

**INFLUENCE OF INFORMATION LITERACY SKILLS AND USE OF  
ELECTRONIC INFORMATION RESOURCES ON STUDENTS' RESEARCH  
ACTIVITIES OF FEDERAL UNIVERSITIES IN NORTH-CENTRAL, NIGERIA**

**BY**

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## ABSTRACT

The study investigated the influence of information literacy skills and use of electronic information resources on students' research activities in Federal Universities in North-central, Nigeria. The study was guided by six objectives and six corresponding research questions. Survey research design method was adopted for the study. The target population for the study was 137,888 which comprise all students of Federal Universities in North-Central, Nigeria. The sample size for the study was 2,545 drawn using Krejcie and Morgan (1970) table of determining the sample size of a population. Questionnaire was the only instrument used for data collection. Descriptive and inferential statistical tools involving mean, standard deviation percentage and correlation coefficient, were used to analyze data. Out of 2,545 copies of questionnaire administered to the respondents, 2,373 copies of questionnaire were filled, returned and found usable for the analysis representing 93% response rate. The result of the analysis among others revealed that a value of ( $\bar{x}$ =3.08; SD=0.58) was obtained which indicate that information literacy skills level possessed by students were mainly the ability to initiate how and where to find information they need, ability to access needed information related to their topic of research with a value of ( $\bar{x}$ =2.97; SD=0.47), ability to determine needed information for a specific assignment and the ability to use information in critical thinking and problem solving with a value of ( $\bar{x}$ =3.31; SD=0.81). Furthermore, the study revealed that the respondents agreed with all the factors inhibiting or confronting the use of electronic information resources for students' research activities with the exception of item 1 and 7 with the value of ( $\bar{x}$ =2.23; SD=0.27) and ( $\bar{x}$ =2.18; SD=0.32) respectively. The study recommended among others that the management of Federal Universities in North-Central, Nigeria should encourage students on their information literacy skill set by introducing search strategies using Boolean logic and keywords and also enlighten them through workshops and seminars on how to evaluate World Wide Web (WWW) sources as not only sources available on the web can be used for academic activities, the management of Federal Universities in North-Central, Nigeria should try to install Internet services as well as provide alternative means of power supply for effective and efficient use of electronic information resources among students to support their research activities.

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## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.1 Background of the Study**

The university is an environment saddled with the responsibility of teaching, learning, research, knowledge creation and community services. Universities promote teaching, learning and research as privy essential activities in higher educational systems, this no doubt is geared towards improving learning, dissemination of knowledge which increase student research activities, socio-economic development, innovation and high skilled man power. Universities provide research articles, abstracts, theses, dissertations, conference proceedings, textbooks, indexes and other reference materials which assist students and academic staff to produce a better and more quality research project timely and with relative ease (Anyim, 2018). Universities serve as the major strength for the growth and development of a nation as it serves as the highest citadel of learning that undergoes vigorous research activities in order to meet the need of the society through the discovering of new knowledge which augments the effective, relevant and adequate conduct of any research and this serves as the paradigm for undergoing any research activity.

Students' research activity involve collecting, searching and saving information for assignment, thesis, project, dissertation, seminar, conferences and also predicts possible results through the use of research findings. Research gives an understanding and explanation of an incumbent situation and shows the way into getting knowledge to fill the gap identified by the researcher for the incumbent situation the researcher is working upon. Ifedili and Ifedili (2016) defined research as studious inquiry or examination especially investigation or experimentation aimed at the discovery and interpretation of facts, revision of accepted theories or laws in the light of new facts, or practical

application of such new or revised theories or laws. It is an academic, exercise geared towards reviewing and developing new theories and possible solutions to existing problems. Research activity is one of the driving forces for knowledge economy and national progress this is because it is crucial to the existence of universities as it serve as the fundamental process of knowledge acquisition. For students to learn effectively it is essential that engage in research activities, with the view of seeking and identifying solutions to problems. Research is indispensable within the university environment since it serves as a major determining factor to the educational quality of an institution. Therefore, research activity is a systematic investigation into any aspect of education. Research activity skill gives students an opportunity to develop professional approach to scientific skills, develop research skills and evaluates their necessity, search information and collect evidences that apply to research problems, observe, evaluate information and bind it with research problems, observe, determine and evaluate conclusions of research, inform colleagues, tutors and wide audience about the process and results and develop educational skills that can be used in all fields (Tymochko, 2019).

