GSU courses are credit-bearing and core as they form part of the requirement for students' graduation from the University. The courses include; 1- Use of Library, 2- Learning and communication skills

Furthermore, various departments within the Universities are also initiating and integrating courses such as research methods to encourage and increase students' information competencies. According to Bruce (2004) as cited by Abbas (2014), in any educational sector, there are four critical components of an information literacy program;

1- Resources to facilitate the learning of specific skills e.g. Web based information skills enhancement packages and other point of need, or self paced instruction
2- Curriculum that provides the opportunity to learn specific skills, either early in a course or at point of need (from self-paced packages, peers, lecturers, librarians) (integrated)
3- Curriculum that requires engagement in learning activities that require ongoing interaction with the information environment (embedded)
4- Curriculum that provides opportunities for reflection and documentation of learning about effective information practices (embedded)

The first of these represents the resource based that supports learning skills underpinning information literacy, the second represents curriculum integration, and the latter two represent what is better described as 'embedded' information literacy education. In all sectors, curriculum development, including course approval and review processes, may be used to monitor the inclusion of information literacy in curriculum.

Jennifer (2010) discussed some of the information literacy programmes as follows:

1. General Education Program: Librarians are available to collaborate with campus committees to discuss incorporation of critical information literacy into the learning goals. Working with faculty, librarians are available to help develop the matrix for the critical information literacy certification of courses and will plan for appropriate and timely delivery of critical information literacy instruction, either online or in-person. Assessment of critical information literacy competence is accomplished ideally using online portfolios or other context-based means of assessment (Jennifer, 2010).

2. Departmental Learning Outcomes: Librarians are available to discuss departmental goals and collaborate with faculty to recommend strategies to weave critical information literacy into departmental learning objectives in ways that are pedagogically sound. Assessment of critical information literacy competence is accomplished ideally using online portfolios or other context-based means of assessment (Jennifer, 2010).

3. Demonstration of Mastery: In addition to the models described above, librarians plan to revise and expand the current online tutorial and its assessment so that it may be used for the purpose of demonstrating information literacy mastery. Using this model, students will view the tutorials and take a context-based test to demonstrate their critical information literacy competence at each level (Jennifer, 2010).

4. Workshop Attendance: Students may show evidence of attendance at the library's workshop series at the freshman and junior levels. Assessment occurs at the end of each workshop and includes affective questions as well as a restricted-response essay question about the pertinent critical information literacy concept. Vertical information literacy integration would ensure that students gain critical information literacy competence in a systematic way, from their first year to graduation (Jennifer, 2010).

In a study by Duncan & Varcoe (2012) citing Bury (2010) it was found out that many schools recognize the value of information literacy instruction for students. Over three-quarters of the faculty surveyed suggested that information literacy instruction should consist of collaboration between librarians and faculty. However, this does not always happen. Just over half of the survey sample reported teaching information literacy competencies in their course. Furthermore, of those faculty members incorporating information literacy instruction into their course, most were doing it themselves.

It can be understood from the above explanation that, the librarians and library staff are mostly saddled with information literacy instruction and that the programmes/ are usually not given a stand-alone time. They are mostly merged with other programmes. Based on the review, it can be extrapolated that the information literacy programmes are not given the required time and effort in order for the undergraduate students to acquire the basic skills and competencies on the use of electronic information resources. And as such, this study aims to find out the reason for that and a possible solution if any.

Information literacy programmes needs to be implemented mainly by the schools, universities, public and other libraries in order to achieve library goals and to convert their users to lifelong learners and critical thinkers. However it is very important to note that these programmes would be more successful, if the library staff is able to enlist the co-operation of the teaching staff. In addition to this, information literacy programmes will enable librarians to play a more prominent and meaningful role among their clients. It can be said conclusively that, the major problems faced by information literacy programmes in Nigeria are lack of enough instruction time, lack of qualified instructors and lack of stable internet connectivity.

2.3 Information Literacy Skills and Competencies by Undergraduate Students

The increasingly evolving information environment has shown a need for a new evolutionary methods and practice to evolve and adapt accordingly. Skills involve the ability to pragmatically apply, consciously or even unconsciously, the knowledge in practical settings. In this setting, 'skills' can be conceived as the technical aspects of competence. According to Abbas (2014), the significance of information literacy education lies in its potential to encourage deep, rather than surface learning, and in its potential to transform dependent learners into independent, self-directed, lifelong learners.

The above assertion is in line with Cankorkmaz (2010) who posited that for students to be able to find information about a topic from a variety of sources, they are expected to develop knowledge, skills, competencies and understanding of the information environment they are in and also develop their ideas of using Information and Communication Technology tools to enhance the quality of their work. Knowledge of the information environment will enable students to focus on the best information source to approach for the impending need whereas, knowledge of Information and Communication Technology will enhance the quality of their work by sharing and exchanging information directly and through electronic media.

Information literacy skills are exemplified by ideas such as the ability to discover, retrieve, and use information, the ability to manage information, and the ability to make critical choices about information resources. Information literacy skills is a far more comprehensive concept encompassing abilities such as critical thinking, synthesis, communication, and research methodologies. Therefore, the definition and understanding of the concept seems to be related to the way in which the concepts of competence and skills are defined and perceived. According to

Syamalamba (2011) citing Node (2001), the concept of competence also has different meanings and it is not always clear whether competence refers to identifiable skills, or related to patterns of behaviour.

The New Oxford Dictionary of English defines 'competence (also competency) as the ability to do something successfully or efficiently; the scope of a person's or group's knowledge or ability; a skill or ability'. The term skill is defined as a person's ability to do something well and also as 'an expertise'. It seems that there is no difference between competence and skill and the terms are described as synonyms.

ALA (1989) asserted that Information literacy seeks to solve problems associated with information overload through the provision of a skills set to assist individuals in recognizing "when information is needed and have the ability to locate, evaluate, and use effectively the needed information". Student centered, inquiry based, problem solving, and critical thinking proactive learning environment with the help of information literacy skills, will develop deep learners in the society. Furthermore, information skills are vital to the success in education, occupation, and day to day communication of all citizens. In the twenty-first century, lifelong learning has become one of the main themes in the universities. Therefore the students need to be educated with regard to the abilities and skills of how to learn, or learning to learn, by developing the aspects of reasoning and critical thinking.

Information literacy skills will help students to achieve the above target in a broader sense, in student centered learning. Traditionally, it is assume that the students will gain information literacy skills automatically by themselves. But it is not. In fact, information literacy skills need to be inculcated among the students, by the lecturers and librarians.

Yu-Hui (2015) who prefers to use the term 'information related competencies', as it combines several blocks of competencies related to information handling and use; for example, identifying, locating, gathering, selecting, storing, recording, retrieving and processing information from a variety of sources and media; developing successful information seeking and retrieval strategies; mastering complex and multiple information systems; organizing, analyzing, interpreting, evaluating, synthesizing, and using information; and, presenting and communicating information clearly, logically, concisely and accurately. These information related competencies can be seen as made up of increasingly sophisticated knowledge, skills and attitudes. Information literacy skills are helpful to everybody, especially undergraduate students, in order to succeed academically and in their future job opportunities. Lecturers are greatly in need of information literacy skills, in order to carry out their occupations efficiently and successfully. Basically, everybody in the society is in need of information literacy skills.

It was suggested by Daniel (2010) that in order to use the virtual library effectively; all or most of the traditional library skills as well as additional information skills will be required. Traditional library skills are skills of identifying and locating needed information to support learning activities, whereas information skills refer to abilities of determining search strategies appropriate to the purpose of needed information. Efficient and effective utilization of electronic information environment demand that users develop skills of employing advanced search strategies such as those of Boolean search operators, truncation, proximity, etc. These strategies enable information seekers to narrow or broaden their search to reflect the need.

According to Ahmadpour (2014) information skills link information literacy to basic library skills and information technology (IT). To be able to gain adequate information literacy skills, library users first have to articulate basic library skills, which are embedded in information

technology, as the basis for developing information skills. This could be why Emwanta & Nwalo (2013) observed that there is no doubt that electronic resources cannot be highly accessed without adequate computer literacy skills. Their interview with the university librarians showed that most of the undergraduate students do not access the electronic resources because they lack the necessary skills. The findings of their study revealed that (29.7%) of the respondents indicated that they access the Internet very often with the computer (15.8%) had access to CD-ROM occasionally while the remaining (54.5%) never accessed electronic resources due to lack o skills.

Skills gained through Information Literacy programmes in colleges are transferable to work situation in addition to empowering students to be self-directed learners, this include the lecturers and other field of work. Onhwakpor (2013) was of the opinion that with the advent of digitization of libraries, librarians, lecturer and other professionals should possess the basic information literacy skills to function effectively in the age of new technology.

It is on the above premise that Obiora et al. (2015) stated that Information skills and competences are associated with the second level of the pyramid of individual skills for all users irrespective of their status. They are related to, evaluation and organization of information from various sources, the search abilities, classification of audiovisual texts and how the media operates. Information literacy skills are achieved by students, through student centered, resource based teaching learning methods that direct them towards deep learning, thus creating an information literate society. In other words information literacy skills empower the people with the critical skills which will help them to become independent lifelong learners. These skills will enable people to apply their knowledge from the familiar environment to the unfamiliar.

However, there are skills that are important for university teachers to effectively benefit from, these set of specialized skills are termed 'information literacy skills'. Information literacy skills are key factors to technology use in facilitating effective computer-mediated professional development. Information literacy skill is about empowering and educating information consumers so that they are knowledgeable about information in a way that is relevant to their lives. It enables individuals to use this knowledge to evaluate information and make informed decisions. Mounting evidence shows (Duncan & Varcoe, 2012) that those who are less information literate are more likely to have problems with learning.

It was also asserted by Duncan & Varcoe (2012) that information literacy empower information seekers with greater control of their information needs while making more effective use of information services and resources. It also reduces users' vulnerability to overzealous information providers and fraudulent information services. They emphasized that information literacy helps to improve the efficiency and quality of information services. Information seekers, more than ever before, need a certain level of understanding of information sources in order to evaluate and compare information resources such as reference materials, texts, databases, and Web sites.

A study by Chidinma (2013) showed that the respondents lack information skills. They were found to lack copyright, citation and evaluation skills. The evidence shows that many of the respondents do not understand what it means to evaluate internet resources. They move by the standard of Google. However, some of them were found to have set their own criteria of evaluation; they only use resources by publishers and not individual author.

As such, Baro & Zuokemefa (2011), outlined skills within the framework of assignment process suggests that for students to be able to efficiently and effectively utilize information resources, they should first be able to accomplish the following tasks:

1. Formulation and analysis of the information needed.
2. Identification and appraisal of likely sources of information.
3. Tracing and locating the individual resources.
4. Examining, selecting and rejecting individual resources.

These tasks are the general requirements of any information seeker in the information and knowledge society. For students to be able to meet their information needs for learning activities, they must have developed the prerequisite information literacy skills for the individual step. In addition to these steps, information seekers should have developed adequate computer skills. According to the review, requisite information literacy skills are required in order to navigate through the complex environment of the electronic information resources. According to some of the reviews (Ahmadpour, 2014; Daniel, 2010; Duncan & Vacrcoe, 2012), the effective utilization of electronic information resources is not possible without skills on how to manipulate the electronic environment.

It was established that the information literacy programme equips students with vital information literacy skills. Baro & Zuokemefa (2011) supported this when they claim that Information literacy programmes equip students with the skills to find, evaluate and manage the information they need for their academic work". The information literacy skills courses equip students with the necessary skills and knowledge to enable them to use the library's information resources effectively, legally and ethically. The findings by Okon, Patrick & Bosire (2014) also indicated

that some students do not recognize that the information literacy skills they are learning are transferable and applicable to most areas of their studies and the rest of their life work.

To highlight these, Anunobi & Udem (2014) noted that effective information skills instruction starts with selecting existing curriculum units which are best suited to integrated instruction. The other way to do so is to teach and to provide opportunities to learn. It is believed that information literacy skills are essential for success, and must make sure that people have frequent opportunities to learn and practice these skills. Systematic planning and delivery of integrated information skills instruction across settings is essential in order to make a difference.

It's not enough to work one-on-one or to offer an isolated lesson in note taking or Web search engines. People need lessons in the full range of skills, delivered in the contexts of the overall information process, including relevant technologies, and based in real, subject area assignments. Accomplishing comprehensive, integrated information literacy instruction requires library and information professionals in collaboration with others to make a concerted and systematic effort to plan and deliver programs in context.

The review shows that undergraduate students need the requisite skills which they are lacking in order to maximize the utilization of the electronic information resources in this information explosion age. It also shows that the Librarians as instructors of the literacy skills need the basic information literacy and computer skills to help in inculcating that knowledge to the users. If Nigeria is to become a reading and literacy society, positive reading habits should be inculcated in the students. Lecturers should provide a congenial atmosphere for reading. Literate parents should encourage the development of reading habit through example.

Due to information explosion it has become increasingly clear that students cannot learn everything they need to know in their field of study, within a few years, at school or the university. Information literacy equips them with the critical skills necessary to become independent lifelong learners.

From the review above, it can be extrapolated that the users of electronic information resources skills to search for information using specific search strategies and techniques, and that majority of the review showed that the users only evaluate the electronic information resources based on their accessibility. It is based on this premise that the research tends to find out if the users also evaluate the authenticity, authorship, and reliability of the sources.

2.4 Information Search Strategies on the Use of Electronic Information Resources

Strategies are plans that are intended to achieve a particular purpose. Strategies may also be seen as a high level plan to achieve one or more goals under conditions of uncertainty. An information search strategy may be seen as an approach to using the Web. For example, using Google is a search strategy; using links in a Web text is a reading strategy. According to Eke, Omekwu, & Agbo (2014) search strategies are the products of planned or situational interactions between users and electronic resource Systems. In other words, it highlights a working planned interactive reaction for a given situation. Search strategy is the 'action plan' for retrieving information. Adding to that, Xie & Joo (2010) that search strategies consist of a series of sequential tactics that take into account both planned and situational elements. Information search strategies can be defined as the organization of search keywords and symbols in order to conduct effective search on the web, and extend and narrow search results accordingly.

A strategy may be adequate or not adequate within the context of a certain task. It is evident that the electronic information resources provide access to a wealth of information on countless topics contributed by people throughout the world. Hence, it is important to discuss the various strategies undergraduate students adopt while carrying out research work. 'Strategy' according to Oxford Advanced Learner's Dictionary, is a plan that is intended to achieve a particular purpose. Wikipedia defined 'Strategies' as a high level plan to achieve one or more goals under conditions of uncertainty. A strategy may be seen as an approach to using the e-resources. For example, using Google is a search strategy; using links in a Web text is a reading strategy. A strategy may be adequate or not adequate within the context of a certain task. According to Vakkiari (2003) as cited by Rubinic (2014), search strategies are the products of planned or situational interactions between users and Electronic Information Resource Systems.

Search strategies in electronic information resources can be defined as the organization of search keywords and symbols in order to conduct effective search on the web, and extend and narrow search results accordingly Nina (2014) citing Brehm (1999). The Internet as one of the major sources of e-resources is not a library in which all its available items are identified and can be retrieved by a single catalogue. In fact no one knows how many individual files reside on the Internet. The number runs into a few billion and is growing at a rapid pace. The Internet is a self-publishing medium. This means that anyone with little or no technical skills and access to a host computer can publish on the Internet. Although many students showed instances of adequate searching, reading and evaluating behaviour, they alternated this with inadequate use of the Web, for example, by formulating proper search terms for one assignment or research but failing to do so for another. For both library and educational practices, it is important to identify the origins of

students' varying Web behaviour, with a view to both the conceptualization and the teaching of Web literacy.

Many undergraduate students use the electronic information resources quite naturally, but too often, students mistake their ability to move around the e-resources for the skills that they need to navigate and read it (Nina, 2014). This is confirmed by extensive research into student's Web behaviour, which shows that students are lacking adequate search skills as well as the necessary skills for critical evaluation of Web information. It is evident that educators need to assist students in the development of these essential skills for manipulating the electronic information resources. It requires the mastery of certain strategies which in turn requires specific Web-related skills. Search engines offer a variety of features that allows a user to construct a precisely-targeted search. Among frequently used searching strategies are Boolean search commands, power searching commands and search assistance features (related search, clustering, stemming, etc.).

In the same vein, Xie & Joo (2010) highlighted the following as search strategies: Boolean Operators, Phrase searching, Proximity search, Fuzzy Search, Stemming, Truncation searches, Wildcard searches. They further explained Boolean Operators as simply words used as conjunction to combine or exclude keywords in a search, resulting in more focused and productive results. This should save time and effort by eliminating inappropriate hits that must be scanned before discarding. Using these operators can greatly reduce or expand the amount of records returned. Boolean operator saves time by focusing searches for more ‘on-target’ results that are more appropriate to the needs of the user, eliminating unsuitable or inappropriate ones (Xie & Joo, 2010).

Search engines deals with search statements, therefore using parentheses to enclose a search statement will customize the results to more accurately reflect the search topic. Proximity search searches for two or more words that occur within a specified number of words of each other in the databases. Proximity searching is used with a keyword or Boolean search. Phrase searching deals with surrounding a group of words with double quotes that tells the search engine to only retrieve documents in which those words appear side-by-side. Phrase searching is a powerful search technique for significantly narrowing search results (Xie & Joo, 2010).

Fuzzy Search is the type that is made possible by fuzzy matching. The search engine returns results that it predicts will be relevant, even when the terms used in the query does not appear anywhere in the matched documents. Stemming is the type of search that the engine searches not only for the search terms, but also for words that are similar to some or all of those terms. It will search for all variations of the word. While truncation places a symbol at the end of the word so that the user can search for variant endings of that word. Wildcard searches also places a symbol within a word to find variations on it (Xie & Joo, 2010).

Searching information on the Internet has become a common learning activity by undergraduate students in all subject domains. Undergraduate students are often required to search information via the Internet. However, online information searching and processing is a complex cognitive process involving multifaceted cognitive and meta-cognitive strategies. Research indicate that even graduate students and adult learners also had troubles with specifying search terms, judging search results, judging source and information as well as regulating the search process.

Online information searching strategies have been explored in several studies that examine factors influencing search strategies or behaviours. For example, Nina (2014) found that topic

interest affects users' acceptance of a web document. Rubinic (2014) reported that students' prior domain-specific content knowledge influences goal setting process and general prior knowledge influences content use. However, search strategies are dependent on the nature of tasks or the contexts. Recently, Rubinic (2014) found that different levels of searching strategies might be required for well and ill-structured problem solving. Not many studies have been conducted to directly examine the role of searching contexts for the students' search strategies.

Access to electronic information resources is influenced by both individual and technological factors. The association between information literacy and the ability of students to use electronic resources has already been mentioned. Undergraduate students' use of electronic resources and their search behaviour has been the subject of a number of studies and the issue is influential in their access to information.

In a study, Sasikala & Dhanraju (2011) related search strategies to students' sense of satisfaction and they suggest that students may be satisfied with results that would be unsatisfactory to information professionals. Students may have low expectations, which are met with inadequate search strategies, so they see no need to improve their techniques. Rani (2011) also acknowledged the problem of satisfaction in their study, where it was found that whilst many respondents used electronic information sources, they tended to use only a limited number.

Similarly, Currie, Devlin, Emde & Graves (2010) also found that students lacked coherent search strategies and that some electronic information sources received minimum usage. The study also found that students were motivated to use these sources if they thought they would obtain better assessment grades. It also showed that usage of search engines was more than double that of the library OPAC) and was the main use of electronic resources for first-year undergraduate

students. Student reliance on search engines was also found in the in the study of Spiranec & Zorica (2010) where students completed set tasks using electronic information sources. In this study 45% of students turned to Google first with only 10% using the library OPAC. The reasons suggested for student reliance on search engines are that they are familiar, have produced successful results in the past and that the time and effort required to search may be more important to students than the relevance of the items that they retrieve. Lack of awareness of other resources could also be a problem. The above study is also similar to that of Okon et al. (2014) where they found that accuracy and speed were important to the students when they searched and that they were willing to learn about library resources if they thought search time and effort could be reduced and accuracy and relevance maximized.

The searching behaviour of undergraduate students that has been demonstrated in these studies is significant for their usage of electronic information resources. Students do not appear to share the same values as information professionals and are very much focused on doing what they need to pass assessments within the minimum effort. This is not surprising given the demands that the modern student may have upon their time. Emwanta & Nwalo (2013) suggest that use of electronic information resources can be improved by limiting the choices that users need to make as this limits the opportunity of mistakes being made.

According to Ahmadpour (2014), the accessibility of electronic information resources may be affected by the characteristics surrounding the user and information carriers, the characteristics of the contents of the e-resource and the overall information environment. Individual user characteristics such as levels of computer literacy and information literacy, language proficiency and preference to some information formats can also influence access and use of electronic information resources. Electronic information resources characteristics may influence their

accessibility and usage. The other factor influencing the accessibility of electronic information resources is the characteristic of the information carrier.

Accessing information resources in electronic formats depends on the availability of devices needed for reading, connectivity and one's literacy level. Users' awareness about the existence of electronic information resources is also an important factor in the usage of such resources. Ahmadpour (2014) suggested that for users to be able to access and effectively use electronic information resources, they must also have adequate skills for retrieving information and to evaluate the outputs of the search process. The study referred to these skills as the competencies needed to access resources. These competencies include the information literacy skills, including skills to formulate a search, to identify appropriate information sources, to select the right search tools, to employ suitable search strategies and to evaluate the results.

In the same vein, Inskip (2014) stated that search formulation involves coming up with appropriate queries useful for finding the information needed by the information seeker. Spiranec & Zorica (2010) also point out that search formulation comes after the identification of the information needs. Search formulation helps the information seeker to retrieve information relevant to his or her needs. After formulating an appropriate search, appropriate information sources should be identified. Information sources are points from where information is accessed. Currie et al. (2010) emphasize that such sources must be credible and trustworthy.

In another instance, findings by Rani (2011) indicated that the ability to formulate appropriate searches was higher in some age groups than others. This suggests a negative relationship between the ability to formulate good searches and the age of the respondent. It also meant that the ability to access relevant information from searches decreased as respondent age increased.

The other criteria including identification of appropriate information sources, selection of right search tools and conducting appropriate search evaluation were equally influenced by age and level of education.

While attempting to ascertain the level of skills the students have to use the library catalogue for identifying and locating the required item, in a study by Sasikala & Dhanraju (2011), the students were asked question on the way they apply the search strategy. The findings show that majority of them do not have adequate search capabilities to find out what they require from the catalogue. Majority of them gave wrong search option. Govindaraju (2010) reported that commercial Internet search engines dominated students' information seeking strategy. Search engines were preferred because of their familiarity and student success in finding information on previous occasions.

The information on the Internet can be searched using various search strategies and techniques. Different search techniques are developed for improving the quality of retrieval process. Search techniques include keyword search, use of Boolean operations, truncation, field search etc. It was observed from a study by Oduwole & Idowu (2012) that majority of the students (54%) are using simple keyword search for searching and retrieving information from a database. About 20 percent are applying field search techniques. Truncation techniques and Boolean operators were used by only 15% percent and 17 percent of the users respectively. This indicates that majority of the students are not aware of the importance of various search mechanisms available for effective retrieval of information.

In the contemporary information society, the Information literacy skills are required for exploiting the available electronic information resources for various purposes. A study conducted

by Andretta (2012) found out the students knowledge and level of understanding about the Internet. The result revealed that more than 70 percent of them are aware of the characteristic features of information available on World Wide Web. They could distinguish the source of reliable information from unreliable sources on net. They knew that the information drawn from online sources has to be carefully screened and evaluated before using it. Further more than 70 percent of students are using the information available on World Wide Web for various purposes. Among various Web tools and resources, institutional websites stood in the first place in terms of their use by students. Search engines are used by 31 percent of the students. Databases were accessed only by 20 percent of the extent of use of web directories is low compared to other tools and resources. When it comes to the use of search techniques, most of them are using simple keyword search, while other techniques are used by less than 20 percent of the students. It shows that majority of them do not have proper knowledge about the benefits of using Boolean operators and truncation techniques while searching the online sources.