However, education system in the 21st century is anchored on a commitment to supporting students' journey of discovery as it advances in institutions of higher learning. This indicates that all academic activities lays emphasis on developing students' ability to acquire information literacy skills on how to access electronic information resources which both motivate them as it provides them with the opportunity to enquiry, independent learning, innovation, transmit, evaluate information sources, synthesize, navigate search strategies, acquire or download and disseminate information on individuals subject interest which emphasis on producing graduates that are self-directed and lifelong learners (Ukachi, 2015). Thus, there is need for students to equip themselves with Information literacy skills which will assist them in becoming independent lifelong

learners, give them the ability to think, ability to evaluate and synthesize information sources which will improve their searching skills and research activities skills.

The concept of Information literacy (IL) is traceable to Paul Zurkowski in 1974, where he submitted a proposal to the National Commission on Libraries and Information Science (NCLIS), when he was the president of the United States Information Industry Association. Zurkowski speculates that people trained in the application of information resources to their work can be called information literates because they have learnt techniques and skills for utilizing the wide range of information tools as well as primary sources in moulding information solutions to their problems. From its inception in 1974, the concept of information literacy has gained national and international attention across the universe. Such attention has led to its definitions, conceptualizations and explanations from various scholars and institutions with interest in the information profession.

Information Literacy is a set of literacy skills to effectively and efficiently find, use, manage, communicate information for specific purposes, especially for educational success, and daily life activities. Information Literacy is described as an individual's ability to locate, recognize, evaluate, manage, and use information from a variety of sources, both print and electronic, for problem solving, decision making, and research activities in an ethical manner. The American Library Association (ALA) defined 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 (ALA, 2018). Information literacy is an emergent distinct skill and an important key to one's social and economic well-being in an increasingly complex information society and knowledge economy. Information literacy is a student's ability to know when information is needed, locate the information, evaluate the information, and use it effectively in an ethical manner. Information literacy skills have extended to the search for information on

the internet or in a book through the use searching skills as it involves individuals ability to determine whether or not the information obtained is true and reliable and the ability to apply the information where needed (Goode, 2018). Information literacy assists students to locate, correctly evaluate, successfully use and clearly communicate information in its various formats. Information literacy provide intellectual framework for identifying, understanding, evaluating and using information which includes determining the nature and extent of needed information, accessing information effectively and efficiently, evaluating critically information and its sources, incorporating selected information in the learner's knowledge base and value system, using information effectively to accomplish a specific purpose, understanding the economics legal and social issues surrounding the use of information and information technology, and observing laws, regulation and institutional policies related to the access and use of information.

Thus, it is necessary that users of information resources possess requisite skills in order to harness information resources and navigate them at their disposal. Information literacy skills are essential element for the success of students' academic and research activities. Information literacy is identifying when and why you need information, where to find it, and how to evaluate, use and communicate it in an ethical manner, Chartered Institute of Library and Information Professionals (CILIP, 2018). Hence, the continued existence and the relevancy of student's research activities in the university system depends on the ability of the students to exploit available information resources either in print or electronic formats to augment their academic and research activities through the use of their information literacy skills knowledge effectively utilize electronic information resources at their disposal. The growing ocean of information in all formats surrounded by students makes it necessary that they furnish themselves with relevant information

literacy skills on how to navigate and access electronic information resources effectively and efficiently in order to ease their research activities. Therefore, the learning of student's literacy skills to be information explorers and managers is a practical twenty-first century educational goal due to the advancement in knowledge economy and information explosion where by making it necessary for the students to acquire skills which will serve as a guide to effectively and efficiently utilize electronic information resources.

Electronic information resources are information resources that can be accessed, retrieved, stored and used through electronic means such as computer facilities. An electronic resource is a piece of information stored in the form of electrical signals and is commonly found on a computer which includes information available on the internet (Dongardive, 2015). Information in electronic format is accessed via the internet, storage devices such as CD-ROMs, pen drives, and other peripheral devices through the use of computer systems. Electronic information resources as a term, is usually interchangeably used with such other terms as electronic resources, virtual resources, online resources, and digital resources, this is because the resources are born digital and usually in a print format (Ukachi, 2015). Electronic resources are also referred to as digital materials that is, materials available in a digital or electronic format such as CD-ROM, Digital Versatile Disc (DVD), and web sites (Johnson *et al.*, 2012). Electronic information resources are information resources stored in computer or computer-related facilities which are usually accessed via the internet. These resources encompass a variety of digital resources in the appearance of e-books, online-databases, e-journals, Online Public Access Catalogue (OPAC) and other electronic resources. Due to the effective presentation with multimedia tools, e-resources have become the source of information for university students and this has a great influence on their research activities. Therefore, it is essential for students to

have access to these enormous electronic information resources in order to improve their research activities.

The provision and access to electronic information plays an important role in facilitating access to required information by students in a stress-free and quick manner. In order to properly access and utilize the ever-growing range of electronic information resources, students, scholars and users must obtain and practice the skills necessary to exploit them. Tyagi (2014) opines that the ability to use electronic information resources efficiently depends on basic computer skills, knowledge of what is available and how to use it, and ability to define a search problem. Thus, Electronic information resources have become a vital research tools that complement student research activities as it enables students have access to various information sources. Therefore, it is pertinent for students to acquire electronic information searching skills as it serve as veritable sources of information which students tap into to aid their class assignments, writing term papers, projects, seminar presentations, thesis and dissertations and also search for information on their subject areas. Kay and Ahmadpour (2015) asserted that as the number of Electronic Information resources increases, students need to develop skills to seek access to, evaluate, manage, makes effective and efficient use of information resources as well. Therefore, it is of great importance for students to acquire electronic literacy skills as it will ease their search for Electronic Information Resources while carrying out their research activities.

However, the preliminary investigation by the researcher showed that the quality of research output by students is low, which might be due to inaccessibility to electronic information resources, low literacy skills, difficulty in accessing information resources on the databases and difficulty in evaluating information resources for students research activities. All these challenges impede way to the influence of information literacy skills

and use of electronic information resources on student's research activities. Therefore, this study is geared towards measuring the influence of information literacy skills and use of electronic information resources on students' research activities in federal universities in north central, Nigeria.

## **1.2 Statement of the Research Problem**

Research activity is a pre-requisite for the award of diploma, degree and post-graduate certificate in Nigeria Universities. Similarly, students are being taught on the rudiments of research activities in various universities on how to access relevant information resources. In the same vein, the advent of information and communication technology has greatly influence the research activities of students, due to the avalanche of electronic information resources relevant to the students' area of interest.

However, despite the availability of electronic resources many students lack requisite skills, on how to navigate search strategies and how to access related electronic information resources such as journal articles, electronic theses and dissertations, electronic databases, newspapers and other relevant materials for their research activities. Omoisekejimi, *et al.* (2015) asserted that despite the numerous advantages of electronic information resources and its positive effect on students' academic activities in universities, most of the students are yet to harness the golden opportunities provided by these initiatives due to inadequate ICT gadgets where by the students are not adequately utilizing the available electronic information resources owing to lack of awareness and lack of skills required to navigate the modern technology. Similarly, most of the students' information literacy skill is low, which has in turn affected the judicious utilization of electronic information resources vis-à-vis their research activities.

The researcher, based on the foregoing deemed it necessary to embark on this study aimed at investigating the Influence of Information Literacy skills and use of Electronic Information resources on students' research activities in federal universities in North central, Nigeria.

### **1.3 Objectives of the Study**

The aim of this study is to investigate the influence of information literacy skills and use of electronic information resources on students' research activities of federal universities in North-central, Nigeria.

The specific research objectives were to;

1. determine the level of information literacy skills possessed by federal university students in North-central, Nigeria.
2. determine the influence of information literacy skills on students research activities in federal universities in North-central, Nigeria.
3. identify the nature of students' research activities, in Federal universities in North-central, Nigeria.
4. ascertain how information literacy skills, assist students in carrying out their research activities in Federal Universities in North-central, Nigeria.
5. determine the influence of use of electronic information resources on student research activities in Federal Universities in North-central, Nigeria.
6. determine the challenges of information literacy skills and use of electronic information resources on student research activities in Federal Universities in North-central, Nigeria.