Not many researchers in developing countries according to Rani (2011) have been able to develop the methods and skills for searching for relevant information and materials, knowledge of web design, skills for using discussion forums, even basic knowledge of how to send e-mail. Therefore, there is need for user's education on the strategies with which to search the Internet by students or researchers. This is also in line with the suggestion by Rubinic (2014) who recommended that more Internet facilities be made available to students, and the students be taught internet skills as searching on the Internet is not an easy task.

In order to evaluate and describe search strategies of adolescent learner, Guinee & Hall (2003) as cited by Zickuhr (2010) conducted a study with 161 middle and high school students. Data were collected through students' descriptions of their search process, observations of students

searching behaviours and audit trial list of search strings used by students. Approaches adopted by students to locate information were listed as dot-com formula, shopping mall, and search engine all of which were used by students regardless of the computer experience. They revealed four techniques for recovering from unsuccessful search attempts, which were switching topics, visiting additional web sites, trying new keywords, and continuous instruction and support, students fall back on their previous stage of web search results from ineffective search queries. Thus, it was suggested that students should be trained in a way that they may become more meta-cognitive about their searching to differentiate between successful search and unsuccessful search.

In another instance, Salaam & Adegbore (2010) found out that students primarily use Google for searching on the internet. It was also revealed that internet search strategies applied differ between the inception and the development processes of the search. They further revealed in the study the irrelevant information, accessing insufficient information, accessing websites with virus threats while searching were the problems faced while searching the internet for research. They however, recommend that there is need for training regarding the ways of accessing and retrieving information from the internet.

Rubinic (2014) discovered that success in searching was very dependent on user knowledge, specifically meta-cognitive abilities, familiarity with the computer system being used, and prior subject knowledge. The research indicates that individuals with little system knowledge, and understanding of how to conduct a search, have greater difficulty finding success in Internet searches Rubinic (2014). Given this information, providing instruction in electronic information search strategies so as to develop skills in computer system use may help students improve their knowledge of the system and therefore improve their ability to conduct successful searches.

According to Sasikala & Dhanraju (2011), the most crucial component of information literacy skill is understood as the ability to access, retrieve and store information and media content, using appropriate technologies. It includes the ability to recognize the need for information, media content and knowledge and to be able to identify useful information and media content from all sources and formats, including print, audio, visual and digital to satisfy this need. Retrieval may be from libraries, museums, personal files or any other source, and which may be stored physically or electronically.

Based on the review above, it was established that there are various search strategies and search engines to be used for the access and use of electronic information resources but majority of the sources cited are from developed countries, there is evidence that a study was carried out on the search strategies of undergraduates in Nigeria. And the review of the literature has shown that it is not possible to utilise the growing range of electronic information resources without the knowledge of search strategies and skills. It was also established from the review that users of electronic information resources most be versatile in the usage of the various search strategies.

Efficient and effective utilization of electronic information environment demand that users develop skills of employing advanced search strategies such as those of Boolean operators, truncation, proximity, etc. These strategies enable information seekers to narrow or broaden their search to reflect the need. Knowing about and understanding electronic information resources use refers to a person's declarative and procedural knowledge of the generic characteristics and functions of electronic information environment.

2.5 Techniques for Evaluating Electronic Information Resources

In the electronic information environment one of the responses to the problem of bringing large amounts of information together has been for the user to be able to evaluate the results obtained from the search. Information literacy is a necessary skill that is utilitarian in every aspect of an individual's or group's use of electronic information resources.

Hjorland (2012) argued that the functional view of information sources describes sources as neither good nor bad, but just more or less fruitful or relevant in relation to a given question. Thus, each information source may be relevant and suitable to specific information needs. For information needs to be met a user must identify appropriate information sources and be able to access relevant information. It is therefore important to select the right search tools to access information easily. Information must also be evaluated before being used to meet the information needs. According to Hjorland (2012), electronic information resources should be evaluated because they are created at a very high level and that they are meant to be used for a varied audience. The writer also described important criteria for evaluating electronic information resources, to assess its appropriateness for the individual's information need, including: The authority behind it, currency, intended audience, ease of use and accuracy.

Critically evaluating information on the internet takes on a heightened importance because of the flattening effect that seemingly places all content on an equal playing field. The burden of credibility assessment and quality control has shifted from professional gatekeepers to individual information seekers (Enite, 2014). Studies consistently show that students do little to verify online information, including but not limited to news. Students typically find online information more credible than do adults and are more likely to take it at face value.

Enite (2014) realized a multiple case study design with 5th grade teachers who carried out a program, which consisted of eight weekly sessions to teach students Web searching, reading and evaluating skills. The purpose was to investigate the contextual factors that influence the realization of the program and the learning gains in the participants in terms of content knowledge and Web skills. Videotaped and written lesson observations, interviews with students and teachers, teacher diaries, student questionnaires and student assignments were the data sources. Findings revealed that contextual factors that influenced the program were related to conditions as teachers' investment of time and effort, and school's way of organizing computer work. In addition, student's knowledge and skills improved in terms of both content knowledge and Web skills. Nevertheless, most students did not act upon their knowledge of Web searching, reading and evaluating skills, and showed unexpected or inconsistent behaviours.

Without being primed, undergraduate students display a low level of proficiency in identifying the source of information and weighing source credibility (Enite, 2014). They typically access information that is convenient and they commonly report relying on sources that they do not consider credible (Clara, 2011). Identifying credible information is challenging for young web users because they are less cognitively developed than adults (Currie et al., 2010) and are at greater risk for falsely accepting a source's self-asserted credibility (Jana & Eileen, 2013).

Credibility can be measured in a variety of ways. Jana & Eileen (2013) developed a seminal 12-item credibility scale that includes criteria such as fairness, bias, accuracy and trustworthiness. Currie et al. (2010) developed a similar credibility index including fairness, accuracy, and trustworthiness, concern about the public interest and concern about the community. In the credibility scale of Enite (2014), factualness, trustworthiness, concern about making profits, consideration of people's privacy, and concern about community well-being were considered.

Emwanta & Nwalo (2013) gauged how credible students find various channels based on the dimensions of believability, accuracy, trustworthiness, bias and completeness.

Digital literacy evaluations typically measure the ability to assess information online based on accuracy, authority, objectivity, currency and coverage – each considered to be indicators of web site credibility (Emwanta & Nwalo, 2013). Credibility indicators also commonly include authorship, accessibility, presentation of information and whether information can be corroborated across several sources (Currie et al., 2010). In an online experiment in which thousands of people evaluated a range of web sites (including news sites), Jana & Eileen (2013) found that credibility judgments usually were based on site presentation, information on the page, the site operator or source's motives and the reputation (including name recognition). Features of the information itself and the source of the information factored into users' credibility assessments (Clara, 2011).

Personal values and educational levels may influence people's ability to evaluate electronic information resources. Thus, information literacy can enhance the accessibility and usage of electronic information resources. However, for effective access to, and usage of, electronic information resources individual and infrastructural factors must be considered as well. The current study set out to identify these factors, assess their impact and determine how to adjust their influence on use of electronic information resources. The usage of electronic information resources in different sectors is very important in generating new knowledge needed for development.

Based on the above review, empirical evidence shows that the use of electronic information resources has positive impacts on the teaching-learning process. A study conducted by

Cankorkmaz (2010) showed that lecturers used electronic information resources for preparing lecture notes. This positive impact of electronic information resources to the teaching-learning process is due to the currency of most electronic information resources compared to print materials. It is also known that a single electronic information resource can be used by multiple users at a time, which is not the case with print resources. Hence it is important for the user of the electronic information resources to be able to evaluate the information obtained from the electronic information resources to differentiate between what is good and bad, what is needed and what is useful.

Head, Anunobi & Udem (2014) sought to learn how students resolved issues of credibility, authority, relevance, and currency of electronic resources used for research. Students reported twice as many frustrations with conducting course-related research as they did with "everyday life research". They also expressed frustration with identifying, accessing, and/or locating resources in the library. Students typically used Google initially, followed by blogs and Wikipedia. Students did not use libraries and did not find library instruction helpful.

Similarly, Emwanta & Nwalo (2013) designed a survey and queried students regarding the criteria used when they evaluated sources on the Internet and in the library. Students in this study said that the most desirable source for them was a source that is easy to find, easy to access, easy to understand, and available when it is needed. They also placed a high value on up-to-date information, primary sources, reputation of the publication and the author, but they were not concerned about publisher reputation. Most of the students claimed to understand the definition of "peer-reviewed" or "refereed" but they did not seem to recognize the value of citations in references for finding additional information.

In another study, Rani (2011) found that students primarily valued the content of the source, but also ranked familiarity and availability as important. Very few students ranked reputation/credibility as important. There was little difference in the students' rankings based on class status. It was concluded that evaluation skills are lacking in and needed by undergraduate students. Furthermore, Rubinic (2014) examined undergraduate students' research habits in the campus electronic library environment. It was discovered that students used WebCT/class web sites almost as frequently as they used the Internet when doing research. This shows that students will have less opportunity to critically select, use, and evaluate information resources on their own.

Secker & Macre-Gibson (2011) also investigated how undergraduates evaluated five web pages using five evaluation criteria – coverage, accuracy, authority, objectivity, and currency. The study indicated that students usually employ only one or two criteria and use them repeatedly to evaluate all five web sites. They evaluated web sites superficially, even with the criteria spelled out for them. This is in line with the findings by Jana & Eileen (2013) who also found that students evaluated web sites superficially, if at all. The study found that students used unauthenticated web sites and none of them took advantage of the library's resources when left to their own devices. The authors also found that instructors seemed to be unaware that students have had little guidance in evaluating web resources.

Head (2012) tried to differentiate the types of sources students used to find information for their research and whether library instruction played a role in their choices. Ninety percent of the students used the Internet for personal research and seventy-five percent chose the Internet for class-related research, even though these students realized that library resources were more credible. The students tended to choose the Internet because it was easier to use. It was also

found that students who attended a library instruction session were proportionately just as likely to use academic and nonacademic sources as those students who had not attended a library instruction session.

It was observed by Islam (2013) that from the user's point of view, electronic information resources hold many advantages such as time and place convenience, timeliness, ability to search directly on text, ability to link to further reading material and ability to disseminate and share information. The use of electronic information resources in learning institutions usually increases with improved academic performance (Syamalamba, 2011). Academic institutions which have invested much in electronic information resources infrastructure are more likely to perform better academically.

For students, information literacy skills would lead to independent and student-centered learning, rather than dependence on the teacher to provide answers to questions or problems that they encounter. This in turn creates a greater responsibility towards their own learning, which would help him become (Cankorkmaz, 2010) dynamic learners and thinkers who are creative, analytical and efficient instead of mere regurgitators of facts. Analyzing, integrating, managing and conveying information to others efficiently and effectively are respected more. These are students, workers, and citizens who are most successful at solving problems, providing solutions and producing new ideas and direction for the future.

Furthermore, in an age of information overload, individuals need also to master the technical skills of organizing, selecting and synthesizing media and information. An understanding of the nature, functions and operations of media institutions, media professionals and information providers is crucial for knowing how to deconstruct information and media messages. It is

important to recognize the role of the media and information in the broader context, particularly for promoting freedom of expression, freedom of information and access to information. Information literate individuals recognize the economic, social and political power and control of information providers, as well as public institutions.

Accessing and evaluating information refers to the investigative processes that enable a person to find, retrieve, and make judgments about the relevance, integrity, and usefulness of information found in electronic information resources. According to Nina (2014), the proliferation of information sources that use the internet as a communication medium means that users are required to filter the vast array of information to which they gain access before they can make use of it. However, the process of filtering in combination with the increasing intuitiveness of electronic information resources is producing an ever greater integration of the processes of accessing and evaluating information.

The importance of accessing and evaluating information is also a direct result of the increasing quantity and range of available unfiltered information found in electronic information resources. Electronic information resources are not only increasing in volume, but also constantly changing. While accessing information and evaluating information are rooted in conventional literacies, the dynamic multimedia and multimodal nature of electronic information resources means that the processes of accessing and evaluating them are different from those that relate only to conventional literacies.

It is also important to possess skills in managing information on the use of electronic information resources. Managing information refers to the capacity of individuals to work with electronic information resource. The process includes ability to adopt and adapt information classification

and organization schemes in order to arrange and store information so that it can be used or reused efficiently (Julian, Wolfram & John 2013). An examination of the literature has raised a number of issues, which have been used to focus the research area

Rani (2011) used student-designed worksheets which were analyzed as a product of their information searching process. Paragraphs related to citing resources were excerpted from the students' worksheets and scored using a rubric to identify if students cited and how they cited information resources. The rubric was designed to evaluate how effectively the citations met the two primary purposes of citing resources, which include (1) giving credit to original authors/creators of the resources and (2) allowing readers to identify and locate the resource. In addition, the rubric also measured if the students articulated the specific information or data they cited through integrating the cited sources into their writing. The rubric used to evaluate students' citing behavior does not include the measurement of how students evaluated the information resources before citing them. Thus, an inventory of resources cited by students was created and analyzed to identify the information literacy skills that students demonstrated in the identification and evaluation of the resources.

While discussing searching retrieving and evaluating webs information, a survey by Rani (2011) aimed at finding the level of understanding and knowledge of students about searching retrieving and evaluation of web information. Four statements were given about the Internet to access the knowledge of the students the responses are analyzed. The responses show that majority of the students surveyed have good knowledge about the web resources. Information literacy programmes organized by the library offer many benefits to the users. Through these programmes skills required for accessing and retrieving relevant information from the web and for evaluating and using it in an effective and ethical way may be imparted in the student.

The critical responsibility of the educational system is in facilitating and empowering the role of information. Within the college or University environment it is important for students to be able to build up on the foundation of information literacy knowledge by successfully transferring this learning from course to course, understandings the critical and empowering role of information in a free and democratic society, and demonstrating ethical behavior and academic integrity as consumers, as well as producers, of information. Specially designed and implemented information literacy programmes by the academic libraries are instrumental in meeting the above said objectives of educational institutions.

2.6 Types of Electronic Information Resources Used by Undergraduate Students

The term electronic information resources came into usage in late 1980's when first electronic journal, 'Adonis' one of the first electronic journal appeared in pilot form at the end of the 1980s and was finally launched as a commercial product in 1991 came into being. The electronic information resources are not single entities; they include various types of resources such as electronic books, electronic journals, electronic databases, digital/knowledge archives and internet resources. Thus, electronic information resources are available in the electronic form and their access is through intranet, Internet, standalone computer, online and offline databases (Kumar & Singh, 2012).

Shukla & Mishra (2011) described electronic collection as the collection of information which can be accessed only by the use of electronic gadgets while IFLA (2012) referred to electronic information resources as those materials that require computer access through personal computer or mobile devises. The above definitions corresponds with that of Dhanavandan & Tamizhchelvan (2012), who defined electronic information resources as resources in which

information is stored electronically and it can be accessible through electronic systems and network environment.

The submissions above indicated that the electronic information resources use a medium in electronic formats to transmit and communicate information. It is these medium that makes the access and use easy and fast. Electronic information resources are a very broad term that includes a variety of different file formats. Instant access is quite possible with electronic information resources. Omosekejimi, Eghworo & Ogo (2015) explained that electronic information resources are materials consisting of data and/or computer program(s) encoded for reading and manipulation by a computer, such as a CD-Rom drive or remotely via network such as the internet by use of a peripheral device directly connected to the computer. According to Dhanavandan & Tamizhchelvan (2012), acquiring knowledge from electronic books, electronic journals, Online resources, CDROM, Internet with related Databases are the impact of electronic information resources.

In the context of this study, electronic information resources can be referred to all the information resources found in the electronic format that is capable communicating information to the users. According to all the submissions above, it can be deduced that, electronic information resources are operated using electrical gadgets and require a certain set of skill to use. This implies that information can be easily accessible now through these gadgetries and can only be utilized with the skills and competencies of how to access these gadgets.

It is in line with the above that, Omosekejimi, et al. (2015) described electronic information resources as those resources that users access electronically via a computing network from inside the library or remote to the library. While in a similar fashion, Okon et al. (2014) stated that

electronic information resources are resources in which information is stored electronically and which are accessible through electronic systems and networks". Electronic information resources are invaluable tools for study, learning and research (Omosekejimi, et al. 2015).

Electronic information resources according to Sarma & Sarma (2014) can be printed and searches saved to be repeated at a later date; they are updated more often than printed tools. One main advantage is their availability from outside the library by dial-up access. In an academic environment, it speeds up information delivery, facilitates teaching, learning and research. Similarly, Abubakar & Adetimirin (2015) described electronic information resources, as information sources that are available and can be accessed electronically through such computer networked facilities as online library catalogues, the internet and the World Wide Web (WWW), CD-ROM databases, etc. The electronic information resources could either be subscribed to or be digitized in-house. This corroborate the assertion by Mittal & Bala (2013) who viewed electronic information resources as those materials that are in electronic format and require computer access whether through a personal computer mainframe or hand-held devices.

Based on the assertions above, electronic information resource may be regarded as any information resource that may provides access to the information that is in an electronic format. In other words, an electronic information resource is any work encoded and made available for access through the use of a computer. It includes electronic data available by both remote access and direct access. An electronic information resource is a resource which requires computer access or any electronic product that delivers a collection of data, be it text referring to full text bases, electronic journals, image collections, other multimedia products and numerical, graphical or time based, as a commercially available title that has been published with an aim to being marketed (Dhanavandan & Tamizhchelvan, 2012).

IFLA (2012) on the other hand described electronic information resources as those materials that require computer access, whether through a personal computer, mainframe, or handheld mobile devises. They are increasingly important component of collection-building activities of libraries and may be accessed remotely via the internet or locally. The above assertions depict electronic information resources as those resources which need the use of electronic gadgets such as computer devices, to access and use the embedded information. There is the need for information literacy skills and competencies to operate these gadgets. Many believe that electronic information resources are the latest "solution" to the effort of getting closer to the information they seek (Syamalamba, 2011). These information search tools are regarded as reliable and convenient, as they provide easy to access, up-to-date, relevant and more information compared to the manual search.

A study by Owolabi, Ajiboye, Lawal & Okpeh (2012) sought to identify the significance of using the electronic Information Resources, research purpose ranked highest with 204(60.18%). It shows that electronic information resources are very important in research. Another study by Oduwole & Idowu (2012) electronic information resources greatly increase access to information users of information can use electronic information resources to access unlimited information virtually simultaneously and have the ability to search multiple files at the same time, ability to save, print and repeat searches more frequently updating and ability to access from remote location.

Electronic information resources are very significant in the present day-to-day activities. These include the fact that electronic information resources are often faster to consult especially when searching retrospectively, and they are straight forward when wishing to use combination of keywords. They open up the possibility of searching different and various files at the same time

(Emwanta & Nwalo, 2013). Electronic information resources can also be printed, searched and saved in order to be consulted at a later date. Commenting on the importance of electronic information resources, Omoike (2013) wrote that electronic information resources are invaluable research tools that complement the print – based resources in a traditional library setting. Their importance, according to her 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.

From the review above, it can be depicted that electronic information resources form the backbone of the present day-to-day research activities of the undergraduate students. As such cannot be used conveniently without the technical skill and knowledge to navigate through the complex electronic environment that makes up the electronic information resources. There are several forms and types of electronic information resources which are available academic Libraries, which include books, journals, standards, technical specifications, reports, patents, full text articles, trade reports and hosts of other document sources.

Kumar & Singh (2011) in their study found out that general types of electronic information resources include OPAC, CD-ROMs, and Online electronic databases. While IFLA (2012), on the other hand enumerated the following as the types of electronic information resources that are commonly found: electronic journals, electronic books, Full-text (aggregated) databases, indexing and abstracting databases, Reference databases (biographies, dictionaries, directories, encyclopaedias, etc.), Numeric and statistical databases, electronic images and electronic audio/visual resources.

In another study, Swain (2010) cited in Okon et al. (2014) provided the following types of electronic information resources which include, electronic journals, electronic books, online databases, electronic conference proceedings and CD-ROM databases. Others that are commonly used in Nigerian Universities are EBSCO HOST, AGORA, HINARI, MEDLINE, JSTOR and OARE. A number of these electronic information resources (online databases/digitized local journals) are accessible via the National Virtual Library (nigerianvirtuallibrary.com) which is run by National Universities Commission (Okon et al., 2014).

In the same vein, Adeniran (2013) gave a list of electronic information resources as: Internet source, Online Databases, CD-ROM, OPAC (Online Public Access Catalogue) and electronic Journals. Similarly, Idowu & Oduwole (2011) enumerated electronic information resources to include: online Indexes, electronic books, electronic journals, electronic catalogues (library catalogues), electronic reference sources, statistical sources, sound recordings and Image databases.

From the review so far, it can be deduced that Electronic information resources are those information resources that can only be accessed by the use of computers and other ICT devices. These materials may require the use of a peripheral device directly connected to a computer, for example, CD-ROM drive or a connection to computer network, for example, the Internet. And there are different types of electronic information resources such as Compact Disc Read Only Memory (CD-ROM), Internet, online public access catalogues (OPAC), electronic books, electronic journals and electronic index. Electronic information resources are popularly used by students for information retrieval.

On the contrary, Owoeye (2011) discussed the types of electronic information resources available as Telephones (landlines, mobile and Intercoms) photocopier, Desktop Pc, laptop PC, and the internet. The other resources available according to the study are books on CD-ROM, Tele-fax, reports on CD-ROM, electronic journals, Data base. This claim corresponds with that of Adeagbo (2011) who mentioned electronic information resources as electronic mail, discussion/News groups, Gopher, telenet (connecting to remote computers) and WWW (Web Browsing).

Mittal & Bala (2013) stated that the types of electronic resource commonly found in the universities include electronic journals, electronic books, electronic image, electronic paper, electronic database, electronic magazine electronic audio, WWW, CD-ROM, electronic thesis, electronic research report, and digital repository. Similarly, Abubakar & Adetimirin (2015) found in their study that the major types of electronic information resources mostly used by students in the libraries were: electronic journals, electronic mail, WWW, electronic newspaper, electronic magazine and electronic research reports.

IFLA (2012), and Shukla & Mishra (2011), presented frequently used electronic information resources in libraries to include: Electronic books: books in electronic format, electronic journals: publication issued at regular interval and available electronically, electronic Reference Books/database: electronic reference books or materials like biographies, dictionaries, encyclopedias, etc., electronic audio/visual resources, Electronic images, Numerical and statistical databases, indexing and abstracting databases, etc. Similarly, Kumar & Singh (2012) categorized electronic information resources as following: electronic journals, electronic books, electronic databases, digital/institutional repository, and Internet/web resources.

Based on the above discussion, electronic resource can be electronic book, electronic journal or electronic newspaper that has been made available in electronic format and it can be a bibliographic or full text database that allows users to search for relevant articles in our subject area.

Mittal & Bala (2013) gave an outline of the types of electronic information resources found in libraries as follows:

Electronic Journals: Electronic journals also known as electronic journals, electronic journals and electronic serials are scholarly journals that can be accessed using computer and communication technology. It means that they are usually published on the web. They are a specialized form of electronic document they provide material for academic research and study, and they are formatted approximately like journal articles in traditional printed journals. Journals can be categorized as online only journals, online versions of printed journals, online equivalent of a printed journal and equivalent of a printed journal. Most commercial journals are subscription based or allow pay per view access. Many universities subscribe in bulk to packages of electronic journals to provide access to them to their students and faculty. These journals require no subscription by the users and offer free full-text articles to all (Mittal & Bala, 2013).

Electronic Books: An electronic book or eBook is also known as digital book and electronic edition. It is a book length publication which contains text of text, images, or both, and produced or Published through, and readable on computers or other electronic device. An electronic book is in digital form. An electronic book can also be defined as an electronic version of a printed book, but electronic books can and do exist without any printed equivalent. An electronic book is usually read on dedicated electronic book readers or tablets using electronic reader applications.