### **1.4 Research Questions**



The following research questions were raised to guide the study:

1. What is the level of information literacy skills possessed by federal university students in Federal Universities in North-central, Nigeria?
2. What is the influence of information literacy skills on students' research activities in Federal universities in North-central, Nigeria?
3. What is the nature of students' research activities, in Federal universities in North-central, Nigeria?
4. What are the information literacy skills that assist students in carrying out research activities in Federal Universities in North Central, Nigeria?
5. What is the influence of use of electronic information resources on student research activities in Federal Universities in North-central, Nigeria?
6. What are the challenges of information literacy skills and use of electronic information resources on student research activities in Federal Universities in North-central, Nigeria?

## **1.5 Hypotheses**

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

H<sub>01</sub>: There is no significant relationship between the level of information literacy skills and the nature of students' research activity in federal universities in North-central, Nigeria.

H<sub>02</sub>: There is no significant relationship between the use of electronic information resources and student research activities in federal universities in north central, Nigeria.

H0<sub>3</sub>: There is no significant relationship between information literacy skills and the use of electronic information resources on student's research activities in federal universities students in North-central, Nigeria.

## **1.6 Significance of the Study**

This study would be beneficial to university students because the study will assist the students to better understand the relevance of information literacy skills and electronic information resources in their learning and research activities. The study will also help to advocate information literacy skills and use of electronic resources in higher education curriculum.

The outcome of the study would serve as a blueprint to researchers and lecturers by providing adequate information literacy skills and electronic information resources needed by them to improve their searching skills and also evaluate information resources effectively and efficiently which will ease their research activities and in turn facilitate their research output.

The study will also stand as a guide to those who would be writing on the same field or similar fields and also stand as a reference and guide to researchers, institutions. The study will help researchers to better understand electronic information resources and information literacy skills and become critical information consumers of the published literatures.

## **1.7 Scope of the Study**

The study focused on the influence of information literacy skills and use of electronic information resources on students' research activities in federal universities in north

central, Nigeria. The geographical scope of the study covered the Federal Universities Students in North-central, Nigeria. The universities comprised of Federal University of Technology Minna, Niger State (FUT); University of Abuja, Federal Capital Territory Abuja, Federal University Lokoja, Kogi State, University of Ilorin, Kwara State, Federal University Lafia, Nasarawa State, University of Agriculture Markurdi, Benue State and University of Jos, Plateau State.

## **1.8 Operational Definition of Terms**

The following terms were defined as used in the context of this study for the purpose of clarity and precision:

**Electronic information resources:** The collections of varieties of information sources available in a digital environment which is access via internet and computer facilities.

**Federal University:** These are tertiary institutions established by federal government to provide literate students with high skilled manpower to improve a nation's development.

**Information literacy skills:** Students ability to locate, evaluate, manage, and use information from a variety of sources, both print and electronic, for problem solving, decision making, and research in an ethical manner effectively and efficiently for their research activities.

**Influence:** Impact, effect, and relationship between information literacy skills and electronic information resources on student research activities.

**Research activity:** Activities carried out by university students in their cause of learning which includes assignment, term papers, projects, seminar presentations, conferences, thesis and dissertations.

**Students:** learners trained with literacy skills in order to access, evaluate information critically, effectively and efficiently.

**University:** a learning environment that is saddled with the responsibility of teaching, learning, research and knowledge creation.

## **CHAPTER TWO**

2.0

LITERATURE REVIEW

2.1 Conceptual Frame Work

The conceptual model was designed by the researcher based on the theoretical model and literatures reviewed.

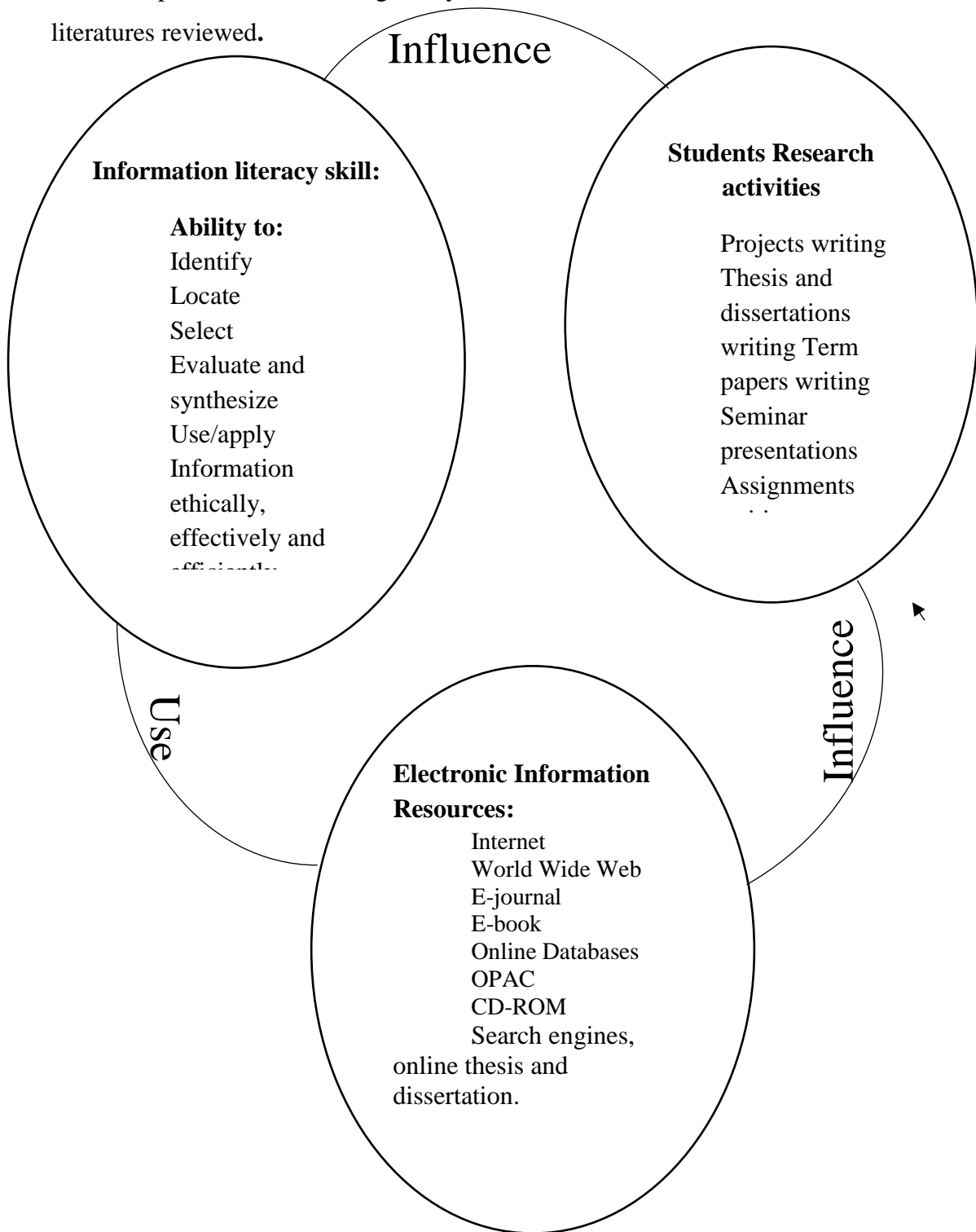


Figure 1: Conceptual model for information literacy skills, electronic information resources and students research activities (Developed by the researcher)

The model describes the relationship between the variables using arrows; information literacy skills, electronic information resources and students research activities. It is presumed by this study that students who have the Information Literacy Skills which involve the ability to identify, locate, select, evaluate and apply information will be to use electronic resources effectively and efficiently for their research activities. Also the study presumed that both Information Literacy Skills and use of Electronic Information Resources influence students research activities. Therefore, student research activities are dependent on Information Literacy Skills and use of Electronic Information Resources.

### **2.1.1 Concept of Research Activity**

The conduct of research is one of the main activities of tertiary institutions. Research activity is geared towards student's participation in conducting research. It involves the development of one's knowledge which leads to a new knowledge and transformation. Avdiu (2017) define research activities as the main pillar in every development and transformational process for every society, especially for the student development and transformation process. Research activities indicate that students identify a suitable research problem which is worthy of investigation. Thus, research activity elaborates the processes of teaching, learning research and cultural development. Research activities represent student's dynamic process of personality growth which is characterized by student's self-organization and self-fulfillment while carrying out research in their respective institutions, (Belova and Belov, 2016). In addition, research activity is one the criteria for the award of certificate in all higher institutions of learning as it is globally accepted that teaching, research and community service is the main pillar and functions of higher institutions of learning. Research activities involves specialized forums which leads to the production of academic writings that involves projects, thesis and dissertations, seminar papers, scientific seminar, book review sessions, conferences and

workshop which is of a great benefit to researcher's educational attainment, (Razeghi, 2019). Research activities increases individuals' knowledge of which social, economic and technological advancements which researchers mainly depends on.