Personal computer and many smart phones can also be used to read electronic books. As electronic book formats emerged and proliferated, some support were garnered from major software companies such as Adobe with its PDF format, and others supported by independent and open-source programmers (Mittal & Bala, 2013).

Electronic Newspapers: Electronic newspaper is a newspaper that exists on the World Wide Web or internet and holds the information electronically. It may exist either separately or as an online version of printed newspaper. Electronic newspapers are much like hard copy newspapers and have same legal boundaries such as privacy and copyrights. For example, News Naija, DailyTrust Newspaper in Nigeria provides latest and most updated news electronically (Mittal & Bala, 2013).

Electronic Images: An electronic image is a system of photography using a sensor placed behind a camera lens to translate an image into an electronic signal which can be stored on a disk or magnetic tape for playback on a VCR or video disk player and viewing on a television screen. Electronic image is an image represented as a 2-dimensional array of brightness values for pixels (Mittal & Bala, 2013).

Electronic magazines: Electronic magazine is a magazine published on the World Wide Web. Some online magazines may refer to themselves as electronic magazines or electronic magazine to reflect their readership, demographics or to capture alternative terms and spellings in online searches. Many large print publishers now provide digital reproduction of their print magazine titles through various online services for a fee. These service providers also refer to their collections of these digital format products as online magazines and sometimes as digital magazines (Mittal & Bala, 2013).

Electronic database: An electronic database is an organized collection of information of a particular subject area. The information of an electronic database can be searched and retrieved electronically. It can easily be accessed, managed and updated on a daily, weekly, monthly or quarterly basis. Electronic databases can be classified according to types of contents: Full text and bibliographic. A full text database is a database that contains the complete text of books, magazines, Bibliographic newspapers, diagrams and tables. Bibliographic database contain only citation information of an article such as author name, journal title, publication date and page numbers (Mittal & Bala, 2013).

Electronic audio: Electronic audio is for us to download free of charge to our electronic reader or other digital device such as a mobile phone or MP-3 player. For example, Dolby E is an audio encoding and decoding technology developed by Dolby Laboratories. It allows up to eight channels of audio to be compressed into a digital stream that can be stored on a standard stereo pair of audio tracks (Mittal & Bala, 2013).

Electronic paper: Electronic Paper is a portable, reusable storage and display medium that looks like paper but can be repeatedly written on refreshed, by electronic means- thousand or million of times. Electronic paper will be used for applications such as electronic books, electronic newspapers, etc. It is created with mechanical tools such as an electronic pencil. Both of these technologies enable a black and white display (Mittal & Bala, 2013).

World Wide Web: The World Wide Web is a system of interlinked hypertext documents accessed via internet. With a web browser one can view web pages that may contain text, images, videos and other multimedia and navigate between them via hyperlinks. The World Wide Web had a number of differences from other hypertext systems that were available before

it. The Web required only unidirectional links rather than bidirectional ones. This made it possible for someone to link to another resource without action by the owner of that resource. It also significantly reduced the difficulty of implementing web servers and browsers. Viewing a web page on the World Wide Web normally begins either by typing the URL of the page into a web browser or by following a hyperlink to that page or resource. The web browser then initiates a series of communication messages, behind the scenes, in order to fetch and display it (Mittal & Bala, 2013).

CD-ROM: The full form of CD-ROM is Compact Disk- Read Only Memory. It is a non-volatile memory. It is an optical disk capable of storing large amounts of data up to 1 GB, although the most common size is 650 MB. CD-ROMs are similar to audio CDs and the data can be stored and accessed from CD-ROMs in the same way. Discs are made from a 1.2 mm thick disc of polycarbonate plastic, with a thin layer of aluminum to make a reflective surface. CD- ROMs are popularly used to distribute computer software, including video games and multimedia applications, though any data can be stored. Some CDs hold both computer data and audio with the latter capable of being played on a CD player, while data is only useable on a computer. CD-ROM sector contains 2,352 bytes; it is divided into 98 24-byte frames (Mittal & Bala, 2013).

Electronic Thesis: An electronic thesis or electronic thesis describes a thesis in digital form that is generally accessed via the internet. Access to, and storage of, electronic theses is usually facilitated by open access repositories such as the UCC (Uniform Commercial Code) institutional repository, CORA. UCC is developing an electronic thesis programme to ensure that postgraduate research conducted in UCC is widely disseminated. In many countries, a move has been made in recent years to electronic submission of theses, in parallel with hard-copy submission, enabling theses to be searchable and readable online. Electronic thesis is stored in

CORA, the UCC institutional repository. This is an open access repository based on D-Space software. There is no file size limit imposed on electronic theses in CORA. However, it is worth noting that Google Scholar can only index PDF files lower than 5MB (Mittal & Bala, 2013).

Digital Repositories: A digital repository is a mechanism for managing and storing digital content. Repositories can be subject or institutional in their focus. A repository can support research, learning, and administrative processes. Repositories use open standards to ensure that the content they contain is accessible in that it can be searched and retrieved for later use. Digital Repository records are also accessible through Primo One Search. This is a framework for organizing digital content and delivering the content to its consumer in convenient ways. A digital repository is an application or a set of applications that allow users to add, manage and disseminate digital content (Mittal & Bala, 2013).

Similarly, the University of Chicago Library UCL (2012) gave some brief descriptions of types of electronic information resources found in their library as follows:

Indexes: An index is a reference source which provides bibliographic information about journal articles, as well as other types of materials. While indexes have long existed in print, online indexes have expanded the type of work done by researches more options than looking for materials by subject, author or title. Online indexes allow users to look beyond subject, author, or title. They allow the user to look for keywords or phrases throughout the bibliographic information--including the abstract. However, it is important to realize that many indexes cover other research materials such as conference papers, book chapters, dissertations, research studies, etc (UCL, 2012).

Electronic Books and Texts: This is a book publication in digital form consisting of text, images or both, readable on computers or other digital devices (UCL, 2012).

Electronic Journals: electronic journals are scholarly journals that can be accessed via electronic transmission. This means that they are usually published on the web (UCL, 2012).

Library Catalogs: Most libraries now provide access to their catalogs from their web sites. Many others provide information about their holdings into larger databases such as WorldCat or the RLG Union Catalog (UCL, 2012).

Reference Sources: Many dictionaries, almanacs, encyclopedias, and other reference sources are now available online in full-text (UCL, 2012).

Sound Recordings: There are only a few Library databases which provide access to sound recordings. If you are looking for music online, start at the Music Subject Guide (UCL, 2012).

Image Databases (Art, Maps, Medical, etc.): Some databases include graphics or images, such as photos, paintings or maps (UCL, 2012).

From the above submission, it can be deduced that, majority of the electronic information resources found in university libraries around the world are electronic books, electronic journals, electronic magazines, electronic reference, electronic thesis, electronic databases, electronic repositories etc. Generally the electronic information resources are consulted for research and updating knowledge. It can therefore be generalized that there is the need to inculcate in the undergraduate students in Nigerian Universities, the way to access these electronic information resources for maximum utilization. The undergraduate students need the technical know-how of using the electronic information resources in order to progress well in the universities.

It can also be deduced from the review that most of the electronic information resources available to the undergraduate students in developing countries are also available to the Nigerian undergraduate students, but what is lacking by the Nigerian undergraduate students is the familiarity with resources and lack of skills to utilize these resources.

Electronic information resources are now used to supplement printed information sources in universities. In this digital age, disseminating and obtaining information online have become standard practices. Universities have made substantial investment in electronic information resources and made them available through information gateways for digital content and information services, commonly called library Web portals.

Effective use of electronic information resources is expected to enhance the quality of research by undergraduate students of any institution. In Nigeria, the use of computer terminals in information searching is gradually gaining popularity and so the students need to be computer literate. Thus, many Nigerian university libraries are striving to be fully automated while some are still in the process of computerization.

Emwanta & Nwalo (2013) explained that electronic information resources provide a number of benefits over print resources. These benefits include the fact that electronic information resources are often faster to consult than print resources especially when searching retrospectively, and they are straight forward when wishing to use combination of keywords. They open up the possibility of searching multiple files at a time. Electronic information resources can be printed, searched and saved to be repeated or consulted at a later date. They are updated more often than printed resources.

In view of the above, Govindaraju (2010) asserted in his study that the use of electronic information resources is found to be significant among the students. This is quite natural and expected in the present day information technology environment. This is evident in the study of Stephens (2011) as cited by Chidinma (2013) which showed that students source their Library materials from remote distances far away from the physical Library by using their institution's virtual libraries to access their library resources. Thus, electronic information resources promote efficiency in dissemination of information for research purposes in universities Thanuskodi (2012) as cited by Okon et al. (2014).

According to Yu-Hui (2015), Library Web portals provide students with direct access to the library resources from a remote location which makes users prefers to use the web for their academic work. Similarly, Sambo, Abu-udenyi, Enite & Musa (2014) stated that electronic information resources have caused a change or review of the libraries' collection and management practices. Libraries are now being described as traditional, hybrid, digital or electronic. Traditional libraries are turning into hybrid, digital and many to digital libraries. This description is basically from the format of the collection and services of the library that is the adoption of electronic information resources, and the users' understanding and knowledge of the electronic information resources.

The above submission indicate that the use of electronic information resources by undergraduate students has caused a shift from the access by book material to electronic information resources and students now prefer information from the electronic sources, {Aina (2014); Chidinma (2013).} the review also shows that even the library collection has changed from the exclusive book collection, now there is also provision for electronic information resources, { Okon et al. (2014); Yu-Hui (2015); Sambo, et al. (2014).}

It was also pointed out in a study by Emwanta & Nwalo (2013), that in Nigeria, the use of computer terminals in information searching is gradually gaining popularity and so the students need to be computer literate. Thus, many Nigerian university libraries are striving to be fully automated while some are still in the process of automation. To derive benefit from the increasing electronic library use environment, the user of Nigerian university libraries need to be computer literate. Computer literacy, the ability to use computers to perform a variety of tasks, is in today's world fundamental to the learning process. For libraries to utilize the growing range of electronic information resources in order to serve the users better, they must acquire and practice the skills necessary to exploit them (Sambo, et al. 2014). The development of electronic information resources takes the same process as the traditional materials. Traditional collection development criteria apply to most electronic title in the library (IFLA, 2012).

Interestingly, the results of a study by Okon, et al. (2014) revealed that there was a significant positive correlation between accessibility and utilization of electronic information resources and productivity in Nigerian universities. The implication of the results is that, increase in accessibility and utilization of electronic information resources will lead to increase in productivity. Studies on usage of other electronic information resources such as library OPACs, electronic books, and subject gateway projects have revealed difference in use. Cankorkmaz (2010) reported high usage of the library's OPAC by students at City University of New York. Rani (2011) reported the rapid growth and use of electronic books in schools colleges and universities in developing countries. Kumar & Singh (2011) also mentioned the potential advantages of electronic books including easier access, speedy publications space saving and lower costs. Various studies have also been carried out on the use of electronic information resources by students, and research staff of institutions of higher learning.

Most of these studies reported high usage of internet resources (Gayathri & Sadik, 2015). High usage was `attributed to a number of factors including the freely available access, the ease of use and its currency. The ability to find and retrieve information effectively is a transferable skill useful for future life and for enabling the positive and successful use of the electronic information resources for students whilst at university Kennedy & Kennedy (2014). Therefore, libraries must reach a position where the acquisition of information skills is acknowledged as one of the key objectives for every student entering the university and teach the requisite skills to the undergraduate students to easily access the electronic information resources. According to Obiora et al. (2015) information access isn't necessarily the problem but careful utilization is. This is because users do not always understand which information resources are most appropriate for their needs. Users need skills to make comparisons between paper, CD-Rom and electronic information resources. Yu-Hui (2015), pointed out that the poor library use background by students in using library facilities, had led them to carry this problem with them to Universities and higher institutions. Aina (2014) carried out a study on electronic information resources usage at Babcock University Business School; the results of this study indicated low usage.

A study by Omoike (2013) revealed that majority of the respondents to a great extent made use of the available electronic information resources mostly for knowledge acquisition and learning purposes, this constituted 86(29.2%) of the respondents. This was followed by information exchange which constituted 73(29.2%) of the respondents. The least percentage of the respondents, 16(6.4%) utilize these electronic information resources for project write up. The findings revealed that the most significant use of electronic information resources is for knowledge acquisition and learning purposes as well as information exchange. Most of the

respondents rarely used the electronic information resources for project write-ups, assignment and group discussions.

A similar study by Gayathri & Sadik (2015) found that Majority of the respondents 95 are using often the “free database”. It is followed by 87 are often using electronic books. 78 respondents are often using electronic journals for gathering information. In the same vein, Chandran (2013) had found through his study that the types of electronic information resources used most by the respondents were electronic journals and electronic databases with usage rates of 26.01% and 24.39% respectively. Only 4.88% of the respondents used all types of electronic information resources. The highest frequency of using the electronic information resources in the library was “twice a week” by 53.65% of the respondents. The lowest frequency of using the electronic information resources in the library was “rarely” by 4.88% of the respondents.

While in contrast to the above submissions, a study by Miyanda (2011) found the usage level of available electronic information resources were low with only 40% of the respondents indicating that they used them, while 60% revealed that they do not use them. Among the factors believed to be contributing towards low usage were lack of encouragement and proper guidance from lecturers and librarians to students, lack of effective Internet searching skills by the students, fewer computers available, and poor Internet connectivity among others.

From the above submission it can be extrapolated that electronic information resources form the backbone the present educational system. The review showed that electronic information resources are not found in the universities in Nigeria as they are found in their counterparts in other developed countries.

2.7 Challenges Associated with the Use of Electronic Information Resources

Electronic information resources have a lot of benefits which can be derived from it, but despite that, there are some hindrances and challenges to its effective use. It is on that premise that Omoike (2013) observed that, although electronic information resources hold great potentials in supporting and augmenting existing educational programmes, the fact remains that there are various problems militating against the effective use of electronic information resources. Foremost among the problems, is the lack of skilled manpower to manage available system, inadequate training facilities, irregular power supply and poor Internet connectivity. These factors are not exhaustive but represent the major problem faced in the development of electronic information resources in Nigeria. If these challenges are not addressed, the effectiveness of electronic information resources will be adversely affected.

Okon, et al. (2014) found that most respondents in the study had no previous knowledge of electronic information sources. This implies and reflects that, experience and knowledge in using electronic information resources among undergraduate students seems to be limited. Aina (2014) found that one common problem faced by the users of electronic information resources is that a great number of users complained of slow internet access. The slow speed results into wastage of time required to retrieve relevant information. Others may include lack of constant electricity supply and access to electronic information resources. This may be why Baro & Asaba (2010), in their study on "Internet connectivity in university libraries in Nigeria", stated that for university libraries to deliver effective and efficient services to its clients, they must all have stable Internet connectivity in their libraries.

In a related study, Emwanta & Nwalo (2013) investigated the awareness of the students of the availability of electronic information resources in their university library. The result is shows that, 84.8% of the respondents indicated that they are not aware of the availability of the Internet

and electronic databases in their university library while only 15.2% affirmed that electronic databases are available in the university library. According to the study, the interview with the university librarians and observation in university libraries revealed that there were various types of electronic information resources in the university libraries for undergraduate studies but majority of the students were unaware of the availability. Ignorance and lack of awareness of the availability of electronic information resources in the university library could deprive undergraduate students of access to remote learning resources thereby placing them at a disadvantage in modern teaching and learning processes.

The study by Emwanta & Nwalo (2013) also revealed that only 31.3%of the respondents use the Internet daily, while 17.0% use electronic books, 58.0% had never used electronic journals in their university library. The use of electronic information resources by undergraduate students in the university libraries is a land mark that is carrying education delivery to the heights. Therefore, awareness of its availability in the university should be of utmost concern. There is no doubt that effective use of electronic information resources can bring about academic excellence and so the undergraduate students should embrace it.

According to Kumar & Singh (2011), there are many hindrances and challenges faced by users in the utility and access of the electronic information resources which includes lack of awareness, lack of information literacy skills necessary to search databases, lack of time, the challenge of locating "good citable stuff", inability to use effectively the library, and poor skills in information searching due to which users at undergraduate and postgraduate level rarely access and make use of electronic information resources.

While Omoike (2013) discovered that among the various factors that militate against effective utilization of electronic information resources are poor electricity supply, poor Internet connectivity, insufficient skill, financial problem, poor training programme and excessive academic workload. In consonance with this findings was a study by (Omosekejimi et al., 2015) who found out that the absence of basic infrastructure like constant electricity necessary for ICT growth, lack of facilitation for network resources sharing, inadequate professionals with requisite ICT skills and above all, inadequate funds to support development in their direction were impediment to the use of electronic information resources.

Oduwole & Idowu (2011) highlighted Some of the challenges to electronic information resources to include: access control, personnel and workload, overlapping of coverage of same titles by providers, town and gown initiative: the moral duty and responsibility to educate our community via computer literacy democracy, cost implications of electronic information resources subscription, complexity of virtual library, electronic information resources, and computing facilities, and funding. In their regard, Khan, Khan & Bhatti (2011) discovered a list of different problems associated with use of electronic information resources in academic libraries. The results show that majority of the students face slow speed of PCs due to virus, inadequate number of PCs, lack of time to use electronic information resources, slow internet connectivity, lack of access to printers in library, electricity failure, lack of support from IT, unwillingness of library staff for help.

This is also in line with the submission of Thanuskodi (2012) who observed that although electronic information resources have become a common source among the academic and research communities, the majority of users stated that they have difficulties to use electronic information resources. The specific problems faced by the users as observed was that majority of

respondents are not satisfied with availability of enough electronic information resources in their respective subject followed by coverage of electronic information resources is not suited to research area, time consuming, no assistance provided by the information professionals and lack of training. To corroborate the above findings, Adeniran (2013) discussed the challenges as insufficient familiarity with electronic information resources, inability to use electronic information resources, none availability of electronic information resources, technical issues related with the use of electronic information resources, reading from the screen and inability to find what they wanted.

In a similar view, Ivwighreghweta & Onoriode (2012) revealed that the lack of knowledge of the existence of open access journals on the internet as the greatest problem, lack of internet search skills, retrieval of too much irrelevant information comes next. Similarly, Khan, Khan & Bhatti (2011) observed that students face problems during online searching. Results show that students are unaware of advance searching techniques, Boolean logic, unable to select copy and paste text from pdf, cannot save pdf file, lack of knowledge about databases related to subject, feel problem in formulating search query or keywords, lack of knowledge about browsing electronic journals and about open access journals. The findings above are also in line with that of Dhanavandan (2012) who found in his study that Slow speed pc, slow internet connectivity, It takes too long to view/download web pages, Overload of information on the internet and Lack of knowledge / training.

The findings from a study by Emwanta & Nwalo (2013) revealed that lack of an adequate ICT infrastructure and affordable online access, absence of in-depth ICT skills and information searching skills among library staff and users are barriers to the use of electronic information resources. In the same vein, Mittal & Bala (2013) identified problems in the adoption and usage

of ICT and electronic information resources in Nigeria to include lack of adequate ICT skills among staff and users, low basic information literacy levels in the Nigerian population and prohibitive cost in developing countries to gain access to the Internet. The findings also corroborated that of Salaam & Adegbore (2010) who studied Internet access and use by the students of private Universities in Ogun State, Nigeria which also identified the challenges of using electronic information resources in the colleges and universities to include low ICT use skills, lack of adequate infrastructure for using electronic information resources, especially epileptic power supply.

Issues like large mass of irrelevant information, the need to filter the results from search, download delay, failure to find information, inadequate/lack of search skills, high cost of access, power outages, inaccessibility of some electronic information resources, difficulties in navigating through electronic information resources and so on are problems encountered when using electronic information resources. Chandran (2013) observed that electronic resources have posed new challenges for library professionals to manage properly. He examined "the challenges associated with cataloguing electronic information resources in six randomly selected university libraries in Southwest Nigeria" and highlighted some challenges such as lack of adequate physical description of some electronic information resources, inadequate workflow in cataloguing sections, copyright issues among others.

In their regards, Kumar & Singh (2012) observed that the role of libraries in the age of electronic information resources will increase tremendously, particularly in providing training and guidance to use authentic and relevant information. The libraries are and will develop necessary tools to provide such services to their users satisfactorily. Dhanavandan (2012) discovered that a large

percentage of the users studied feel that lack of information is the problems with access of digital library resources.

The review above confirms the assertion by Islam (2010) when he noted that high quality user education is the solution to the problems encountered by students in using the electronic information resources. There is need for the library management to organize periodic user education programme for the undergraduate students in order for them to make adequate use of the Electronic information resources. In regards to the factors highlighted above, it can be deduced that the Nigerian undergraduate students in the North-East Universities are facing difficulties in accessing and using the available electronic information resources. It can therefore be extrapolated that there is the need to inculcate in them, the basic knowledge of accessing these electronic information resources. The major factors enumerated above as the limiting factors in utilizing these electronic information resources could be tackled by information literacy instruction.

Based on the review above, the major factors militating against the use of electronic information resources in Nigerian Universities is lack of the technical know-how to navigate the electronic space, and then followed by slow or unavailable Internet connectivity, epileptic power supply, and inadequate funding.

2.8 Theoretical/ Conceptual Framework

Introduction

In an area of investigation that crosses traditional disciplinary boundaries, it is important to frame the study around one or more theoretical perspectives.

2.8.1 Theoretical Framework

Several models have been used to understand the skills required to use electronic information resources by undergraduate students such as the following:

i. Technology Acceptance Model
ii. The Seven Faces of Information Literacy
iii. Big Six Model of Information Literacy

Technology Acceptance Model (TAM)

This model is related to this research as the TAM is dealing with the individual's behavioural attitude and intentions towards the use of electronic resources. TAM was first introduced by Davis in 1989 to predict individual adoption and use of new information technologies. It is an adaptation of the Theory of Reasoned Action where the model posits that belief determines behavioural intentions which determine behaviours.TAM differs from the theory of Planned Behaviours in that it accounts for the fact that in organizational settings, the adoption of technology is not determined solely by user's belief (Ahmadpour (2014)). TAM posits that individual's behavioural intention to use an Information Technology is determined by two beliefs:

Perceived Usefulness (PU)-defined as the extent to which a person believes that using a technology will enhance his or her performance, thus using social media in the library enhances the librarian's performance to render services in a more effective and efficient manner and at the same time professionally improving the skills and competencies of the librarian.

Perceived Ease of Use (PEOU)-defined as the degree to which a person believes that using a technology will be free of effort. It further theorizes that the effect of external variables on behavioural intention will be mediated by perceived usefulness and perceived ease of use. Information systems community considered TAM as a powerful, valid and robust model. The studies of Andretta (2012) support the use of TAM as a predictive or explanatory model of the usage of different technologies.

In another instance, TAM has been widely criticized, despite its frequent use, leading the original proposers to attempt to redefine it several times. The criticisms of TAM as include its questionable strategies and methods of solving problems value, limited insignificance and lack of any practical predictive value (Jennifer, (2010).

The Seven Faces of Information Literacy

This model is related to this research as it is dealing with the experiences of students in universities, where it divides or apportioned learning how to use information in stages. The Seven Faces that Bruce identifies are drawn from the experiences of students in colleges and universities in Australia. Bruce's (1997) relational model frames information literacy into seven different ways of experiencing information-use through active and reflective engagement with the relevant information practices. The users‟ conceptions of information literacy produce seven categories of description:

(1) ***Information Technology conception***, which associates information literacy with the use of IT to gather and communicate information.

(2) ***Information Sources conception***, where information literacy is perceived as the knowledge of sources and the ability to access these directly or indirectly via an intermediary.

(3) ***Information processing conception***, which describes information literacy as "executing a process", where a new situation is tackled through the use of an appropriate strategy to find and use information. The nature of the process varies according to the participant of this process.

(4) ***Information Control conception***. Here information literacy is associated with the effective control and manipulation of information through the use of mechanical devices, memory, or IT.

(5) ***Knowledge Construction conception***, where information literacy is perceived as "building a personal knowledge base in a new area of interest". Bruce stresses that this differs from the storage of information, because it involves the application of critical analysis of the information.

(6) ***Knowledge Extension conception***, which envisages the application of knowledge and personal perspectives that lead to new insights.

(7) ***Wisdom conception***, which is associated with the wise and ethical use of information considered in a wider historical or cultural context. In addition, the information here undergoes "a process of reflection which is part of the experience of effective information use" Bruce (1997).

Big Six Model of Information Literacy

The Big6 Skills Model was developed by Michael Eisenberg and Bob Berkowitz in 1990 and is one of the most well-known models that have been widely used. The Big6 Skills Model serves as a guide for students in conducting research. This model focuses "on the process of solving

information problems and brings all information to the forefront" (Eisenberg, 2004), and is comprised of six stages:

1. Task definition
2. Information seeking strategies
3. Location and access
4. Use of information
5. Synthesis
6. Evaluation

It is important to note that, although better solutions appear when diverse perspectives are brought to bear on a problem but if there is a definite route, it is also important to use that single route. Thus, this study chose the big six skills model's theoretical perspectives to frame this study. The application of this theory is in two folds: first the use and manipulation of electronic information resources. That is display of the knowledge of electronic information resources skills. The second is how these skills and competencies will benefit the undergraduate students in using the electronic information resources. It will help them connect to a diversity of ideas and explore capacity to know more.

Big Six Model of Information Literacy

Like these others, the Big6 approach is systematic; however, it differs in a significant way. Big6 Skills provide a broad based, logical skill set that can be used as the structure for developing a curriculum or the framework for a set of distinct problem-solving skills. These fundamental skills provide students with a comprehensive set of powerful skills to conquer the information age.

Components of the Big Six model

Task Definition:

A. Define the information problem
B. Identify information needed (to solve the information problem).
    i. What is the current task?
    ii. What are some topics or questions that need to be answered?
    iii. What information will be needed?

Tasks are created by one person, although technology can help groups of people communicate and brainstorm together to create a task. Task Definition involves defining the information problem, usually by asking questions about it. Asking good questions is important. When good questions are asked learning becomes an active, rather than passive, exercise. As a result, the information is retained instead of forgotten. Better questions teach both information literacy skills and practical life skills such as weighing options, representing various points of view, proposing solutions to a problem, and understanding cause and effect. Intimidated newcomers to this kind of thinking will be encouraged to know that there is often more than one answer to such questions.

Another aspect of Task Definition is identifying information that is needed to bring the task to completion. For instance, a student may need to evaluate how many sources will be needed in order to complete a task, what kinds of sources will be needed, and how much information will be needed in order to complete the task. It is good for the student to ask these questions before starting, so that they won't find themselves halfway through the assignment with too little, or too much, information.

***Information Seeking Strategies*:**

A. Determine all possible sources (brainstorm)

B. Select the best sources.

   i. What are all the possible sources to check?

   ii. What are the best sources of information for this task?

Once the student has clearly defined the information problem, then he must decide which and what information sources are the most appropriate to solve the task. Information seeking strategies involve making decisions. It involves determining all possible sources and then prioritizing them, or selecting the best of them. A big part of this step is brainstorming. Concept mapping software such as Inspiration may be used to view brainstorming ideas in an organized way. After several options and ideas have been produced, then it is time to narrow them down to only the best. Usually these are various sources of information, such as library books, magazines, CD ROMS, internet discussion groups, web sites, periodicals, newspapers, etc., sorted by which ones are most likely to be useful to ones less likely to be. Computer graphic triangles may be used to illustrate the broad-to-narrow or general-to-specific aspects of the topic.

Another option is seeking out physical things in the environment that can be observed and studied directly. For example, physicians, archaeologists, and astronomers frequently depend upon physical examination to detect the presence of particular phenomena. In addition, mathematicians, chemists, and physicists often utilize technologies such as statistical software or simulators to create artificial conditions in which to observe and analyze the interaction of phenomena. (ACRL) According to the ACRL website learners, need to have repeated

opportunities for seeking, evaluating, and managing information gathered from multiple sources and discipline specific research methods.

Location and Access:

A. Locate sources (intellectually and physically)
B. Find information within sources
    i. Where can these sources be found?
    ii. Where can the information be found in the source?

Location and access is the implementation of the information seeking strategy. These skills involve use of access tools (bibliographic databases and print indexes), arrangement of materials in libraries, parts of a book; strategies for searching an online catalogue. Traditionally library instruction programs at universities have focused on location and access skills. They teach specific skills needed to use specific access tools. The problem with teaching specific skills is that students lack an understanding of how these skills transfer to other new situations. It involves finding out where the information can be accessed.

Taking a trip to the local library, browsing the shelves, finding a library's online catalog, or making use of search engines, Meta search tools, and subject trees are ways to locate information. Finding information within the sources will require the user to perform a professional search. Understanding keywords and guide words is crucial at this point if search engines and databases are to understand what the user is looking for and produce the right websites and written information. Putting Boolean logic into practice will produce the best results. There are some websites called Pathfinders that will help locate useful information. These are usually hosted by schools and libraries for their students and patrons.

Use of Information:

A. Engage (e.g., read, hear, view, touch)
B. Extract relevant information
    i. What information is expected to be found in this source?
    ii. What information from the source is useful?

Once students have found the needed information, they can employ skills to use the information. These skills involve interacting, dialoguing, reading, listening, viewing, questioning, and reflecting on the information. Students need to decide what is valuable and extract the necessary information.

Next is extracting relevant information, to sort out thoughts, memorize important facts, record responses and observations, record comparisons and contrasts, recognize information patterns, and see how each note relates to the others. It is necessary that the user familiarize themselves with copyright laws and the risk of plagiarism. Taking citations and beginning a bibliography now is a good idea. The researcher must also know how to find out if the information being noted is valid.

There are five things to look for in order to determine a websites worth: accuracy, authority, objectivity, and coverage. All the information should be current.

Synthesis:

A. Organize from multiple sources
B. Present the information
    i. How will the information be organized?

ii. How should it be presented?

Synthesis is the application of all information to the defined task. Synthesis involves restructuring and repackaging the information into a new and different form. Sometimes the synthesis of information is straight-forward, such as communicating the circumference of a circle. For other tasks such as writing a paper, synthesis is a major undertaking. It involves combining information, extracting salient details, reorganizing and manipulating the information. Synthesis, then, is turning the information found into knowledge.

First, all of the notes taken must be read through as the researcher organizes information from multiple sources. This is the stage where the researcher determines what material is useful and what is not. The information that remains will be part of the research. The results of the research can be translated into a new and appealing format that is pleasing to the senses.

Evaluation:

A. Judge the product (effectiveness)
B. Judge the process (efficiency)
    i. Was what was required done?
    ii. Was each of the Big Six model Stages completed efficiently?

The researcher has presented their findings to someone else, now it is time to judge them. Judging the effectiveness of the product will require the researcher to think about how well the presentation was received. Evaluation is the examination and assessment of the information problem solving process. It determines the effectiveness and efficiency of the process. Evaluation determines whether the information found met the defined task. Specific questions

focused on, were the information problem solved; was the need met; was the situation resolved. If the answer is no, then the process is re-initiated.

Evaluation involves reflecting on the information problem-solving process itself. Students need to ask themselves if their process was efficient, if they spent enough time or too much time, which strategies were most effective and which ones were least effective. This self-evaluation will lead to an awareness of the students' own strengths and weaknesses, and can help in future information problem-solving processes. Next, judge the efficiency of the process by reviewing what was accomplished in each of the steps. In what ways might that be improved next time? What tools have been found or practices was learned that will aid in future research? This is effectively where the Big6 starts over. The Big6 steps are most useful when they are practiced repeatedly and have become a habit. The repetition eliminates confusion and adds skills learned so that things are always done better the next time.

The rationale for choosing the big six model can be depicted from the Boyer Commission Report which recommends strategies that require the student to engage actively in the framing of a significant question or set of questions, the research or creative exploration to find answers, and the communications skills to convey the results (ACRL). The Big Six model as an information and technology model has 6 stages or steps, with two sub-stages for each main one. The Big Six model always challenges those who use it to think differently than they normally would by providing a framework and direction for thought. The Big Six model is effective because the uniformity and common language of it carry over from grade to grade which allows a continuity of learning. This study intends to find out the relationship between the information needs of undergraduate students and the influence of information literacy programmes on their use of electronic information resources.

The big six model in relation to the study

This is The Information Age, and how well any individual achieve their information needs through information and technology skills will not only have an impact on the individual's lives, but it will shape their society. In this age, the information literate will prosper and enjoy a higher quality of life because they will be able to access all of the benefits that information and technology have to offer. The current study deals with the information literacy skills of undergraduate students and their utilization of electronic information resources.

The components of the Big Six model deals with organizing information in a way that the user is able to define the need, followed by information seeking strategies, that is to determine all possible sources. The next component is the 'heart' of this study which deals with locating information. Most undergraduate students can determine or define their information needs, determine all the possible sources, but cannot locate the information, especially in the electronic format as a result of the voluminous feedback.

Another component of the Big six model that deals closely with this study is the use of information. Using information involves engaging it with the senses. The user has to read through the information located in order to extract the relevant information. The user needs to know the wherewithal of extracting information (search strategies) from the electronic platform. The next component is synthesis, which deals with organizing the extracted information from various sources to make a coherent article, speech, report or a presentation of some sort which is appealing to the senses, and then evaluation.

Components applicable to the study

It is important to groom the next generation of thinkers to be independent learners capable of turning curiosity into knowledge. Incorporating the six steps of the Big Six model into the teaching curriculum at any level and in any subject will help achieve greater information literacy skills and deeper learning for your students.

Task definition: For the undergraduate to fully understand their information needs, it is important to define the needs. This study deals with the information needs of undergraduate students. As such, defining the need is important for the study.

Information seeking strategies: The undergraduate students need to identify the sources to use and how they are prioritized. It is important for every user of information to identify the places to get information, be it the library book shelves, electronic sources or other sources of information.

Location and access: This is an important component of the big six model that is important in this study. Part of the problems of this study is the use of electronic information sources by the undergraduate students.

Use of information: The whole essence of seeking and locating information is to use the information. This component relates to the study because it deals with how undergraduate students utilize electronic information resources.

Synthesis: This component relates to the study as, it deals with the use of electronic information resources. The electronic information resources return a lot of feedbacks, it is the ability to synthesize the information selected and make meaning out of it that matters.

Evaluation: This component deals with the way the undergraduate students present the information they get from the electronic resources. The aspects of information they check and the processes they follow to present the information.

Strength and weaknesses of The Big six model in relation to the study

The Big Six follows the traditional inquiry model format through its six corresponding steps. In comparison to other research models, Big Six model offers students the opportunity to activate and extend knowledge in a manner that is conducive to any level of cognitive ability. The Big Six model is a student-led method for researching that meets all elements of true inquiry-based learning. There are basic themes imbedded in the Big Six Skills information problem solving approach which have relevance to information skills development. These themes help to highlight the advantages of using the Big Six Skills process for teaching information problem-solving skills. These include:

a) The Big Six Skills is a general approach to information problem-solving that can be applied to any information problem situation. Big Six Skills is not applicable only to academic situations, but can be incorporated into one's daily life.
b) The Big Six Skills involves critical thinking/problem-solving. Students are provided with the skills necessary to manipulate information rather than to just consume it.
c) Information problem-solving is not always a linear, step-by-step process. The model based on Wilson and Krieklas suggested that information seeking is a linear process; one step leads to the next. Indeed, even Kuhlthau's model suggests linearity. The Big Six Skills process, however, accommodates branching and jumping out of sequence. It is very much a hypertext process.

d) Big Six Skills readily adapts to existing library skills programs; it involves restructuring skills, objectives, units and lessons within the framework of the model.
e) The Big Six Skills approach is ideal for integrating skills instruction with subject area curriculum. It is not for immediate results, but is to develop students' skills over time. The first objective is to gain an understanding of the overall information problem-solving process, and then increase specific skill competence. The process is not linear; revisiting steps and resources at any point can help the student connect and integrate information as they progress through lessons.
f) Multiple literacies and content can be integrated in a logical manner using this approach.
g) Students are able to work through steps at their own pace allowing differentiation based on interest, reading level, and learning style.
h) It does this by providing teachers and school librarians a concrete process in which to embed instruction of each of the individual skills identified in the standards and for learners it enables connections between problem solving and individual skills leading to mastery.

Despite the strengths of the Big Six model, there are still a few shortcomings, such as:

a) The Big Six model was developed originally for use within secondary schools, but it is now applied to all levels of education.
b) Using the Big Six model for teaching now will make teaching in the future more about understanding the principles than the process.

2.8.2 Conceptual Framework

Access to technologies allows higher development of individual skills. It can be extrapolated that undergraduate students might experience a better understanding of their information environment using the skills gained from information literacy programmes, to find, manage, organize, control and use electronic information resources. Learning these skills allows undergraduate students quick and easy access to online information, allowing them to operate effectively in a digital environment (Andretta, 2012) in accessing electronic information resources.

The findings in the literature review implied that issues such as unawareness of the services, complexity, and unfamiliarity with the electronic information resources, and lack of knowledge of using the electronic information resources were quite rampant. Other than lack of adequate training, the findings also revealed the lack of basic information literacy skills among user in using the electronic information resources. Drawing out the conclusion from the literature review, the research found one significant factor in the successful use of the electronic information resources as agreed by many researchers is information literacy skills. These information skills are basically comprised of two major components, which are (i) Search strategy, and (ii) evaluating search results.

Search strategy includes how a user comes to determine which electronic information resources would be most appropriate for his/her search, how the undergraduate students come to learn how to operate the devices, as well as the search techniques, such as the ability to formulate what keyword or search statement to use to search information on their topic and the search engines used. While evaluating search results depend on search time spending, expectation of search outcomes, purpose of using, having the ability to appraise and decide the returned hits, the

methods in which the search results are presented and procedures used in assessing the relevance of the information. These components are best achieved with the support from effective information literacy programmes held by the universities.

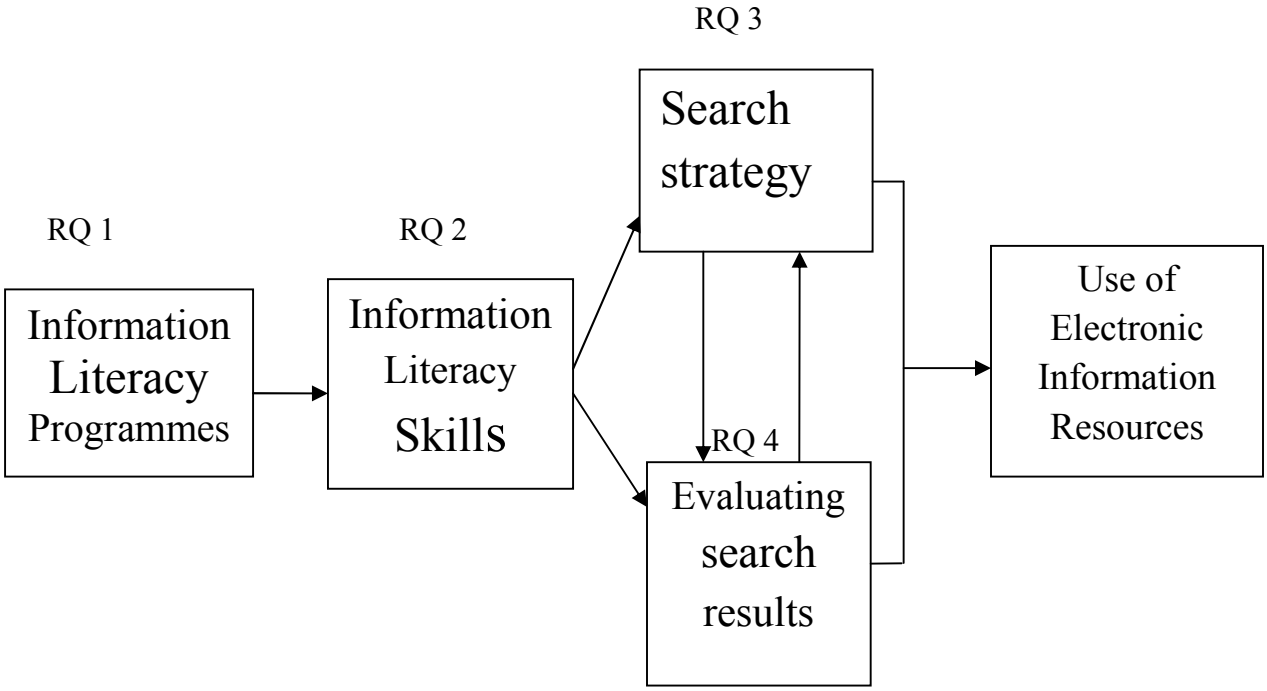

Figure 1.0 *Diagram of the conceptual framework*

In this diagram, the information literacy programmes empower the undergraduate students with information literacy skills and competencies, which enhance search strategies and evaluation, hence leading to successful use of the electronic information resources. Examining the strategies, processes, successes, and failures that students use and experience when searching electronic information resources, can evolve into an information skills course that will guides the students towards successful use of electronic information resources.

Based on the research questions and objectives of the study, the researcher built upon the big six skill models' main constructs of task definition (identification of information needs), information

seeking and search strategy, use of information and evaluation, in addition to other variables found in the literature reviewed on the information literacy skill and use of electronic information resources by undergraduate students which include: types of information literacy programmes, information literacy skills, as well as types of electronic information resources used. Therefore, the use of electronic information resources is influenced by the information literacy skills possessed by the undergraduate students, which they get through information literacy programmes as depicted in the diagram above. The conceptual model for information literacy skill and use of electronic information resources by undergraduate students in North-East zone, Nigeria is composed of six (6) components. A detail of each component is provided below:

Information literacy programmes: The programmes that the undergraduate students undergo when in school which trains them to understand the processes and techniques of using the electronic information resources which in turn makes it useful to the undergraduate students' performance. The information literacy programmes therefore, helps improve the undergraduate students' skills and competencies making them more familiar with the use of the electronic information resources. This relates to the second research question.

Information literacy skills: The use of electronic information resources is influenced by information literacy skills possessed by the undergraduate student. It is believed that the information literacy skills can help the undergraduate students to utilize the abundant information embedded in the electronic resources. This is perceived from the information search strategy and evaluating search results. And it responds to the First research question.

Search strategies: The undergraduate students need t=o identify the sources to use and how they are prioritized. It is important for every user of information to identify the places to get

information, be it the library book shelves, electronic sources or other sources of information. This and the next components respond to activities of the set of skills gained after the literacy programmes. And it answers research question five.

Evaluating search result: Evaluation is the examination and assessment of the information that was located in the electronic information resources. And this involves synthesis and analysis in order to come up with the actual information from it. It determines the effectiveness and efficiency of the process. Evaluation determines whether the information found met the defined task. Specific questions focused on, were the information problem solved; was the need met; was the situation resolved. If the answer is no, then the process is re-initiated.

Use of electronic information resources: using the electronic information resources is the ultimate goal of the entire search and evaluation. This component of the conceptual model is the end result of the study. When the undergraduate student possess the skills gained from the information literacy programmes, then it is easy to utilize the rich information in the electronic information resources.

In the context of this study, information literacy programmes depict the user education programmes carried out in universities in order to empower the undergraduate students with skills to utilize the electronic information, assist the undergraduate students in learning to use information; search strategy is the technique and methods employed by the undergraduate students in utilizing the electronic information resources; evaluating search results deals with assessing the results obtained to see if it is useful or not; electronic information resources are the generality of the information resources in electronic format.

In this model, information literacy programme will empower the undergraduate students with literacy skills in excellent search strategies and to also evaluate the search results, which in turn leads to successful use of electronic information resources. Understanding and gaining the requisite skill is basic in the utilization of the electronic information resources.

2.9 Summary of the Review and Uniqueness of the Study

This chapter has presented and discussed various literature on the information literacy skills and use of electronic information resources by undergraduate students, where the literature indicated that information literacy programmes play a vital role in inculcating information literacy skills which aid in the utilization of electronic information resources. Studies of Daniel (2010), Spiranec & Zorica (2010), Ogunsola et al. (2011) Duncan & Varcoe (2012), Chidinma (2013), Ahmadpour (2014), were found very relevant to this research.

Studies on the information literacy skills on the use of electronic information resources were also conducted and reviewed. The contributions of Cankorkmaz (2010), Daniel (2010), Baro & Zuokemefa (2011), Ahmadpour (2014), Enite (2014) were considered vital to this research work. The results of the empirical studies showed that undergraduate students need requisite skills in order to compete favorably in this age of information explosion.

The literature was also reviewed on search strategies employed and evaluation techniques on the use electronic information sources. It was found from the literature study {Zickuhr (2010); Salaam & Adegbore (2010); Rani (2011); Hjorland (2012); Enite (2014); Rubinic (2014)} that undergraduate students do not the use of the various search strategies to filter search results. The literature review also showed that undergraduate students do not evaluate the the electronic

information resources using the major variables of credibility, authorship, reliability, relevance, timeliness, efficiency, objectivity and authenticity.

Consequently, studies were conducted on the types of electronic information resources used by undergraduate students. Most of the studies were focused on collections in developed countries that have almost all the necessary electronic information resources in their university libraries. However, the studies conducted by Okon, et al (2014), Adeniran (2013) and Owoeye (2011) were found to be relevant to this study. Despite the number of electronic information resources highlighted by literature reviewed, little was found in developing countries particularly in Nigeria. Similarly, studies were also reviewed on the challenges associated with the use of electronic information resources. Most of the literature were in the context of the developing countries like Nigeria. The studies of Baro & Asaba (2010), Omoike (2013), Emwanta & Nwalo (2013), Aina (2014), were found to be relevant to the study.

This research also proposed a conceptual model for the information literacy skills and use of electronic information resources, to enable a better understanding. The big six (6) skills model was used to form the theoretical basis of the study, where construct of the big six (6) skill model were used in addition to other variables found in the study to form the basis of the conceptual framework of the study.

It is observed from the review that there is the need to inculcate in users the wherewithal of understanding how to use the electronic information resources. This is also supported by Kamba (2013) who suggested that there is a need to provide information literacy training programmes which will teach users about the importance of the flow of information, and the necessity of having up-to-date and relevant information to make the right decisions. In summary the literature

reviewed shows that there is a need to inculcate in the undergraduate students, the technical information literacy skills required to get the desired information from the electronic sources. Most of the literature cited shows that, the use of electronic information resources requires special set of information literacy training and skills.

This study is unique as most previous studies concentrated on developed countries with little attention given to African countries and locations like the North-East zone, Nigeria. Modification of the big six (6) skill model where the research used the constructs of the model also made the study distinct. The conceptual framework also made the study unique, because in all the studies on information literacy skills and electronic information resources reviewed by the researcher, no model of such has been empirically developed. The sample size also made the research distinct.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter describes the methodology used in carrying out the study, which includes the research design, research setting, population and sampling technique and sample size, instrument and method of data analysis**.** The study used quantitative research methodology which is concerned with the use of numbers or statistics, which is alien to qualitative researcher (Okon et al., 2013). Quantitative research is considered cost effective in terms of time and money, as a sample of the population is to be used; and the results generalized.

In line with the above, the use of quantitative approach in the study allowed the researcher to effectively determine the existing relationship between information literacy skills and competencies and utilization of electronic information resources. The need for objectivity of the study also informed the choice of quantitative approach as the researcher did not want personal involvement and interaction with the subjects (undergraduate students) to influence the outcome of the study. Data collected was quantitative in most respects and thus was easily organized and manipulated into reports for analysis. Furthermore, it was chosen by the researcher to generalize findings that can be applied to other population and research settings.