Previous researches have shown that research activity has become one of the driving forces of national development in the information and knowledge economy. However, Kutumova and Kushnir (2014) highlighted the benefits of higher professional education to include several areas for applying and implementing types and forms of students' research activities which include enriching traditional academic forms of educational process organization; lectures, seminars, practical and laboratory studies, by performing research-type tasks; developing extracurricular forms of involving students in scientific activities, that includes writing scientific reports, articles, preparing reports and scientific conferences. This corroborates with the study of Nwankwo (2015) which highlighted the benefits accrued from research activities to include quantitative education which makes acquisition of useful skills, desirable values, knowledge, attitudes, ideas and competencies necessary for self-reliance and of which can only be possible through adequate research work. Thus, this can also results to qualitative instruction, articulate and confident graduates for the society's developmental activities, improvement in educational Practices through research. Therefore, adequate research leads to the discovery of new techniques, ideas and ways of doing things which will in turn transform the society educational activities at large.

### **2.1.2 Concept of Students Research Activity**

Students engage in various forms of educational activities that involve writing of journal articles, writing of assignments, writing of projects, writing of thesis and dissertations, preparing for seminars, preparing for conferences, preparing for workshops, preparing for examinations, group discussion, sharing knowledge, and updating of knowledge.

Andrienko and Efimenko (2018) defined student research as an undergraduate or postgraduate research project undertaken by a student, supervised by the student's department and the results of which are reported in student's projects, thesis or dissertation. Research is crucial to the existence of universities as it serves as the fundamental process of knowledge acquisition. For students to learn effectively it is essential that engage in research activities, with the view of seeking and identifying solutions to problems. Research is indispensable within the university environment since it serves as a major determining factor to the educational quality of an institution. Therefore, research is a systematic investigation into any aspect of education. Knowledge acquired from research through project writing thesis and dissertations when transformed into practice contributes to education through improvement in educational outcomes and refinement in skills, leading to improved standards of societal development (Bently and Kyvik, 2013). There is need for Students to be self-motivated while carrying out their educational research activity because it facilitates their conduct of research, thus a number of research training and practice events are organized for students during their course of educational study.

Educational faculties and graduate school faculties also offer extra courses, workshops or tutorials to assist students who wish to enhance and facilitate more on their research skills. More emphases in these activities is laid on specific interest of researchers knowledge, specific subject interest of research skills which are research methodologies and generic research skills which include project, theses, dissertation, management, academic writing and presentation skills (Olibie *et al.*, 2014). These will help the students develop the skills needed for effective research. Students involve in various academic activities in order to boost their academic performance. Academic performance is the ability to study how well a student is accomplishing his or her tasks and studies (Bessarab, 2021). It is the ability



of a student to remember facts and being able to communicate knowledge verbally or written on paper. Thus, Academic performance comprises of different areas of learning that includes students' research activities. Student's research is a vigorous activity that highlights the process of research, which encompass ways of promoting research activities by developing student's research skills. It involves learning attitudes which simulate students research activities such as (assignments, projects, thesis and dissertations, writing reports, preparing for seminar and conferences) thereby giving students first- hand experience of research based consultancy through live projects, bringing research data into the curriculum for students to manipulate (Anderson and Priest, 2014). Examination, assignments, projects, theses and dissertations are embraced and used in tertiary institutions, as the basic organism for students' research activities during the course of pursuing an academic programme.

### **2.1.3 Concept of Information Literacy Skills**

The concept of information literacy compels that an individual develop the ability for the need of information, the ability to find, search, effectively utilize and then use information in an ethical manner to identify and proffer solutions to problems or to make decisions. An information literate student is knowledgeable and has the ability to learn independently. Therefore to be literate literarily means having the skills of reading and writing in any language, this implies that it is necessary to train students to be information literate (Ajayi *et al.*, 2014). An information literate student is one who is self-reliant and capable of finding good quality information and making judicious use of it. It is pertinent for students to acquire information literacy skills that will guide them in becoming information literate individuals and independent life longer learners.