3.1 Research Paradigm

Research paradigm describes theoretical or methodological framework or approach to conduct social science research, and "there are three main assumptions or paradigm to research", the positivist assumption also known as quantitative approach, and anti-positivist assumption

otherwise known as qualitative approach and pragmatic known as mixed research (Neuman, 2011).

Traditionally, according to Collins (2010) the Positivist assumptions have governed claims about what warrants knowledge. This position is sometimes called the "scientific method". Positivism reflects a deterministic philosophy in which causes probably determine effects or outcomes. Thus, the problems studied by positivists reflect a need to examine causes that influence outcomes, such as issues examined in experiments (Collins, 2010). It is also reductionistic in that the intent is to reduce the ideas into a small, discrete set of ideas to test, such as the variables that constitute hypotheses and research questions.

Thus, the study used the principles of the positivist assumptions because of developing numeric measures of analysis and studying the information literacy skills of undergraduate students in utilizing electronic information resources. This paradigm have been utilized by researchers in similar studies such as Chidinma (2013), Okon et al. (2014) and Abubakar and Adetimirin (2015) all in Africa. The positivist researcher prefers precise quantitative data, based on rigorous, exact measures. However, this paradigm is justifiable to the present study because of the conceptual framework which is largely statistical and descriptive in nature and that, focus of the study is directed more towards quantitative measures of the different types and purpose of utilization of these resources for research development activities, hence the adoption of quantitative method to investigate the research problem.

3.2 Research Design

Research design is the plan on which the various activities in a research work can be based. Govindaraju (2010) opined that it is important to plan a study carefully from the beginning to the

very end and lay out a detailed plan of each step ahead of any observing, and data collection. The purpose of research design is to plan for generating empirical evidences that would be used to answer research questions and test hypothesis. Cross-sectional survey design, was employed for this study. Daniel (2010) defined survey as "a descriptive study which seeks to find out and describe the condition or opinions held by a population by collecting and analyzing data from people who are considered to be representative of the entire group. This is done by gathering information from a large number of cases about variables using questionnaires and interviews.

Cross-Sectional Surveys deals with collecting information from the respondents at a single period in time. Cross-Sectional surveys usually utilize questionnaires to ask about a particular topic at one point in time. Sometimes, cross-sectional surveys are used to identify the relationship between two variables, as in a comparative study. While Longitudinal Surveys is when the researcher attempts to gather information over a period of time or from one point in time up to another.

3.3 Research Setting

The major aim of every educational institution is to inculcate in its learners, the basic knowledge required to be self reliant, the North-Eastern Universities inclusive. There are presently six states in the North-Eastern region of Nigeria, with a federal university in each state, which makes the universities under study to be six. The area of the study includes, Adamawa, Gombe, Borno, Yobe, Taraba and Bauchi states. These comprises of Modibbo Adama University of Technology, Yola, Adamawa State, Federal University Kashere, Gombe State, University of Maiduguri, Borno State, Federal University Gashua, Yobe State, Federal University Wukari, Taraba State and Abubakar Tafawa Balewa University, Bauchi, Bauchi State respectively.

North-Eastern State is a former administrative division of Nigeria. It was created on 27 May 1967 from parts of the Northern Region. Its capital was the city of Maiduguri. The North-Eastern region is also full of agriculture and food, and they recommend it for a family holiday. On 3rd February 1976, the state was divided into Bauchi, Borno and Gongola states. Gombe State was later split out of Bauchi, Yobe State from Borno and Gongola was split into Taraba State and Adamawa State.

The north-eastern region is mostly known for the production of crops and livestock which contribute greatly to the economy of the country. The region is densely populated as compared to the southern region of the country. The major tribes are Hausa and Fulani and they are largely Muslims.

Adamawa State is one of those formed in 1991 from part of Gongola State and the capital is Yola. The state occupies about 36,917km^2 and has Borno State to the north-west, Gombe State to the west, and Taraba State borders it to the south-west. The eastern border of the state also serves as a national border with Cameroon. Adamawa State has mountainous land with large river valleys crossing it, including River Benue and River Gongola, with the Adamawa and Mandara mountains and the valleys of Cameroon forming part of the landscape.

Majority of the people are farmers, and are well known for cotton and groundnut as these contribute to the economy of the nation; they also produce maize, yam, cassava, guinea corn, millet and rice. The Fulanis are cattle-rearers while the villagers living on the river banks are mostly fishermen.

Bauchi State whose capital city is also known as Bauchi, and until 1976 the state was a province in the then North-Eastern State. Bauchi State occupies 49,119km2 of Nigeria's total land mass,

bordered to the north by Kano and Jigawa State, to the south by Taraba and Plateau State, Kaduna to the west and Gombe and Yobe to the east. There are 55 major tribes that form the tribal groups in the state, including Badawa, Bolewa, Butawa, Fa'awa, Fulani, Gerawa, Hausa, Jarawa, Kanuri, Karekare, Savawa, Wariawa and Zulawa.

Borno State was formed from the then North-Eastern State in 1976 with Maiduguri as its capital. The state is mainly dominated by the Kanuri and Babur with few Shuwa Arab ethnic groups. Borno occupies about 70,898km2, sharing borders with Niger Republic to the north, Cameroon to the east, Chad to the north-east, Adamawa State down south, Gombe State to the east and Yobe State to the north-west. The state is has been recently savaged by the deadly book haram sect which has destroyed thousands of lives and properties worth billions.

Gombe State was created on 1st October, 1996, with its capital city also called Gombe. The state is bordered by Borno and Yobe State to the north and east respectively, Taraba and Adamawa State to the south and Bauchi State to the west. It covers an area of about 20,265km2 with most of the people coming from the Fulani tribe. The state is endowed with natural resources such as uranium, gypsum and limestone. There are 21 languages spoken here which include Fulfulde, Hausa, Tangala and Waja.

Taraba State with the capital city of Jalingo, was created from the former Gongola State in 1991. The state is named after the major Taraba River. Bordered to the west by Plateau and Benue States, Republic of Cameroon to the east and Gombe State to the north, Taraba occupies about 54,473km2 of Nigeria. River Benue, Donga, Taraba and Ibi are the main rivers rising from the Cameroon Mountains and all link to the River Niger. The people of Taraba State largely make their living through farming, and produce crops such as coffee, tea, cotton and groundnuts,

maize, rice, millet, cassava and yam. They also rear cattle, sheep and goats, with other livestock production activities like poultry, rabbit breeding and pig farming, thus making the state one of the major livestock production areas in the country.

Yobe State, which is mainly agricultural and covers an area of about 45,502km2, was created in 1991 with Damaturu as its capital. The state shares borders with Borno State to the east, Gombe State to the south, Bauchi and Jigawa States to the east and Niger Republic to the North. The people are mainly known to be farmers, fishermen or livestock rearers. The state also boasts of one of the largest cattle markets in West Africa and has deposits of natural resources like gypsum, kaolin and quartz.

Figure 2.0 Map of Nigeria showing the six North-Eastern states

3.3.1 Preliminary Study, Objectives and Findings

In order to determine the population of the study, a preliminary study was considered imperative and was therefore conducted by the researcher. The objectives of the preliminary study were to find out:

1. The number of Federal universities available in the North-Eastern states of Nigeria.
2. The total number of undergraduate students in all the universities under study.
3. The total number of undergraduate students in each Federal university in the states.
4. The Information Literacy Programmes in each university.

The preliminary findings of the study revealed that there are six (6) Federal universities in the North-East, that is, one Federal university from each state. From the preliminary study, it was found that there are a total of sixty-one thousand, eight hundred and forty-two (61,842) undergraduate students in the universities under study. In addition, the finding also revealed that University of Maiduguri has the highest population of undergraduate students with twenty-five thousand, two hundred and forty-three (25,243) which is followed by Modibbo Adama University of Technology, with a total of fourteen thousand, six hundred and three (14,603) undergraduate students. Another University which has a population of undergraduate students close to that is the Abubakar Tafawa Balewa University, Bauchi, with thirteen thousand, six hundred and eighty-six (13,686). Among the newly established Universities in the region, Federal University Wukari, Taraba State has the highest population of undergraduate students with three thousand, one hundred and twenty-nine (3,129) and that is followed by Federal University Kashere, Gombe State which have a population of two thousand, nine hundred and thirty-five (2,935) undergraduate students and the University with the least population of

undergraduate students is the Federal University Gashua, Yobe State with two thousand, two hundred and forty-six (2,246) undergraduate students.

The preliminary study also revealed that, four (4) out of the six (6) Federal universities run the information literacy programmes as 'Use of Library' while for the remaining two (2) of the federal universities the information Literacy Programmes is called 'Use of Library, I.C.T and Study Skills'.

3.4 Population of the Study

Gray (2004) as cited by Rubinic (2014) defines a population as the total number of possible units or elements that are included in the study. The primary population of the study was all the undergraduate students of the six (6) Federal Universities in North-Eastern states of Nigeria. In all there are a total of 61,842 undergraduate students from the following universities: Modibbo Adama University of Technology, Yola, Adamawa State, 14,603; Federal University Kashere, Gombe State, 2,935; University of Maiduguri, Borno State, 25,243; Federal University Gashua, Yobe State, 2,246; Federal University Wukari, Taraba State, 3,129; and Abubakar Tafawa Balewa University, Bauchi, Bauchi State, 13,686.

Table 3.1 Population of the study

S/N	University	No. of Ug Students
1.	Abubakar Tafawa Balewa University, Bauchi	13,686
2.	Federal University Gashua, Yobe State	2,246
3.	Federal University Kashere	2,935
4.	Federal University Wukari, Taraba State	3,129
5.	Modibbo Adama University of Technology, Yola	14,603
6.	University of Maiduguri, Borno State	25,243
	Total	**61,842**

Sources: Academic Divisions of the Six Federal Universities

3.5 Sampling Technique and Sample Size

The sampling techniques used for the study was three (3). In the first instance, proportionate stratification sampling was employed to select the number of respondents from each university. Simple random sampling was used to select three (3) faculties from each of the six (6) Universities under study. In all, a total of eighteen (18) faculties served as the secondary sample for the study. In the third stage, respondents were selected from each faculty using systematic random sampling technique. Using the systematic random sampling technique in this stage was necessary in order to avoid any bias in the selection of respondents. Another reason that necessitated the use of the systematic random sampling technique was the fact that the researcher was able to get respondents at one time. To have equitable distribution of the undergraduate students in the three faculties selected from each university, equal proportion of the undergraduate students was selected from each faculty.

3.5.1 Sampling Size

Sample size refers to the number of items to be selected from the universe or population to constitute a sample (Rani, 2011) citing Kothari (2004). Kothari recommends that the sample size should neither be excessively large nor too small but it must be optimum. A total population of 61,842 makes the number of undergraduate students in the six (6) universities under study. Using Sloven's Formula $\{n = \frac{N}{(1+Ne^2)}\}$ a total of 2,484 undergraduate students was the sample size with 99% confidence level and 0.02% margin of error.

Where n= number of samples

N=Total population

e= error tolerance

Where n= sample size

N= sample population = 61,842

e= margin of error = 0.02

The total sample size is 2484 and each university was given equal proportionate population according to the number of undergraduate students in the university, and the population for every university is divided equally into three (3) for the three (3) faculties selected at random.

Table 3.2 Sample size

S/N	University	Number of Students	Respondent per Faculty	Sample size
1.	ATBU, Bauchi	13,686	183	549
2.	Federal University Gashua, Yobe State	2,246	31	93
3.	Federal University Kashere	2,935	39	117
4.	Federal University Wukari, Taraba State	3,129	42	126
5.	MAUTech, Yola	14,603	195	585
6.	University of Maiduguri, Borno State	25,243	338	1014
	Total	**61,842**	**828**	**2484**

Table 3.2: Sample size

3.6 Data Collection/ Instrument

Data collection involves gathering of data using defined techniques in order to answer the pre-defined research questions of the study, Waseem & Kim (2011). The type of data collection method is determined by the chosen research strategies.

As noted above, survey is the main research strategies adopted in this study. Survey strategy employs the administration of questionnaire, which is about getting answers to a set of questions in the data collection process Rani (2011) citing Kothari (2004). Data for this research came from both primary and secondary sources. Secondary sources of data included previous works

such as reports, books, journals, magazines, electronic sources and other related materials. The primary data was collected using questionnaire.

The rationale behind the usage of the questionnaire as a survey tool in this research includes:

i. It is an efficient data collection mechanism when the researcher knows exactly what is required and how to measure the variables of interest
ii. The questionnaire is considered advantageous for administration to large numbers of individuals simultaneously to facilitate the collection of data in a relatively short period and thus less expensive and less time consuming.
iii. It is free from bias of the researcher. There is evidence that different researchers obtain different answers because of different ways of asking questions.

There are also some limitations of the questionnaire including low rate of return of the duly filled in questionnaire, the control over the questionnaire may be lost once it is sent, inbuilt inflexibility because of the difficulty of amending the approach once questionnaires have been dispatched, and lastly, it is difficult to know whether the willing respondents are true representative.

Several studies on related topics were consulted and their instruments were examined. This study used questionnaire as the main instrument for data collection, as many similar studies. The questionnaire was chosen as it is more appropriate for this study because it covered undergraduate respondents. It also enabled the researcher to get responses from a relatively large number of respondents across the Universities under study. The questionnaire also allowed respondents to answer at their own leisure or at their free time.

The instrument was written in English, as the medium of instruction in all the Universities in Nigeria. In order to secure honest responses from the respondents, they were promised anonymity and were assured that all information given will be treated in complete confidence.

The questionnaire for this research is titled 'Information literacy skills and use of electronic information resources by undergraduate students.' It is divided into seven (7) sections of A – G. Section A was designed to obtain background demographic information on the respondents and their institutions while sections B – G generally contained closed-ended questions designed to elicit information on the; information literacy skills and use of electronic information resources among undergraduate students. The respondents were requested to indicate by ticking any of the options or explain further in the last option where applicable.

Section (A) of the questionnaire contained questions based on background demographic information. It consists of three (3) questions. The second part of the questionnaire which is section (B) includes list of questions mainly on the Information Literacy Programmes. This section contained three (3) questions. Section (C) of the questionnaire contains questions based on Information literacy skills on the use of electronic information resources. It consisted of five (5) questions.

Section (D) contained questions on the search strategies employed by undergraduate students while using electronic information resources. It contained six (6) questions. Section (E) asked questions that have to do with the evaluation techniques used by undergraduate students while using electronic information resources. The section contained three (3) questions. Section (F) asked questions to do with the Electronic Information Resources available to the Undergraduate Students in the universities under study. This section contained ten (10) questions. While Section

(G) which has questions that has to do with the challenges associated with the use of electronic information resources among the undergraduate students contains three (3) questions. These questions were obtained from other questionnaires used in similar studies, and in some cases adapted to answer the research questions and meet the needs of this study.

3.6.1 Validity of the Research Instrument

Validity is the most important issue in the evaluation of an instrument. The content validity of the questionnaire was conducted by experts in the Department of Library and Information Science, University of Maiduguri (UNIMAID) and Modibbo Adama University of Technology (MAUTECH) Yola. They validated the contents of the instrument and necessary corrections were made by the researcher so as to make the research instrument valid in measuring the objectives of the study.

3.6.2 Reliability of Research Instrument

To measure the internal consistency of items in the research instrument, the use of Cronbach's Alpha item by item was deemed necessary. This is in line with Asika (1990) as cited by Govindaraju (2010) who pointed out that one very important way of ensuring that the data are of high quality is by improving the quality of measuring instrument which is determined by their validity and reliability. The instrument was administered to Seventy-Five (75) respondents from Federal University Dutse, Jigawa State. However, a total of Forty-One (41) questionnaires were returned which were used to conduct the reliability test using SPSS (version 16.0). Cronbach Alpha (α) was calculated for all the six (6) variables and the reliability of the total scale consisting of 104 items are as follows:

Table 3.3: Reliability

S/NO.	Variables	Cronbach's (α)
1.	Information literacy programmes in Nigerian universities	.666
2.	Information literacy skills of undergraduate students	.821
3.	Search strategies on the use of electronic information resources	.669
4.	Evaluating search results from electronic information resources	.750
5.	Electronic information resources available to undergraduate students in Nigerian Universities	.857
6.	Challenges associated with the use of Electronic Information Resources	.823

Source: SPSS (Version 16.0)

Enite (2014) stated "the coefficient varies from 0-1, Alpha coefficient below 0.6 is weak in reliability, 0.6- 0.8 are strong while 0.8-1.0 are very strong reliability". Thus, the instrument to be used for this study has a strong reliability base on that assertion.

3.7 Method of Data Analysis

Data collected was analysed using descriptive and inferential statistics. Descriptive statistics involves all of the data from a given set, which is also known as a population. With this form of statistics, a researcher doesn't make any conclusions beyond what is given in the set of data. Descriptive statistics has a lot of variations, and it is all used to help make sense of raw data. Without descriptive statistics the data would be hard to summarize, especially when it is on the large side.

The type of descriptive statistics that was used in this study is the measure of central tendency. These are the different ways in which a group is described based on its central frequency. There are several ways in which this central position can be described, such as with the median, mean and mode.

The formula for calculating the Mean score = $\sum fx / \sum f$ where

$\sum$=Summation

F=frequency or number of responses

X=population of the study

For the inferential statistics, chi- square (α) was used to test the hypothesis in order to determine the existence of relationship between variables because the variables were expressed in nominal and ordinal form and also so as to determine whether there is a significant association between the variables of the study. 0.05 was used as the level of significance for testing the hypothesis. The responses were extracted, collated and coded using SPSS (Version 16.0).

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.0 Introduction

This chapter presents the results of the data collected for the study on the information literacy skills and use of electronic information resources. The data is presented, analysed and interpreted under the following sub-headings:

4.1 Response Rate

4.2 Background Information of Respondents/Demographic Data

4.3 Information Literacy Programmes Available

4.4 Information Literacy Skills on the Use of Electronic Information Resources

4.5 Search Strategies Employed

4.6 Techniques for Evaluating Electronic Information Resources

4.7 Types of Electronic Information Resources Used

4.8 Challenges Associated with the Use of Electronic Information Resources

4.9 Inferential Statistics

4.10 Discussion of Findings

4.1 Response Rate

Table 4.1: Response rate

Questionnaire	**Frequency**	**Percentage (%)**
Number of questionnaire administered	**2484**	**100%**
Number of questionnaire returned	**2402**	**96.7%**
Number of questionnaire not returned	**82**	**3.3%**

Table 4.1 shows that 2484 copies of questionnaire were administered to the respondents, out of which majority, 2402 (96.7%) were filled, returned and found useful. While 82 (3.3%) were not

returned. The high rate of returned copies of the questionnaire was attributed to the fact that most of the respondents are within the reach of the researcher, and where they were not, several follow ups were made by the researcher to retrieve back the copies of the questionnaire.

4.2 Background Information of the Respondents

Table 4.2 Demographic Information of the Respondents

Age	**Frequency**	**Percentage (%)**
16-20	242	10.1%
21-25	1009	42.0%
26-30	1098	45.7%
31-35	45	1.9%
Over 36	8	0.3%
Total	**2402**	**100%**
Level of Study		
100 level	246	10.2%
200 level	742	30.9%
300 level	927	38.6%
400 level	307	12.8%
500 level	180	7.5%
Total	**2402**	**100%**
Gender		
Male	1542	64.2%
Female	860	35.8%
Total	**2402**	**100%**

Table 4.2 presented the demographic information of the respondents. The respondents were asked to indicate their demographic information in terms of age, level of study and gender.

4.2.1 Age Distribution of Respondents

Table 4.2 indicated that less than half 1098 (45.7%) of the respondents are between the ages of 26-30 years, followed by 1009 (42.0%) of the respondents who were between the age of 21-25 years, while 242 (10.1%) of the respondents were between the ages of 16-20. Only 45 (1.9%) of the respondents were between 31-35 years, and the least number of respondents 8 (0.3%) were over 36 years. This shows that, majority of the respondents 2107 (87.7%) were between the age bracket 21-30 years. It could be seen that majority of the respondents under study are within their age of youth exuberant.

4.2.2 Level of study of the respondents

Table 4.2 indicated that less than half 972 (38.6%) of the respondents were from 300 level, followed by 742 (30.9%) of the respondents who were 200 level students. The next were the 400 level students with 307 (12.8%) respondents, and 100 level with 246 (10.2%) respondents. The least respondents were from the 500 level with only 180 (7.5%) respondents. The result of the findings here shows that the 300level and 200level were more responsive, and that is good for the study because this is the group that is more likely to be conversant with literacy instructions.

4.2.3 Gender of the Respondents

Table 4.2 also indicated the gender distribution of the respondents, more than half, majority, 1542 (64.2%) of the respondents were male and only 860 (35.8%) were females. The result showed that majority of the respondents of this study were male, noting that the findings of the study was in support of other studies in Nigeria where male undergraduate are dominant. The

result shows that the male students were more responsive to questions than their female counterparts.

4.3 Information Literacy Programmes

Table 4.3 Awareness of information literacy programmes

Awareness	**Frequency**	**Percentage**
Yes	2386	99.3%
No	16	0.7%
Total	**2402**	**100%**

Table 4.3 revealed that majority, 2386 (99.3%) of the respondents were aware of the information literacy programmes available in their universities, while only 16 (0.7%) of the respondents had no awareness about the information literacy programmes. This shows that there was high awareness of the information literacy programmes by the undergraduate students in the federal universities in North-East Nigeria.

Table 4.4 Adequacy of the Information Literacy of Content

Statement	**SA/A**		**Undecided**		**D/SD**	
	F	**%**	**F**	**%**	**F**	**%**
The programmes helped me to use electronic information resources	2003	83.4**%**	201	8.4**%**	198	8.2 %
It has helped me to learn different search strategies effectively	2091	87.1**%**	241	10.0**%**	70	2.9%
It has enhanced my use of different search engines	2131	88.7**%**	187	7.8**%**	84	3.9%
It contains lessons on the use of different search techniques	2005	83.5**%**	235	9.8**%**	162	6.7%

Table 4.4 showed that majority 2057(85.6%) of the respondents agreed as indicated that the information literacy programmes are adequate. It give the responses as follows; 2003(83.4%), 2091 (87.1%), 2131(88.7%), and 2005(83.5%) shows that majority of the respondents were

unanimous on the adequacy of information literacy programmes in using electronic information resources.

Table 4.5 Relevance of information literacy programmes

Statement	SA/A		Undecided		D/SD	
	F	%	F	%	F	%
The programmes have prepared me on self sufficiency on the use of electronic information resources	1984	82.6%	210	8.7%	208	8.6 %
I can identify and addresses my information need	2111	87.9%	218	9.1%	73	3.0%
I can access information effectively and efficiently	1665	69.3%	253	10.5%	484	20.1%
I evaluate and think critically about information to be used	1887	78.6%	94	3.9%	421	17.5%
I can use information effectively for a specific purpose	2219	92.4%	121	5.0%	62	2.6%
I can use information ethically and legally	1595	66.4%	137	5.7%	670	27.9%

Table 4.5 indicated that majority 2219(92.4%) of the respondents can use information effectively. It give the responses as follows; 1984(82.6%), 2111 (87.9%), 2143(89.2%), 1665 (69.3%), 1887(78.6%), 2219(92.4%) and 1595(66.4%) shows that majority of the respondents were unanimous on the relevance of information literacy programmes in using electronic information resources.

4.4 Information literacy skills

Table 4.6 Literacy skills on use of e-resources

Literacy skills on use of e-resources	Frequency	Percentage
Yes	2394	99.7%
No	8	0.3%
Total	**2402**	**100%**

Table 4.6 showed that majority, 2394 (99.7%) of the respondents indicated that the information literacy programmes provided them with basic skills to use electronic information resources. Only 8(0.3%) of the respondents indicated that the information literacy programmes do not

provide them with skills. This proved the assertion by ALA (1989) that Information literacy seeks to solve problems associated with information overload through the provision of a skills set to assist individuals in recognizing when information is needed and have the ability to locate, evaluate, and use effectively the needed information.

Table 4.7 Effectiveness of skills on the use of e-resources

Rate	**Frequency**	**Percentage**
Very good	891	37.1%
Good	765	31.8%
Fair	443	18.4%
Bad	156	6.5%
Very bad	147	6.1%
Total	**2402**	**100%**

Table 4.7 showed that majority 891 (37.1%) of the respondents indicated that the skills acquired are very good. This is followed by 765(31.8%) who agreed that the skills are good, while 443(18.4%) were of the opinion that skills were fair and 156(6.5%) said the skills were bad. Only 147(6.1%) were of the opinion that the skills were very bad. This proves the observation by Emwanta & Nwalo (2013) that there is no doubt that electronic information resources cannot be highly accessed without adequate computer literacy skills.

Table 4.8 Level of skills acquired

Rate	**Frequency**	**Percentage**
Excellent	770	32.1%
Very good	691	28.8%
Good	425	17.7%
Fair	343	14.3%
Fairly poor	106	4.4%
Very poor	67	2.8%
Total	**2402**	**100%**

Table 4.8 showed that majority 770 (32.1%) of the respondents chose excellent on the level of skills acquired, while 691(28.8%) chose very good. 425(1.7%), 343(14.3%) 106(4.4%) and 67(2.8%) chose good, fair, fairly poor and very poor respectively. The result buttressed the assertion by Anunobi & Udem (2014) that information literacy skills empower the people with the critical skills and that the effective utilization of electronic information resources is not possible without skills on how to manipulate the electronic environment.

Table 4.9 Information Literacy Skills Possessed

Statement	SA/A		Undecided		D/SD	
	F	%	F	%	f	%
Ability to formulate questions based on my information needs	2219	92.4%	121	5.0%	62	2.6%
Ability to recognize a need for information resources	2111	87.9%	218	9.1%	73	3.0%
Ability to distinguish potential information resources	1823	75.9%	227	9.5%	352	14.7%
Ability to construct strategies for locating information	1665	69.3%	253	10.5%	484	20.1%
Ability to evaluate information obtained from different sources.	1797	74.9%	497	20.7%	108	4.5%
Ability to locate and access information resources	2143	89.2%	199	8.3%	60	2.5%
Ability to organize, apply and communicate information	1595	66.4%	137	5.7%	670	27.9%
Ability to synthesize and build on existing information	2206	91.8%	131	5.5%	65	2.7%
Ability to organize information for practical application	1923	80.1%	308	12.8%	171	7.1%
Ability to integrate new information into an existing body of knowledge	1984	82.6%	210	8.7%	208	8.6 %
Ability to use information in critical thinking and problem solving	1887	78.6%	94	3.9%	421	17.5%

KEY: HIGH LEVEL ⟹ 100 - 70%
MEDIUM LEVEL ⟹ 69 - 50%
LOW LEVEL ⟹ 49 - 0%

Table 4.9 showed that majority, with an average (88.9%) of the respondents possessed high level of information literacy skills. The following results were obtained on their agreement of relevance: 92.4%, 87.4%, 75.9%, 69.3%, 74.9%, 89.2%, 66.4%, 91.8%, 80.1%, and 82.6%.

Table 4.10 Satisfaction with literacy skills acquired

Rating	Frequency	Percentage
Very satisfied	743	30.9%
Satisfied	629	26.2%
Fairly satisfied	581	24.2%
Not satisfied	337	14.0%
Undecided	112	4.7%
Total	**2402**	**100%**

Table 4.10 showed that less than half 743 (30.9%) of the respondents indicated they were very satisfied, while 629 (26.2%) indicated they were satisfied, 581 (24.2%) indicated they were fairly satisfied, while only 337 (14.0%) indicated they were not satisfied. The analysis further revealed that 112 (4.7%) were undecided. This showed that majority 1953 (81.3%) of the respondents were satisfied with the information literacy skills acquired.

4.5 Search Strategies

Table 4.11 Familiarity with search engines

Rate	Frequency	Percentage
Yes	2387	99.4%
No	15	0.6%
Total	**2402**	**100%**

Table 4.11 showed that majority 2387(99.4%) of the respondents indicated that they are aware of search engines while 15(0.6%) indicated that they are not familiar with search engines. The results showed that majority of the respondents were aware of search engines.

Table 4.12 Search engines used

Search Engines	Frequency/Percentage (%)		Total
	Yes, I use	No, I don't use	
Google	2400/99.9%	2/0.1%	2402/100%
Bing	2362/98.3%	40/1.7%	2402/100%
Baidu	2334/97.2%	68/2.8%	2402/100%
Yahoo	2387/99.4%	15/0.6%	2402/100%
AOL	2297/95.6%	105/4.4%	2402/100%
Ask.com	2219/92.4%	3801.8%	2402/100%
Excite	2334/97.2%	68/2.8%	2402/100%
DuckDuckGo	1009/42.0%	1393/58.0%	2402/100%
WolframAlpha	847/35.3%	1555/64.7%	2402/100%
Yandex	1211/50.4%	1191/49.6%	2402/100%
Lycos	1642/68.4%	760/31.6%	2402/100%
Chacha.com	965/40.2%	1437/59.8%	2402/100%
Other	345/14.4%	2057/85.6%	2402/100%

Table 4.12 showed that majority 2400 (99.9%) of the respondents indicated that they used Google, this is closely followed by Yahoo 2387 (99.4%), Bing 98.3%, Baidu and Excite 97.2%, AOL 95.6% and 92.4%. Others include 68.4% for Lycos and 50.4% for Yandex. Search engines with low usage include DuckDuckGo with 42.0%, Chacha.com with 40.2%, wolfram Alpha 35.3% and others with 14.4%. This is in line with the findings by Spiranec & Zorica (2010) who found that students completed set tasks using Google first with only 10% using the library OPAC.

Table 4.13 Search Strategies Used to Retrieve E-Resources

Search strategies used	Frequency/Percentage (%)		Total
	Yes, I use	No, I don't use	
Boolean Operators	2393/99.5%	11/0.5%	2402/100%
Search engines for my research queries	2362/98.3%	40/1.7%	2402/100%
Phrase searching	2334/97.2%	68/2.8%	2402/100%
Keyword searching	2388/99.4%	14/0.6%	2402/100%
Random selection of websites	2297/95.6%	105/4.4%	2402/100%
Accessing most used websites	2022/84.2%	380/15.8%	2402/100%

Table 4.13 showed that majority 2393 (99.5%) of the respondents use Boolean Operators, closely followed by 2388 (99.4%) of the respondents that use keyword searching, 2362 (98.3%) use search engines, 2334 (97.2%) use phrase searching and 2297 (95.6%) use random selection of websites. The least search strategy used by the respondents is accessing most used website 2022 (84.2%). The finding implies that the undergraduate students under study use search strategies when using electronic information resources. The result also corroborates study of Daniel (2010) and Xie & Joo (2010) that Boolean Search, phrase searching and keyword searching are the most used search strategies.

Table 4.14 Importance of search strategies on the use of e-resources

Statement	**SA/A**		**Undecided**		**SD /D**	
	F	**%**	**f**	**%**	**f**	**%**
It makes my search very easy	2269	94.5%	91	3.9%	42	1.7%
It helps me to retrieve relevant information	2272	94.6%	65	2.7%	64	2.7%
It helps to narrow my search	2285	95.1%	64	2.7%	53	2.2%
It makes the Internet user-friendly	2249	93. 6%	87	3.6%	66	2.7%
Speedy access to information	2205	74.9%	79	3.3%	118	4.9%
It helps me to write a good research work	2233	93.0%	101	4.3%	68	2.8%
It saves the time	2244	93.4%	93	3.9%	65	2.7%

Table 4.14 showed that majority 2285 (95.1%) of respondents indicated that search strategies helps narrow their search, followed by 2272 (94.6%) of the respondents who indicated that it helps to retrieve relevant information. 2269 (94.5%) of the respondents indicated that it make search very easy, while 2244 (93.4%) indicated it makes the internet user friendly, 2244 (93%) indicated that it saves time while 2233 (93.0%) indicated that it helps write good research work and 2205 (74.9%) indicated that it enhance speedy access of information. The result mirrors that

majority (91.4%) of the respondents agreed that search engines enhance their use of Electronic Information Resources.

4.6 Techniques for Evaluating Electronic Information Resources

Table 4.15 Evaluating Search Results

Do you Evaluate E-Resources	**Frequency**	**Percentage**
Yes	2390	99.5%
No	12	0.5%
Total	**2402**	**100%**

Table 4.15 showed that majority 2390 (99.5%) of the respondents evaluate information from electronic information resources, while 12 (0.5%) indicated that they do not evaluate information.

Table 4.16 Criteria for Evaluating E-Resources

Evaluation	**Frequency/Percentage (%)**		**Total**
	Yes	**No**	
Authority	2024/84.3%	378/15.7%	2402/100%
Objectivity	1962/81.7%	440/18.3%	2402/100%
Authenticity	2123/88.4%	279/11.6%	2402/100%
Reliability	1876/78.1%	562/21.9%	2402/100%
Timeliness.	1972/82.1%	430/17.9%	2402/100%
Relevance	2192/91.3%	210/8.7%	2402/100%
Efficiency	1934/80.5%	468/19.5%	2402/100%

Table 4.16 showed that majority 2192 (91.3%) of the respondents check relevance, followed by 2123 (88.4%) of the respondents check Authenticity, 2024 (84.3%) of the respondents check

Authority, 1972 (82.1%) of the respondents check Timeliness. 1962 (81.7%) of the respondents check Objectivity, 1934 (80.5%) of the respondents check efficiency and 1876 (78%) of the respondents check Reliability. This showed that the majority of the respondents evaluate information from electronic resources, which is contradictory with the findings of Clara (2011) who found that users typically access information that is convenient and they commonly report relying on sources that they do not consider credible.

Table 4.17 Method used to evaluate electronic information resources

Statement	**SA/A**		**Undecided**		**SD /D**	
	F	**%**	**F**	**%**	**F**	**%**
I crosscheck the information I have accessed through electronic sources with other information sources.	2296	95.6%	62	2.6%	44	1.8%
I have confidence in the information from the internet.	2272	94.6%	65	2.7%	64	2.7%
I pay attention to addresses I used as to having "gov" or "edu" domain suffixes.	2285	95.1%	64	2.7%	53	2.2%
I check the date of the sources that I have accessed through electronic sources.	2249	93. 6%	87	3.6%	66	2.7%
I make sure the information I have accessed through electronic sources have an author.	2205	74.9%	79	3.3%	118	4.9%
I read text and select main ideas	2289	91.8%	53	2.2%	60	2.5%
I investigate various view points of the literature	2233	93.0%	103	4.3%	66	2.7%

Table 4.17 showed that majority of the respondents 2296 (95.6%), 2272 (94.6%), 2285 (95.1%), 2249 (93.6%), 2205 (74.9%), 2289 (91.8%), and 2233 (93.0%) agreed that they evaluate information. This showed that majority of the respondents evaluate the electronic information

resources. The result is in contrast with the study by Chidinma (2013) which stated that the respondents lack information skills, they were found to lack copyright, citation and evaluation skills.

Table 4.18 Methods used to present electronic information resources

Statement	SA/A		Undecided		SD /D	
	F	%	F	%	f	%
I use the Internet sources without making any change	91	3.8%	42	1.7%	2269	94.5%
I blend the information which I have accessed through internet sources with other information sources	2049	85.3%	274	11.4%	79	3.3%
I combine the information accessed on internet and use my own words.	1988	82.8%	164	6.8%	250	10.4%
I synthesize the work I get to fit in my body of work.	2296	95. 6%	44	1.8%	62	2.6%
I present the information from the e-resources separately and then add my personal deductions at the end	1164	48.5%	259	10.8%	979	40.7%

Table 4.18 showed that majority 2049 (85.3%) of the respondents agreed that they blend the information from electronic information resources with information from other sources, 1988 (82.8%) agreed they combine the information they obtain with other words, while 95.6% said they synthesize the work from electronic information resources to fit the body of their work. 1164 (48%) responses said they present the information separately and then add their personal deductions at the end, only 91 (3.8%) indicated they present the information from the internet without changes.

4.7 Types of Electronic Information Resources Used

Table 4.19 E-resources in Universities' Library

E-resources in Universities' Library	Frequency/Percentage (%)		Total
	Yes	No	
Audiotape	1941/80.8%	461/19.2%	2402/100%
E-mail	2296/95.6%	106/4.4%	2402/100%
CD- Rom	2123/88.4%	279/11.6%	2402/100%
Video	1876/78.1%	562/21.9%	2402/100%
Internet	1972/82.1%	430/17.9%	2402/100%
E-Journal	2192/91.3%	210/8.7%	2402/100%
E-Book	1934/80.5%	468/19.5%	2402/100%
Database	2233/93.0%	169/7.0%	2402/100%
E-reference	2362/98.3%	40/1.7%	2402/100%
E-news	2022/84.2%	380/15.8%	2402/100%
Social media	2334/97.2%	68/2.8%	2402/100%
E-dissertation and theses	2123/88.4%	279/11.6%	2402/100%

Table 4.19 shows that majority of the respondents indicated the following types of electronic resources were available in the libraries under study. These include Audiotapes, Email, C.D Roms, Videos, Internet, E-Journals, E-Books etc. Majority of the respondents 2362(98.3%) agrees they have e-refernces, 1941 (80.8%), 2296 (95.6%), 2123 (88.4%) indicated they have audio tapes, E-mails and CD-ROM respectively. While 1876 (78.1%), 1972 (82.1%), 2192 (91.3%) indicated they have video tapes, internet and E-journals respectively. Those that indicated having E-books, databases and E-news are 1934 (80.5%), 2233 (93.0%) and 2022 (84.2%) respectively. Others include social media 2334 (97.2%), E-dissertations thesis 2123 (88.4%) while others 1987 (82.7%). This shows that there was high availability of the electronic information resources in the libraries under study.

Table 4.20 Use of electronic information resources

Rating	Frequency	Percentage
Very often	1296	54.0%
Often	565	23.5%
Not often	443	18.4%
Never	98	4.1%
Total	**2402**	**100%**

Table 4.20 indicate that more than half 1296 (54.0%) of the respondents reveals that they use electronic information resources very often. This is followed by 565 (23.5%) who indicates they use electronic information resources often, and only 98 (4.1%) indicated they had never used the electronic information resources. This mirrors that majority 2304(95%) of the respondents use the electronic information resources at different levels.

Table 4.21 Types of Electronic Information Resources used

E-resources used	Frequency/Percentage (%)		Total
	Yes, I use	No, I don't use	
Audiotape	2024/84.3%	378/15.7%	2402/100%
E-mail	2262/94.2%	140/5.8%	2402/100%
CD- Rom	2333/97.1%	69/2.9%	2402/100%
Video	1876/78.1%	562/21.9%	2402/100%
Internet	2385/99.3%	17/0.7%	2402/100%
E-Journal	2392/99.6%	10/0.4%	2402/100%
E-Book	2234/93.0%	168/7.0%	2402/100%
Database	2396/99.8%	6/0.2%	2402/100%
E-reference	1873/78.0%	529/22.0%	2402/100%
E-news	1997/83.1%	405/16.9%	2402/100%
Social media	2400/99.9%	2/0.1%	2402/100%
E-dissertation and theses	2391/99.5%	11/0.5%	2402/100%

With regards to types of electronic information resources used, Table 4.21 reveals that majority 2400 (99.9%) of the respondents use social media. This is followed by E-database 2396 (99.8%), E-journals 2393 (99.6%), E-dissertations 2391 (99.5%), and the internet with 2385 (99.3%), etc. While the least type of electronic information resources used by the respondents was the electronic reference material with 1873 (78.0%). Of the respondents from the above data, it

could be seen that there was high level of electronic information resources use by the undergraduate students. This could be attributed to the use of mobile phones with android facilities. The findings support the finding of IFLA (2012), and Shukla & Mishra (2011) who presented frequently used electronic information resources in libraries to include: Electronic books, electronic journals and electronic Reference Books/database.

Table 4.22 Electronic Information Resources preferred

E-resources Preferred	Frequency/Percentage (%)		Total
	Yes	No	
Audiotape	2008/83.6%	394/16.4%	2402/100%
E-mail	2261/94.12%	141/5.9%	2402/100%
CD- Rom	2378/99.0%	24/1.0%	2402/100%
Video	1876/78.1%	562/21.9%	2402/100%
Internet	2377/99.0%	25/1.0%	2402/100%
E-Journal	2265/92.3%	137/5.7%	2402/100%
E-Book	2194/91.3%	208/8.7%	2402/100%
Database	2301/95.8%	101/4.2%	2402/100%
E-reference	2129/88.6%	273/11.4%	2402/100%
E-news	2014/83.8%	388/16.2%	2402/100%
Social media	2344/97.6%	58/2.4%	2402/100%
E-dissertation and theses	2110/87.8%	292/12.2%	2402/100%

Table 4.22 shows that majority 2378 (99.0%) of the respondents preferred using CD-ROMs. This is followed by the Internet information resources with 2377 (99.0%), social media, databases, E-mails, E-journals with 97.6%, 95.8%, and 92.3% respectively. E-books, E-references, E-dissertations and E-thesis have 91.3%, 88.6% and 87.8% respectively. Audio tapes have 83.6%, while E-news has 83.8% followed by "Others" with 63.4%. The less preferred electronic information resource is videotape (39.8%). This mirrors that majority of the respondents preferred to use CD ROMs, Internet, social media, Emails and electronic Journals. This is because they have ease of access and they are available at their finger tips.

Table 4.23 Relevance of the electronic information resources

Rating	Frequency	Percentage
Very relevant	1181	49.2%
Relevant	701	29.2%
Partially Relevant	339	14.1%
Not relevant	47	2.0%
Undecided	134	55.6%
Total	**2402**	**100%**

Table 4.23 indicates that less than half 1181 (49.2%) of the respondents shows that the types of electronic information resources used were relevant to their needs. Followed by 701 (29.2%) of the respondents who indicates they are very relevant, and only 47 (2.0%) indicated that the electronic information resources were not relevant to their needs. It could be seen that, majority 2221 (92.5%) of the respondents show that the type of electronic information resources used were relevant to their needs.

Table 4.24 Adequacy of the Electronic information resources

Rating	Frequency	Percentage
Very adequate	1006	41.9%
Adequate	448	18.7%
Not adequate	121	5.0%
Undecided	827	34.4%
Total	**2402**	**100%**

Table 4.24 indicates that less than half 1006 (41.9%) of the respondents shows that the types of electronic information resources used were very adequate to their needs. Followed by 448 (18.7%) of the respondents who indicates they are adequate and only 121 (5.0%) indicated that the electronic information resources were not adequate to their needs. It could be seen that,

majority 1454 (60.6%) of the respondents show that the type of electronic information resources used were adequate in satisfying their information needs.

Table 4.25 Satisfaction with electronic information resources

Rating	**Frequency**	**Percentage**
Very satisfied	977	40.7%
Satisfied	645	26.9%
Partially satisfied	543	22.6%
Dissatisfied	147	6.1%
Very Dissatisfied	90	3.7%
Total	**2402**	**100%**

Table 4.25 indicates that less than half 977 (40.7%) of the respondents shows that they were very satisfied with the electronic information resources used. Followed by 645 (26.9%) of the respondents who indicates they were satisfied, while 543 (22.6%) indicated they were partially satisfied. The result from the table shows that 147 (6.1%) were dissatisfied with the electronic information resources, while only 90 (3.7%) were very dissatisfied with the electronic information resources used. It could be seen that, majority 2165 (90.2%) of the respondents show that they were satisfied with the electronic information resources used.

4.8 Challenges associated with the use of electronic information resources

Table 4.26 Personal challenges on the use of e-resources

Statement	SA/A		Undecided		SD /D	
	F	%	f	%	f	%
Inadequate knowledge about library system	1769	73.6%	10	0.4%	623	25.9%
Inadequate knowledge about using the computer	1022	42.5%	169	7.0%	1211	50.4%
Inability to seek, obtain and evaluate information	1285	53.5%	983	40.9%	134	5.6%
Lack of requisite computer use skills	686	28. 6%	238	9.9%	1478	61.5%
Lack of knowledge of availability of resources	2342	97.5%	37	1.5%	23	1.0%
Excessive academic workload	2321	96.6%	63	2.6%	18	0.7%

Table 4.26 showed that majority 2342 (97.5%) of the respondents lack knowledge of the availability of electronic information resources, 2321 (96.6%) agreed with excessive academic workload, 1769 (73.6%) agreed that they have inadequate knowledge about library system while 1285 (53.5%) and 1022 (42.5%) said the inability to seek, evaluate and obtain information and inadequate knowledge about computers as the problems they face. Majority of the respondents 1478 (61.5%) did not agree that they lack requisite computer skills. The result is in line with the findings of Oduwole & Idowu (2011) who highlighted some of the challenges to electronic

information resources to include: access control, personnel and workload, overlapping of coverage of same titles by providers, town and gown initiative etc.

Table 4.27 Economic challenges on the use of e-resources

Statement	SA/A		Undecided		SD /D	
	F	%	f	%	f	%
Unstable power supply	2346	97.7%	34	3.9%	22	1.7%
Poor internet connectivity	2350	97.8%	46	2.7%	6	2.7%
Financial problem	2181	90.8%	64	2.7%	157	2.2%
Inadequate facilities for using e- resources in my library	1626	67.7%	94	3.6%	682	2.7%
Some of the information are restricted and can only be subscribed	947	39.4%	435	18.1%	1020	42.5%

Table 4.27 showed that majority 2350 (97.8%) of the respondents indicated poor internet connectivity, 97.7% indicated unstable power supply, 90.8% indicated financial problems while 67.7% and 39.4% indicated inadequate facilities for using E-resources in the library and restriction of information (unsubscribed) respectively. The result agrees with the findings by Omoike (2013) that among the various factors that militate against effective utilization of electronic information resources are poor electricity supply, poor Internet connectivity.

Table 4.28 Social challenges on the use of e-resources

Statement	SA/A		Undecided		SD /D	
	f	%	f	%	f	%
It is inadequate	2156	89.8%	121	5.0%	125	5.2%
It is not relevant	1712	71.3%	93	3.9%	597	24.9%
Outdated information resources	882	36.7%	689	28.7%	831	34.6%
It is inaccessible	1641	68.3%	248	10.3%	513	21.4%
It is unavailable	2109	87.8%	116	4.8%	177	7.4%

Table 4.28 showed that majority 2156 (89.8%) of the respondents selected inadequacy as the most prevalent challenge with e-resources, 87.8%, 71.3% and 68.3% agreed that it is

unavailable, irrelevant and inaccessible respectively. Only 36.7% agreed that the information resources are outdated.

Table 4.29 Occurrences of challenges

Challenges	**Frequency**	**Percentage**
Very often	556	23.1 %
Often	1692	70.4%
Sometimes	143	6.0%
Seldom	11	0.5%
Never	0	0.0%
Total	**2402**	**100%**

Table 4.29 showed that majority 1692 (70.4%) of the respondents face challenges often, 556 (23.1%) responded very often, said often, 143 (6.0%) said sometimes, 11 (0.5%) said they seldom face challenges while none said never. This showed that majority of the respondents, 2248 (93.5%) often face challenges in the utilization of electronic information resources.

4.9 Inferential statistics

The discussion below explains the findings of the inferential analysis using Chi-square (α) test to test the null hypothesis employed in the study. Chi-square (α) was used in testing the hypothesis using SPSS version 16.0. In the conduct of the test, 0.05 was used as the level of significance. All the assumptions of the Chi-square were met before the analysis was done.

4.9.1 Relationship between information literacy programmes in Nigerian universities and information literacy skills possessed by undergraduate students

Ho^{1}- There is no significant relationship between information literacy programmes in Nigerian universities and information literacy skills possessed by undergraduate students.

Table 4.30 Relationship between information literacy programmes and information literacy skills

	Value	Df	Asymp. Sig.(2sided)
Pearson Chi-Square	5.735E1a	478	.000
Likelihood Ratio	404.363	478	1.000
Linear-by-Linear Association	5. 725	1	.009
N of Valid Cases	189		

Table 4.30 showed the result of chi-square test which shows that there is a significant relationship between the information literacy programmes in Nigerian Universities and information literacy skills possessed by the undergraduate students; X^2= 5.725, Df=478, N=189, P=.000. This shows that, null hypothesis is rejected and alternate hypothesis is accepted. The analysis showed that information literacy skills possessed by the undergraduate students depend largely on the information literacy programmes in the universities. There is therefore, a significant relationship existing between the information literacy programmes in the universities and the information literacy skills possessed by the undergraduate students in Federal Universities in North-East Zone. Hence, the null hypothesis is rejected.

4.9.2 Relationship between information literacy skills and type of electronic information resources used by undergraduate students

Ho^2- There is no significant relationship between information literacy skills and the type of electronic information resources used by undergraduate students.

Table 4.31 Relationship between information literacy skills and types of electronic information resources used by undergraduate students

	Value	Df	Asymp. Sig.(2sided)
Pearson Chi-Square	7.627E1a	648	.000
Likelihood Ratio	470.533	648	1.000
Linear-by-Linear Association	8.865	1	.009
N of Valid Cases	189		

Table 4.31 showed the result of chi-square test on the relationship between information literacy skills and types of electronic information resources used. The result showed that there is a significant relationship between the information literacy skill and the type of electronic information resources used; X^2= 7.627, Df=648, N=189, P=.000. This shows that, null hypothesis is rejected and alternate hypothesis is accepted. The analysis shows that, the utilization of different types of electronic information resources depends on the undergraduate students' information literacy skills. There is, therefore, a significant relationship existing between the information literacy skill possessed by undergraduate students in Federal Universities in North-East Zone, Nigeria and the type of electronic information resources used. Hence, the null hypothesis is rejected.

4.9.3 Relationship between information literacy skills of the undergraduate students and the search strategies used

Ho^3 There is no significant relationship between the literacy skills of the undergraduate students and the search strategies used

Table 4.32 Relationship between the literacy skills and the search strategies used

	Value	Df	Asymp. Sig.(2sided)
Pearson Chi-Square	7.824E1a	536	.000
Likelihood Ratio	601.421	536	1.000
Linear-by-Linear Association	7.723	1	.007
N of Valid Cases	189		

Table 4.32 showed the result of chi-square test indicating that there is a significant relationship between the information literacy skill of the undergraduate students and the search strategy used; X^2= 7.824, Df=536, N=189, P=.000. This shows that, null hypothesis is rejected and alternate

hypothesis is accepted. The analysis shows that employing different search strategies depends on the undergraduate students' information literacy skills. There is, therefore, a significant relationship existing between the information literacy skill possessed by undergraduate students in Federal Universities in North-East Zone, Nigeria and the search strategies used. Hence, the null hypothesis is rejected.

4.9.4 Relationship between search strategies and utilization of electronic information resources

Ho^4**-** There is no significant relationship between search strategies employed by undergraduate students and utilization of electronic information resources.

Table 4.33 Relationship between search strategies and utilization of electronic information resources

	Value	Df	Asymp. Sig.(2sided)
Pearson Chi-Square	2.435E2a	151	.000
Likelihood Ratio	453.601	151	1.000
Linear-by-Linear Association	23. 246	1	.000
N of Valid Cases	189		

Table 4.33 showed the result of chi-square test implying that there is a significant relationship between search strategies and use of electronic information resources. X^2= 2.345, Df= 151, N= 189, P=.000. This shows that the null hypothesis is rejected and alternate hypothesis accepted. The analysis shows that, the successful use of electronic information resources is dependent on the undergraduate students' use of search strategies.

4.10 Discussion on Findings

This study investigates the Information Literacy Skills and Use of Electronic Information Resources by Undergraduate Students in Federal Universities in North-East Zone, Nigeria. The discussions are based on the seven (6) research questions addressed in the study. A quantitative research methodology, employing survey research design was adopted through the use of questionnaire that was administered to the respondents. Two thousand four hundred and eighty four (2484) copies of the questionnaire were administered out of which two thousand four hundred and two (2402) were returned and found useful to the study. This is obvious that the response rate was appreciable and would give affirmation to the findings of the study. This corroborates the recommendations of Osuala (2005) as cited by Hamza (2013) that the higher the number of response rate, the more credible will be the study. The results of the study showed that, majority of the respondents were male, and also that majority of the respondents were between 200 level and 300 level of study.

On the Awareness of Information Literacy Programmes, the study found that undergraduate students in Federal Universities are aware of Awareness of Information Literacy Programmes. This could be attributed to the hours allocated to literacy instructions in the Universities. An interesting finding is that, majority of the undergraduate students satisfied with the adequacy of the content of information literacy programmes in the universities which contradicts the findings of Anunobi and Ogbonna (2012), Anyaoku, Ezejiofor and Orakpor (2012) who concluded that the information literacy programmes in the Nigerian Universities are not adequate. It was also found that the information literacy programmes were relevant to the undergraduate students.

Interestingly, majority of the undergraduate students agree that they possess effective information literacy skills on the use of electronic information resources. And majority rate the effectiveness of these skills as very good, and that they are satisfied with the skills they possessed. This outcome has disproved the findings of Ukachi (2013) that the undergraduate students lack the necessary skills needed for the optimal utilization of the electronic information resources or might also have negative attitudes towards the use of the resources. The study also proved that the undergraduate students under study are satisfied with the information literacy skills they possess which disagreed with the opinion of Cankorkmaz (2010) and Daniel (2010) where they stated that Nigerian students lack the basic skills to utilize the electronic information resources available to them.

In investigating search strategies, findings revealed that the undergraduate students in the Universities under study use various search strategies to access information from electronic information resources, although the findings show that the undergraduate students make more use of keyword searching than Boolean operators, but a very large number still use Boolean operators, which reaffirmed the findings of Daniel (2010) and Xie & Joo (2010) that Boolean Search, truncation, phrase searching and keyword searching are the most used search strategies. The findings of this research also show that majority of the undergraduate students are familiar with different search engines, and the most frequently used search engines are Google, Yahoo and Baidu.

When asked about evaluating search results, the findings revealed that majority undergraduate students under study evaluate the result of information they get from electronic information resources. The investigation also show that although majority evaluate all aspects of information, but the highest number of the undergraduate students evaluate the relevance of the information to

the subject matter, which was in line with the findings of Hjorland (2012); Enite (2014); Rubinic (2014) who concluded that students do use the general evaluation technique to evaluate information from the electronic information resources.

Among many types of electronic information resources such as; Audiotapes, e-mails, CD-ROM, videotapes, internet, e-journals, e-books, databases, e-references, social media, e-news, e-dissertation and theses etc. findings revealed that, the use of social media, e-references and e-mails by the undergraduate students under study were found to be relatively high, thus reaffirming the findings of a study conducted by Kumar & Singh (2011) which revealed that a majority of the undergraduate students used the Internet once or two times per week. And the most utilized electronic information resources are e-dissertation, e-references, e-journal and databases, thus, the findings affirm the study by Govindaraju (2010) and Yu-Hui (2015). It was also found from the result that the most preferred electronic information resources are internet, CD-ROM and social media.

In an attempt to identify the challenges associated with the use of electronic information resources, the findings revealed that majority of the respondents often face challenges in using electronic information resources. Among the personal barriers, it was discovered that majority of the undergraduate students were not aware of the availability of the electronic information resources, another personal challenge which majority of the respondents indicate was excessive academic workload as compared to the studies of Baro & Asaba (2010), Omoike (2013), Emwanta & Nwalo (2013), Aina (2014) where they indicated that lack of resources, poor internet connection and unstable power supply.

When asked about the economic challenges faced by the undergraduate student, majority of the respondents face challenges of poor internet connection and unstable power supply. This is in agreement with the study of Ukachi (2013) which found that undergraduate students face accessibility problems ranging from the highest such as; constant problem of network connection, library staff members not easily releasing the password to students for use in accessing the resources, complicated logging-in procedure, limited computer terminals, interface to the resources not being user friendly, restriction on websites and, constant breakdown of the equipment.

Hypothesis was formulated to serve as a guide and provide answer to the research questions. The results of the inferential analysis to test the first hypothesis rejected the prediction that there is no significant relationship between information literacy programmes and information literacy skills possessed by the undergraduate students. The inferential statistics also rejected hypothesis that there is no significant relationship between information literacy skills and the type of electronic information resources used by undergraduate students. The finding of the study corroborated that of Sambo et al. (2014) who found that students' use of electronic information resources is dependent on the skills possessed.

In the third hypothesis formulated, it was predicted that there was there is no relationship between search strategies and utilization of electronic information resources. Thus, the null hypothesis was rejected. This result affirms that of the test of the relationship between undergraduate students' level of information literacy skills and their use of Electronic Information Resources in the library by Ukachi (2013) which has shown that there is a positive and significant relationship between these two variables. The results of the analysis rejected the

null hypothesis because a significant relationship exists between information literacy skills and the type of electronic information resources used by undergraduate students.

In the last hypothesis formulated, it was predicted that, there was no significant relationship between search strategies employed by undergraduate students and utilization of electronic information resources. The implication of this result is that the more the knowledge of search strategies possessed by the undergraduate students, they will tend to utilize the electronic information resources more and vice versa. The reason for this result could not be far-fetched when one considers the fact that search strategies enhance utilization because once a good strategy is employed, good results are achieved.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.0 Introduction

This chapter presents the summary of the study, summary of the findings, conclusion and recommendations made by the research work. And areas for further studies were also highlighted.

5.1 Summary of the Study

The study was designed and structured in five chapters;

Chapter one covers the general background and overview of the information literacy skill on the use of electronic information resources. It went further to state the research problem, research questions and objectives of the study. The chapter included research hypothesis and concludes with the significance, scope and limitation and operational definition of research terms.

Chapter two presents a review of relevant and empirical related literature on the information literacy skills and use of electronic information resources by the undergraduate student under investigation. The review was in line with the research objectives which include: Information literacy programmes, information literacy skills of undergraduate students, search strategies on the use of electronic information resources, methods used to evaluate information found in the electronic resources, purpose and use of electronic information resources by undergraduate students, challenges associated with the use of electronic information resources. The uniqueness of the study was highlighted in the sense that most of the literature reviewed concentrated on

developed world with a little or no attention given to developing nations. And the use of constructs from the Big6 skills model to conceptualize the work also made it unique.

Methodology of the study was captured in chapter three, where Cross- sectional survey design was used in the study and a sample population of 2484 librarians was used. Questionnaire was used as the research instrument to gather data which was analyzed using descriptive and inferential statistics. The validity and reliability of the instrument was also tested.

Chapter four is made up of data presentation and analysis using descriptive and inferential statistics. It was established in this chapter that out of two thousand four hundred and eighty-four (2484) copies of the questionnaire distributed, two thousand four hundred and two (2402) were filled and returned and the remaining eighty-two (82) were not returned. This represents a response rate of 96.7%.

Chapter five presented the summary of the study and summary of the findings based on which a conclusion was drawn and recommendations were put forward. This chapter also highlighted some areas for further research in related fields.

5.2 Summary of the findings

Based on the presentation, analysis and discussion of results generated from the sampled population of the study, the summary of the major findings are discussed in line with the research questions:

1. The study found that the undergraduate students under study have an overwhelming awareness of information literacy programs in the universities under study most especially the use of library or language or communication skills.

2. The study found out that the undergraduate students had adequate skills on the use of electronic information resources, and that the literacy skills empower the undergraduate students with ability to formulate questions based on their information needs.

3. The study found out that the undergraduate students use Random selection of websites, Boolean operators and keyword searching. Also, undergraduates under study are familiar with the use of search engines, and the most frequently used search engine are Google, yahoo, Bing and Baidu.

4. The study found out that the undergraduate students under study evaluate the information they get from the electronic information resources. They check all the aspects of the information before using it, however majority check relevance of the information based on the subject matter.

5. The study found out that the undergraduate students often make use of various electronic information resources found in their university libraries. And the most preferable e-resources by the undergraduate students are social media, e-journals, database, CD-ROM and internet. The study also found out that the electronic information resources are relevant are adequate.

6. The study found that the undergraduate students often face various challenges while utilizing the electronic information resources. The most prevalent challenge found by the study is that lack of knowledge of availability of the e-resources and excessive academic workload. While the major economic challenge found by the study is poor internet connectivity and incessant power supply.

5.3 Conclusion

In conclusion, it is glaring to note that the undergraduate student undergo basic information literacy training which enhances their information seeking skills on the use of electronic information resources. It is concluded from the study that the undergraduate students employ the use of various search strategies while accessing the electronic information resources. To this regard the undergraduate students evaluate information they get from the electronic sources even though not all the information found is evaluated by the students.

The study further show that the undergraduate students in North-East Nigeria possess adequate skills to use the electronic information resources, despite various challenges faced by the undergraduate students while utilizing the electronic information resources. The most prevalent personal challenge found by the study is that lack of knowledge of availability of the e-resources and excessive academic workload. While the major economic challenge found by the study is poor internet connectivity and instable power supply. In view of the above, the universities in the North-East Zone need to be more proactive in the provision of information literacy programmes to carter for the need of the undergraduate students.

5.4 Recommendations

Based on the findings of the study and conclusions drawn, the following recommendations were made:

1) The university management should improve the content of the information literacy programmes in Nigerian Universities in order to inculcate in the undergraduate students the wherewithal of getting relevant, adequate and up to-date information from the electronic information resources.

2) There is the need to infuse information literacy programmes as a stand-alone course in the curriculum. Such an addition to the undergraduate curriculum will improve the information literacy skills of the students.

3) The Nigerian University system should provide more robust internet connectivity to the whole Universities across the country in order to boost the use of electronic information resources by the undergraduate students across the country.

4) The University library management should provide stable electricity in order to promote and enhance the use of the library resources, most especially the electronic information resources.

5.5 Areas of Further Research

1. The present study could be replicated using other forms of students such as the students of state universities, private universities, polytechnic or colleges of education North-East Nigeria.

2. A wider scope of further research may include all undergraduate students in federal universities in Nigeria.

3. Further researches in this area can also capture variables such as Open Access, Online Database, E-Libraries and Repositories etc..

References

Abbas, K. D. (2014). Expert or Novice in Information Searching, Access and Sharing: An Information Literacy Model For Nigerian University System. *European Journal Of Computer Science And Information Systems* 2(2), 30-37, Retrieved 11 July 2015 from: Http://Www.Eajournals.Org/Wp-Content/Uploads/Expert-Or-Novicelectronic

Abdulazeez, M.A. Igbinovia, O. and Oluwayinka, S E. (2015). Assessment of Information Needs and Seeking Behaviour of Undergraduate students in University of Ilorin, Ilorin, Nigeria *Information and Knowledge Management* (5)4.

Abubakar, D. and Adetimirin, A. (2015). "Influence of Computer Literacy on Postgraduates' Use of Electronic information resources in Nigerian University Libraries" *Library Philosophy and Practice (electronic journal).* Paper 1207. Retrieved 25 June 2015 from: http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=3245&context=libphilpracc

Abubakar, U. A. (2012). Digital-divide as a Challenge to Libraries and Librarians in Nigerian Universities: A Case Study of Abubakar Tafawa Balewa University. *Journal of Research in Education and Society; 3,(2)*, *11*.

ACRL (2010, June). A guideline for the appointment, promotion and tenure of academic librarians (rev. ed.). Chicago, IL: Association of College and Research Libraries. Retrieved 2 February 2014 from: http://www.ala.org/acrl/standards/promotiontenure

ACRL. (2000). Information literacy competency standards for higher education [Internet] Chicago, IL: *American Library Association*; Retrieved 11 January 2016 from: http://www.ala.org/acrl/standards/informationliteracycompetency

ACRL. (2013). Intersections of scholarly communication and information literacy: Creating strategic collaboration for a changing academic environment. Retrieved 2 January 2014 from: http://acrl.ala.org/intersections

ACRL. (2014). Draft framework for information literacy for higher education (first part) [Online]. Retrieved 20 May 2015 from: http://acrl.ala.org/ilstandards/wpcontent/uploads//02/framework-for-il-for.helectronic

Adams, J., King, C. and Hook, D. (2010). Global Research Report: Africa. Leeds, UK: Evidence Thomson Reuters. ISBN 1-904431-25-9. Retrieved 11 March 2015 from: http://arxiv.org/ftp/arxiv/papers/1301/1301.0801.pdf

Adeagbo, O. O. (2011) Influence of Locus of Control and Computer Skills on the Use of Internet Resources by Undergraduate Students in Nigerian Universities. Retrieved 7 July 2015 from: https://www.webpages.uidaho.edu/~mbolin/adeagbo.pdf

Adeniran, P. (2013). Usage of electronic information resources by undergraduate students at the Redeemer's University, Nigeria. *International Journal of Library and Information Science.* 5(10), 319. Retrieved 13 April 2015 from: http://www.academicjournals.org/IJLIS

Ahmadpour, K. (2014). Developing a Framework for Understanding Information Literacy in the 21st Century: A Review of Literature (Master's thesis) University of Ontario Institute of Technology. Retrieved 9 March 2014 from: http://faculty.uoit.ca/kay/files /Ahmadpour_FrameworkInformationLiteracy_Final.pdf

Aina, R. F. (2014). Awareness, Accessibility and Use of Electronic Databases among Academic Staff of Babcock University Business School. *Kuwait chapter of arabian journal of business and management review* 3(6) Retrieved 25 August 2015 from: http://www.arabianjbmr.com/pdfs/KD_VOL_3_6/4.pdf

ALA. (1989). ALA Presidential Committee on Information Literacy. Final report. Chicago, Ill: Retrieved June 18 2015 from: http://www.ala.org/acrl/sites/ala.org.acrl/files/content/standards/standards.pdf

ALA. (2014). Framework for information literacy for higher education. Retrieved 25 January 2015 from: http://www.ala.org/acrl/standards/informationliteracycompetency

Alakpodia, O. N. (2010). Assessment of information literacy skills among librarians in Delta State University, Abraka. *Information Technologist (The)*,7(1).

Andretta, S. (2012). Ways of Experiencing Information Literacy: Making the case for a relational approach. *Chandos Information Professional Series*.

Anunobi, C. and Udem, O. K. (2014). Information literacy competencies: A conceptual analysis. *Journal of applied information science and technology*, 7(2), 64-80

Anyaoku, E. N., Anunobi, C. V., and Eze, M. E. (2015). Information Literacy Skills and Perceptions of Librarians in Colleges of Education in Nigeria. In *Information and Knowledge Management* 5(8) 83-89).

Balogun, J. (2011). "Approaches to Modern Literary Theories". Retrieved 15 May 2013 from: www.unilorin.edu.ng/publications/balogun/Doc5.pdf

Baro, E. E. and Asaba, J.O. (2010). Internet connectivity in university libraries in Nigeria: the present state Library HI Tech News. 9(10), 13-19, Retrieved 12 September 2015 from: http://www.researchgate.net/publication/235317026

Baro, E. E. and Keboh, T. (2012). Teaching and Fostering Information Literacy Programmes: A Survey of Five University Libraries in Africa. *The Journal of Academic Librarianship,* 38(5), 311–315. Retrieved 2 August 2015 from: http://www.sciencedirect.com/science/article/pii/S0099133312000973

Baro, E.E. and Zuokemefa, T. (2011). Information literacy programmes in Nigeria: A survey of 36 university libraries. New Lib World. 112 (11/12), 549–65.

Biddix, J. P., Chung, C. J. and Park, H. W. (2011). Convenience or credibility? A study of college student online research behavior. *Internet and Higher Education*, 14(3), 175-182.

Cankorkmaz, Z. (2010). Identifying the Usage of Information Technologies and Literacy Levels 4th World Conference on Educational Technology Researches, WCETR- 2014. Retrieved 25 May 2015 from: http://www.sciencedirect.com/science/article/pii/S1877042815030591

Carpita, M. and Ciavolino, E. (2014). Statistical methods for the evaluation of services Open Access MEM and SEM in the GME Framework: Statistical Modelling of Perception and Satisfaction. *Procedia Economics and Finance* 17(4) 23-34

Chandran, V. (2013). Use and user perception of electronic information resources: A case study of Siva Institute of Frontier Technology, India. *Chinese Librarianship: an International Electronic Journal,* 36. Retrieved 25 January 2015 from: http://www.iclc.us/cliej/cl36chandran.pdf

Chen, Y. (2015). Testing the impact of an information literacy course: Undergraduate students' perceptions and use of the university libraries' web portal. *Library & Information Science Research* 37(3), 263-274. Retrieved 12 May 2016 from: https://www.asis.org/asist2011/proceedings/submissions/51_FINAL_SUBMISSION.pdf

Chidinma, O. O. (2013). Information Seeking Behaviour of Final Year Law Students in South Western Nigerian Universities. *Information and Knowledge Management* 3(5) Retrieved 5 June 2015 from: http://www.iiste.org/Journals/index.php/IKM/article

Clara, R. W. (2011). A Case Study of the Influence of Bibliographic Instruction on the Information Seeking Skills of Undergraduate students Attending a For-Profit University (A Doctoral Dissertation Research) Faculty of Argosy University Atlanta Campus College Of Education.

Currie, L., Devlin, F., Emde, J. and Graves, K. (2010). Undergraduate search strategies and evaluation criteria: searching for credible sources. *New Library World,* 111(3/4), 113-124.

Daniel, W. O. (2010). Graduate Students' Views on Information Literacy (Master Thesis) International Master in Digital Library Learning [DILL]

Dhanavandan, S. and Tamizhchelvan, M. (2012). An Evaluation of Electronic information resources in Academic Libraries in Tamil Nadu *Journal of Emerging Trends in Computing and Information Sciences* 3(3). Retrieved 7 March 2015 from: http://cisjournal.org/journalofcomputing/archive/vol3no3/vol3no3_17.pdf

Diehm. R. and Lupton, M (2014). Learning information literacy/ *Information Research*, 19(1), 607. Retrieved 2 August 2015 from: http://InformationR.net/ir/19-1/paper607.html

Duncan, A. and Varcoe, J. (2012). Information Literacy Competency Standards for Students: A Measure of the Effectiveness of Information Literacy Initiatives in Higher Education. Toronto: Higher Education Quality Council of Ontario. Retrieved 31 October 2015 from: http://www.nipissingu.ca/departments/presidentsoffice/Documents/Literacy.Competency.Standards

Eke, H.N., Omekwu, C.O., and Agbo, J. (2014) "Internet Search Strategies Employed By Library and Information Science Students of University of Nigeria, For Research." *Library Philosophy and Practice (e-journal).* Paper 1194. http://digitalcommons.unl.edu/libphilprac/1194

Emwanta, M and Nwalo, K.I.V. (2013) Influence of computer literacy and subject background on use of electronic information resources by undergraduate students in universities in South-western Nigeria. *International Journal of Library and Information Science* 5(2), 29-42, Retrieved 22 September 2014 from: http://www.academicjournals.org/IJLIS

Enite, A. U. (2014). Issues and Challenges in Teaching Library Instruction Course in Nigeria Universities. *Journal of Education and Leadership Development* 6(2), 59 – 71. Retrieved 12 November 2015 from: http://www.cenresinpub.org/pub/pdf

Gani, E. (2014). Establishment and management of university electronic libraries in the northwest zone of Nigeria. A thesis. Retrieved 11 May 2015 from: http://kubanni.abu.edu.ngjspui/bitstream/establishment.and.management.of.university.pdf

Gayathri, D. and Sadik, B. M. (2015). Support of Electronic information resources for Academicians to Fulfill Their Information Need-a Study *International Journal of Emerging Research in Management &Technology* 4(3)

Girard, A. (2014). Reader's block: a systematic review of barriers to adoption, access and use in electronic book user studies. *Information Research*, 19(2). Retrieved 19 August 2016 from: http://InformationR.net/ir/19-2/paper624.html, accessed March 25, 2015

Govindaraju, N. (2010). Use and user awareness of electronic information resources in Andhra University library: A study. PEARL: *A journal of Library and Information Science*, 4(3), 183-188. 2010.

Guptaa, P., Mehrotrab, D. and Sharmac, T.K. (2014). Identifying knowledge indicators in Higher Education Organization. Peer-review under responsibility of organizing committee of the International Conference on Information and Communication Technologies

Hamza, M. U. (2013) Access and Utilisation of on-line Arabic Information Resources By Academics in the Ahmadu Bello University, Zaria and Bayero University, Kano. A Thesis.

Head, A. J. and Michael, B. E. (2010). "Truth Be Told: How College Students Find and Use Information in the Digital Age," Project Information Literacy Progress Report Retrieved 13 August 2014 from: http://projectinfolit.org/pdfs/PIL.Fall2010.Survey.FullReport1.pdf

Head, A. J. (2012) Learning Curve: How College Graduates Solve Information Problems once they Join the Workplace. Sonoma, CA: Project Information Literacy, 2012. Retrieved 11 February 2013 from: http://projectinfolit.org/pdfs/PIL.fall2012.workplaceStudy.pdf

Hjorland, B. (2012). Methods for evaluating information sources: An annotated catalogue. *Journal of Information Science*, *38*(3), 258-268.

Ho C., Lin, M. and Chen, H. (2012). Web users' behavioural patterns of tourism information search: From online to offline, Tourism Management, 33(4), 1468-1482. DOI: 10.1016/j.tourman.2012.01.016

http://www.mapsofworld.com/nigeria/nigeria-political-map.html

IFLA. (2012). Key issues for electronic information resources collection development: a guide for libraries. Retrieved 20 April 2012 from: http://www.ifla.org/files/assets/acquisition-collection-development/publications/electronic-resourceelectronicguidelectronic2012.pdf

Inskip, C. (2014). Information literacy is for life, not just for a good degree: a literature review. Information Literacy Project 2014

Islam, A.K.M.N. (2013). Conceptualizing Perceived Usefulness in electronic learning Context and Investigating its Role in Improving Students' Academic Performance In: Proceedings of the 21st European Conference On Information Systems, Turku, Finland

Ivwighreghweta, O. and Onoriode, O. K. (2012). Open access and scholarly publishing: opportunities and challenges to Nigerian researchers. Chinese Librarianship: *an International Electronic Journal*, 33(45), 45-62

Jana, V. and Eileen, S. (2013). Factors Affecting Students' Information Literacy as They Transition from High School to College School Library Research Volume 17. Retrieved 18 September 2014 from: http://www.ala.org/aasl/sites/ala.org.aasl.aaslpubsandjournals/FactorsAffecting_V17.pdf

Jennifer, J. (2010). Information literacy and higher Education: A toolkit for curricular integration November 2010 College & Research Libraries News 71(10) 534-538. Retrieved 2 May 2015 from: http://crln.acrl.org/content/71/10/534.full

Julian, F., Wolfram, S. and John, A. (2013) International Computer and Information Literacy Study Assessment Framework Retrieved 22 August 2015 from: http://files.eric.ed.gov/fulltext/ED545260.pdf

Kamba, M. A. (2013) Information-Seeking Behaviour of Extension Workers and Specialists in Nigerian Rural Communities with Special Reference to Job Satisfaction *Samaru Journal of Information Studies* Vol. 13 (1 & 2)

Kennedy, M. R. and Kennedy, D.P. (2014). The use of an electronic resource from a social network analysis perspective. Library and information research 38 (118), 17-34. Retrieved 13 December 2014 from: http://www.lirgjournal.org.uk/lir/ojs/index.php/lir/article/viewFile/628/644

Khan, S. A., Khan, A. A., and Bhatti, R. (2011). Internet access, use and gratification among university students: a case study of the Islamia University of Bahawalpur, Pakistan. Chinese Librarianship: an International Electronic Journal, 32.

Kumar, A. and Singh, M.P. (2012). Researcher Perception on Electronic information resources at Babasaheb Bhimrao Ambedkar University (A Central University), Lucknow: A Study-Journal Of Arts, Science & Commerce. *International Refereed Research Journal* 3(1), 91

Kumar, S. and Singh, M. (2011). Access and use of electronic information resources by scientists of National Physical Laboratory in India: A case study. Singapore Journal of Library & Information Management. 40 (33), Retrieved 28 February 2014 from: http://www.las.org.sg/sjlim/SJLIM2011KumarSinghAccess.pdf

Lee, J. Y., Paik W. and Joo, S. (2012). Information resource selection of undergraduate students in academic search tasks. Information research 17 (1),

Lwehabura, M.J.F. and Stilwell, C. (2008), "Information literacy in Tanzanian universities: challenges and potential opportunities", Journal of Librarianship and Information Science, 40(3), 79-91.

Mansoor, Y and Kamba, M. A (2010). Information Acceptance and ICT Resistance: Promoting the Role of Information in Rural Community Development, *Library Philosophy and Practice,* 1- 4

Maurizio, C., and Enrico, C. (2014). MEM and SEM in the GME Framework: Statistical Modelling of Perception and Satisfaction. Innovation and Society 2013 Conference, IES 2013 Procedia Economics and Finance 17(5), 20–29. Retrieved 11 June 2015: http://www.sciencedirect.com/science/article/pii/S2212567114008740

Mittal, P. and Bala, M. (2013). A Study of Various Types of Electronic information resources Used by Research Scholars. International Journal of Research in Computer and Communication Technology, 2(3), 146-150, Retrieved 12 August 2014 from: http://www.ijrcct.org/index.php/ojs/article/viewFile/195/pdf

Miyanda, E. M. (2011). Factors affecting utilisation of electronic information resources and services by medical students at the University of Zambia. Retrieved 12 May 2014 from: http://dspace.unza.zm:8080/xmlui/handle/123456789/171

Nina, E. (2014). Research Information Literacy: Addressing Original Researchers' Needs. *The Journal of Academic Librarianship* 40(4), 460–466 Retrieved March 2015 from: http://portal.ou.nl/documents/29922620/29922684/Exner+%282014%29.+IL.pdf

Obiora, C .N., Amaka, R. O. and Obiora, K. U. (2015). Relationship between Information Literacy Skills and Research Output of Academic Staff in Nnamdi Azikiwe University Awka, Nigeria. *Journal of Applied Information Science and Technology,* 8 (1)

Oduwole, A. A. and Idowu, I. (2011). Utilization and impact of online sourcing of information on the academic performance of medical students in a Nigerian university. *Academic Journals*, 3 (10) 217-223. Retrieved 30 June 2014 from: http://www.academicjournals.org/ijlis

Oduwole, A. A. and Idowu, I. (2012). Electronic information resources Provision and Internet Accessibility Challenges in Nigerian Academic Libraries; *Global Journal of Library and Information Sciences* 1(1) 001-007

Ogunsola, L.A., Akindojutimi, B.F. and Omoike, D.A. (2011). Information Literacy in Nigerian Higher Institutions–Any Role for Librarians? *Ozean Journal Of Social Sciences* 4(2). Retrieved 25 May 2015 From: http://www.ozelacademy.com/OJSS_v4n2_4.pdf

Okon, E. A., Patrick, N., and Bosire, O. (2014). Effect of Accessibility and Utilization of Electronic Information Resources on Productivity of Academic Staff in Selected Nigerian Universities. *Science Research*. 2(6), 166-171. Retrieved 17 June 2015 from: http://article.sciencepublishinggroup.com/pdf/10.11648.j.sr.20140206.13.pdf

Omoike, D. A. (2013). Use of electronic information resources by distance students in Nigeria: the case of the National Open University, Lagos and Ibadan study centers. Retrieved 22 April 2015 from: http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=2274&context=libphilprac

Omosekejimi, A. F., Eghworo, O. R. and Ogo, E. P. (2015). Usage of Electronic Information Resources (EIRs) by Undergraduate Students of Federal University of Petroleum Resources Effurun. *Information and Knowledge Management* 5(4)

Onhwakpor, J.E. (2013). The Role of Academic Librarians in Teaching Information Literacy Skills to Distance Students in Tertiary Institutions Senior Librarian, Delta State University. *Journal of Emerging Trends in Computing and Information Sciences.* 4(3)

Owoeye, J. E. (2011). Information Communication Techonology (ICT) Use as a Predictor of Lawyers' Productivity. Retrieved 22 January 2014 from: http://www.webpages.uidaho.edu/~mbolin/owoeye.htm

Owolabi, K. A., Ajiboye, B. A., Lawal, O. W., and Okpeh, S. C. (2012). Use of electronic information sources (EIS) by faculty members in Nigerian universities. Retrieved 12 April 2015 from: http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1795&context=libphilprac

Rani, S. (2011). Information Literacy Programmes For Undergraduate Students. *International Journal Of Digital Library Services*, 1 (1)

Rempel, H. G. (2010). A longitudinal assessment of graduate student research behavior and the impact of attending a library literature review workshop. College & Research Libraries, 71(6), 532–547.

Rubinic, D. (2014). Information behaviour of university students: a literature review. Libellarium: *Journal for the research of writing books and cultural heritage institutions* 7(1)

Sagsan, M. and Zorlu, K. (2012). An Empirical Test of the Knowledge Management Life Cycle Model at a Turkish Petroleum Oil Industry Firm Kirsehir, Turkey

Salaam, M. O., and Adegbore, A. M. (2010). Internet access and use by students of private universities in Ogun State, Nigeria.

Sambo, A. S., Abu. H., Enite, A. U. and Musa, D. Y. (2014) Collection Development Policy of Electronic information resources in Nigeria Libraries: Certified Librarians Perception. Information and Knowledge Management (Online) 4(9) 25-33 Retrieved 22 May 2015 from: http://www.iiste.org/Journals/index.php/IKM/article/viewFile/15648/1608

Sarah, M.S. (2012). Types of Survey. Explorable. Retrieved 13 May 2014 from: com: https://explorable.com/types-of-survey

Sarma, R. D., and Sarma, R. (2014). Information Seeking Behaviour of Students in Digital Era: A Study on the Postgraduate Students of Life Science of Rajiv Gandhi University, Arunachal Pradesh. Retrieved 11 July 2015 from: http://ir.inflibnet.ac.in/bitstream/1944/1821/1/9.pdf

Sasikala, C and Dhanraju, V (2011). Assessment of Information Literacy Skills among Science Students of Andhra University. *Library Philosophy and Practice (e-journal)*. 44(3) 626. Retrieved 23 August 2014 from: http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1658&context=libphilprac

SCONUL (2011), "The SCONUL seven pillars of information literacy: core model for higher education", SCONUL Working Group on Information Literacy, London, Retrieved 9 August 2014 from: www.sconul.ac.uk/sites/default/files/documents/coremodel.pdf

Secker, J. and Macrae-Gibson, R. (2011). Evaluating MI512: an information literacy course for PhD students. *Library Review,* 60 (2), 96-107. Retrieved 10 April 2015 from: http://eprints.lse.ac.uk/32975/3/Evaluating_MI512_%28LSERO%29.pdf.

Shukla, P. and Mishra, R. (2011). Collection development policy in the electronic era. *Asia pacific Journal of Library and Information Science*, Vol. 1 (1), 69-76

Spiranec, S., and Zorica, B.M. (2010). Information Literacy 2.0: hype or discourse refinement?. *Journal of documentation,* 66(1), 140-153.

Syamalamba, R. (2011). Information Literacy Programmes for Undergraduate Students *International Journal of Digital Library Services*, Vol, 1 (1)

Taylor, A. and Heather, A.D. (2014). Information literacy standards and the World Wide Web: results from a student survey on evaluation of Internet information sources. *Information Research*, 19(4), 44-56. Retrieved 13 April 2015 from: http://www.informationr.net/ir/194/paper645.html

Thanuskodi, S. (2012). Use of E-resources by the Students and Researchers of Faculty of Arts, Annamalai University. *International Journal of Library Science.* 1(1), 1-7

Ukachi, N. B. (2013) Accessibility and students variables as correlates of the use of electronic information resources in university libraries in south-west, Nigeria. A thesis submitted to the department of library and information science, University of Nigeria Nsukka

UNESCO Background Paper. (2011) for the Experts Group Meeting (EGM) on Media and Information Literacy (MIL) Indicators – Formulation and Measurement, held in Bangkok, Thailand,4 to 6 November 2010. UNESCO. Paris. UNESCO. Conference on Information Ethics, Monaco 1997. (1997) *International Information & Library Review (IILR)*, 29 (3-4).

University of Chicago, Idaho. (2012). Information Literacy Portal. Retrieved 14 October 2015 from: http://www.webs.uidaho.edu/info.literacy

Waseem, A. and Kim, M. T. (2011). Contributions of cognitive science to information science: An analytical synopsis Emporia State Research Studies 47(1), 18-23

Xie, I., and Joo, S. (2010) Evaluation constructs and criteria for digital libraries: a document analysis. 2(2), 7–8, 2010, Retrieved 15 April 2015 from: http://www.scientiasocialis.lt/qiic/files/pdf/100-102.Balog.qiic.Vol.2-2.pdf

Yu-Hui, C. (2015). Testing the impact of an information literacy course: Undergraduate students' perceptions and use of the university libraries' web portal. Library & Information Science Research 37(3), 263–274. Retrieved 20 October 2016 from: http://ac.els.cdn.com/S07408188150093tid=2d7546f45b9911e5a&acdnatfbfa7a41dc4af

Zakaria, M. H., Watson, J. and Edwards, S. L. (2010). Investigating the use of Web 2.0 technology by Malaysian students. *Multicultural Education & Technology Journal* 4(1): 17-29.

Zickuhr, K. (2010). "Generations 2010," Pew Internet & American Life Project (16 December), http://www.pewinternet.org/~/media//Files/Reports/2010/Generations.and.Tech10.pdf

APPENDIX I

Consent Form

Department of Library and
Information Sciences,
Bayero University Kano
7th December, 2016

Dear Respected respondents,

I am a postgraduate student of the above named department, currently undergoing Masters in Library and Information Science and carrying out a study on *"**Information Literacy Skills and Use of Electronic Information Resources by Undergraduate Students."*** It is hoped that you will furnish me with candid information.

Please find attached, a set of questionnaire which you are asked to respond to, so as to enable me carry out the study. I want to assure you that all information provided will be treated only for the purpose of this study.

Thanking you in advance for your cooperation in making the study a success.

Yours sincerely,

Aminu Ahmed Buba

APPENDIX II

QUESTIONNAIRE

Instruction: Please tick where appropriate

SECTION A: Demographic Profile

1. Please kindly indicate your age group by ticking only one option:

	Age	Tick
a.	16-20 years	
b.	21-25 years	
c.	26-30 years	
d.	31-35 years	
e.	36-Above	

2. Year of study
   a) 100 level { }
   b) 200 level { }
   c) 300 level { }
   d) 400 level { }
   e) 500 level { }
3. Gender
   a) Male { }
   b) Female { }

SECTION C: Information Literacy Programmes

4 Are you aware of any information literacy programmes in your University?
   a) YES { }
   b) NO (If no, skip to section D) { }

5 Please, use the following statement and rate how adequate the information literacy programmes has prepared you to use electronic information resources using 5 point likert scale.

Strongly agree (SA) = 5
Agree (A) = 4
Undecided (U) = 3
Disagree (D) = 2

S/N	STATEMENT	SA	A	U	D	SD
1.	The programmes helped me to use electronic information resources					
2.	It has helped me to learn different search strategies effectively					
3.	It has enhanced my use of different search engines					
4.	It contains lessons on the use of different search techniques					

6 Please, use the following statement and rate how relevant the information literacy programmes has prepared you to use electronic information resources using 5 point likert scale.

Strongly agree (SA) = 5
Agree (A) = 4
Undecided (U) = 3
Disagree (D) = 2
Strongly disagree (SD) = 1

S/N	STATEMENT	SA	A	U	D	SD
1.	The programmes have prepared me on self sufficiency on the use of electronic information resources					
2.	I can identify and addresses my information need					
3.	It has enhanced my search techniques					
4.	I can access information effectively and efficiently					
5.	I evaluate and think critically about information					
6.	I can use information effectively for a specific purpose					
7.	I can use information ethically and legally					

SECTION C: Information literacy skills on the use of electronic information resources

7 Does the programme provide you with basic skills to use the electronic information resources?

a) YES { }
b) NO (If no, skip to the next section,) { }

8 If yes, how effectively do the skills you acquired from information literacy programmes help you to use electronic information resources?

a) Very good { }
b) Good { }
c) Fair { }
d) Bad { }
e) Very bad { }

9 Rate the level of information literacy skills acquired

a) Excellent { }
b) Very good { }
c) Good { }
d) Fair { }
e) Fairly Poor { }
f) Very poor { }

10 What is your perceived level of information literacy skill possessed

S/N	STATEMENT	SA	A	U	D	SD
1.	Ability to formulate questions based on information needs					
2.	Ability to recognize a need for information resources					
3.	Ability to distinguish potential information resources					
4.	Ability to construct strategies for locating information					
5.	Ability to evaluate information obtained from different sources.					
6.	Ability to locate and access information resources					
7.	Ability to organize, apply and communicate information					
8.	Ability to synthesize and build on existing information					
9.	Ability to organize information for practical application					
10.	Ability to integrate new information into an existing body of knowledge					
11.	Ability to use information in critical thinking and problem solving					

11 How satisfied are you with the information literacy skills acquired on the use of electronic information resources?

a) Very satisfied { }
b) Satisfied { }
c) Fairly satisfied { }
d) Not satisfied { }
e) Undecided { }

SECTION D: Search Strategies

12 Are you familiar with the use of search engines?

a) Yes { }
b) No (If no, skip to the next section) { }

13 If yes, which search engines do you use when searching for information from electronic sources?

a) Google { }
b) Bing { }
c) Baidu { }
d) Yahoo { }
e) AOL { }
f) Ask.com { }
g) Excite { }
h) DuckDuckGo { }
i) WolframAlpha { }
j) Yandex { }
k) Lycos { }
l) Chacha.com { }
m) Other (please specify)_____

14 What types of search strategies do you employ when searching for information in the electronic information resources?

S/N	Tick the appropriate options	
1.	Boolean Operators	
2.	I use search engines for my research queries	
3.	Phrase searching	
4.	Keyword searching	
5.	Random selection of websites	
6.	Accessing most used websites	

15 How does the Search Strategies employed enhance your search on electronic information resources?

S/N	STATEMENT	SA	A	U	D	SD
1.	It makes my search very easy					
2.	It helps me to retrieve relevant information					
3.	It helps to narrow my search					
4.	It makes the Internet user-friendly					
5.	Speedy access to information					
6.	I do key word searching					
7.	It helps me to write a good research work					
8.	It saves the time of the students					

SECTION E: Evaluating Search Results

16 Do you evaluate the electronic information sources?

a) Yes { }

b) No (If no, skip to the next section) { }

17 If no, skip to the next section, if yes, what aspects of the electronic information resources do you evaluate?

S/N	STATEMENT	
1.	Authority	
2.	Objectivity	
3.	Authenticity	
4.	Reliability	
5.	Timeliness.	
6.	Relevance	
7.	Efficiency	

18 How do you evaluate the electronic information resources?

S/N	STATEMENT	SA	A	U	D	SD
1.	I crosscheck the information I have accessed through					

	electronic sources with other information sources.					
2.	I have confidence in the information from the internet.					
3.	I pay attention to addresses I used as to having "gov" or "edu" domain suffixes.					
4.	I check the date of the sources that I have accessed through electronic sources.					
5.	I make sure the information I have accessed through electronic sources have an author.					
6.	I read text and select main ideas					
7.	I investigate various view points of the literature					

19 How do you present the information?

S/N	STATEMENT	SA	A	U	D	SD
A.	I use the internet sources without making any change					
B.	I blend the information which I have accessed through internet sources with other information sources					
C.	I combine the information that I have accessed through internet and use it my own words.					
D.	I synthesize the work I get from the electronic information resources to fit in my body of work					
E.	I present the information from the electronic information resources separately and then add my personal deductions at the end					

SECTION B: Electronic Information Resources

20 Which of the following electronic information resources are available in your university? (You can tick more than one option)

a) Audiotape { }
b) E-mail { }
c) CD- Rom { }
d) Videotapes { }
e) Internet { }
f) E-Journal { }
g) E-Book { }
h) Database { }
i) E-reference { }
j) E-news { }
k) Social media { }
l) E-dissertation and theses { }
m) Others, please specify_____

21 How often do you use electronic information resources for your academic work?

a) Very often { }

b) Often { }
c) Not often { }
d) Never { }

22 What types of electronic information resources do you use? (You can choose more than one option.)

a.	Audio tape	
b.	E-mail	
c.	CD-Rom	
d.	Videotapes	
e.	Internet	
f.	E-journals	
g.	E-books	
h.	Databases	
i.	E-Reference	
j.	E-News	
k.	Social media	
l.	E-Dissertations and theses	

m. Others (please specify) _____

23 Which of the types of electronic information resources do you prefer? (You can choose more than one option.)

a.	Audio tape	
b.	E-mail	
c.	CD-Rom	
d.	Videotapes	
e.	Internet	
f.	E-journals	
g.	E-books	
h.	Databases	
i.	E-Reference	
j.	E-News	
k.	Social media	
l.	E-Dissertations and theses	

24 How relevant are the electronic information resources to your studies?

a) Very relevant { }
b) Relevant { }
c) Partially relevant { }
d) Not relevant { }
e) Undecided { }

25 How adequate are the electronic information resources in your Library in satisfying your information needs?

a) Very adequate { }
b) Adequate { }
c) Not adequate { }
d) Undecided { }

26 How satisfied are you with the electronic information resources in your school?

a) Very Satisfied { }
b) Satisfied { }
c) Partially Satisfied { }
d) Dissatisfied { }
e) Very Dissatisfied { }

SECTION G: Challenges associated with the use of electronic information resources

27 Do you encounter any challenges while using the electronic information resources?

a) Yes { }
b) No (If no, end) { }

28 What are the personal challenges that hinder you from using the electronic information resources?

S/N	STATEMENT	SA	A	U	D	SD
1.	Inadequate knowledge about library system					
2.	Inadequate knowledge about using the computer					
3.	Inability to seek, obtain and evaluate information					
4.	Lack of requisite computer use skills					
5.	Lack of knowledge of availability of resources					
6.	Excessive academic workload					

29 What are your economic challenges on the use of electronic information resources?

S/N	STATEMENT	SA	A	U	D	SD
1.	Unstable power supply					
2.	Poor internet connectivity					
3.	Financial problem					
4.	Inadequate facilities for using e- resources in my library					
5.	Some of the information are restricted and can only be subscribed					

30 What are the social challenges you experience on the use of electronic information resources?

S/N	STATEMENT	SA	A	U	D	SD
1.	It is inadequate					
2.	It is not relevant					
3.	Outdated information resources					

4.	It is inaccessible					
5.	It is unavailable					

31 How often, when using the electronic information resources, do you need help?

a) Very often { }
b) Often { }
c) Sometimes { }
d) Seldom { }
e) Never { }

Thank you.

APPENDIX III

Reliability Statistics

Reliability Statistics of Information literacy programmes

Cronbach's Alpha	N of Items
.666	17

Reliability Statistics of Information literacy skills

Cronbach's Alpha	N of Items
.821	15

Reliability Statistics of Search strategies

Cronbach's Alpha	N of Items
.669	28

Reliability Statistics of Evaluation

Cronbach's Alpha	N of Items
.750	20

Reliability Statistics of Electronic information resources

Cronbach's Alpha	N of Items
.857	43

Reliability Statistics of Challenges

Cronbach's Alpha	N of Items
.823	28