Information literacy deem it necessary for students to be kept abreast with the massive production of information sources in the 21<sup>st</sup> century so as to ensure that they have the

knowledge and ability to search for information from different sources which will boost and increase their academic learning skills. Thus, Information literacy skills are essential components of a successful academic career, (Oakleaf, 2018). The acquisition of information literacy skills has become much important for academic success in the 21<sup>st</sup> century since information is produced in large quantities. Therefore, Information literacy is one of the most important learning skills of the 21st century which is important for every student to possess the personalities of information literate person so as to accelerate in their course of study and general endeavours, (Adeyemi, 2017). Hence, for students to effectively and efficiently identify when information is needed and utilizes available information it is necessary for them to acquire literacy skills for them to become independent lifelong learners. Information literacy is the ability to identify which information is needed, understand how the information is organized, the extent to which information is needed, identifying the best sources of information for a given time, locate the sources where information can be retrieved, evaluate the sources critically by examining the source of the information and share that information for effective utilization by students, (Okon *et al.*, 2014). Information literate person is an individual who has the ability to utilize wide range of information resources in order to proffer solutions to the problems identified through the use of information literacy skills.

Information literacy skills enable students to access, use and communicate information it stand as the basic for lifelong learning in the present world. In a similar vein, Moustapha (2021) defined information literacy as a comprehensive set of dispositions for action, which include more or less complex abilities and knowledge for solving information-related problems or ambiguities of action. This is because the information literate student has improved critical thinking skills that involve effectively utilizing information resources efficiently, ability to identify when information is needed, ability to evaluate

and synthesize information sources in order to become independent lifelong learners who can use and converse information appropriately.

Information literacy skills serve as the bedrock for life long and independent learning and it is pertinent for students acquire the literacy skills to aid their information retrieval. Therefore, for an individual to be successful in searching and retrieving of information will be determined by an individual's level of information literacy skills, hence it is necessary for students to acquire this literacy skills in order properly navigate their search strategies and be able to proffer solutions to their identified problems, (Madu and Dike, 2012). Information literacy skill is a facet of information literacy that has been identified as the process of attaining the abilities that assist in building an information literate person. Similarly, University of Idaho Information Literacy Portal (2011) and Limberg *et al.*, (2012) defined information literacy skills as the capability to identify needed information, understand organization of information, identify appropriate information sources, locate these sources, critically evaluate the sources to formulate search and make ethical use of information in learning environment. Hence, in searching, selecting critically, evaluating, locating and using information to solve specific problems in learning environment there is need for an obtain information literacy skills as forms the basis for lifelong learning and which is common to all disciplines, all learning environments, and to all level of education. Information literacy skills enable individuals to recognize not only when information is needed, but also when different kinds of information are needed (Adeleke and Emeahara, 2016). The acquisition of information literacy skills is an essential element for students' learning and literacy skills in order to evaluate and make ethical use of information critically.

However, scholarly communication is impossible without implementation of Information Literacy skills; it is necessary that researchers from all disciplines acquire skills on how

to search for information, how to evaluate it, how to produce and present new information in a proper, ethical manner effectively and efficiently which is available various electronic formats in digital environment (Ivana, 2016). Therefore, information literacy skills are basic in selecting and retrieving pertinent and current information in an online environment. Information literacy skills acquisition is absolutely crucial in using online resources since most information is available in electronic format that could exclusively be used when students are information literate. These skills are compulsory due to the proliferation of electronic information resources as well as the numerous mediums of access and the different formats in which information is available. Muhia (2015) asserted that abundance of information and technology will not in itself create more informed citizens without a complimentary understanding of and capacity to use information effectively. Information literacy skills allows students to develop the capacity for independent learning, which is the benchmark of a higher education, it furnishes them with the proficiency to update their knowledge and skills after graduation. Therefore, information literacy skills enable tertiary institution students to make remarkable and enthusiastic use of digital information when carrying on their research activities.

#### **2.1.4 Concept of Electronic Information Resources**

Electronic resources are collections of information in various formats produced by electronic means which form a fundamental part of an electronic record and which is usually kept separately inside a digital file that make up the whole of the electronic record. Electronic resources are materials that are made available online and can be retrieved electronically through computer networked facilities such as online library catalogues, the Internet and the World Wide Web, digital libraries and archives, government portals and websites, CD-ROM databases, online academic databases, such as Medline or commercial databases, (Karunarathna, 2014). Electronic record includes electronic

information resources. Ugwu and Onyegiri (2013) clearly gave examples of electronic resources which include, but are not limited to: web sites, online databases, e-journals, e-books, electronic integrating resources, and physical carriers in all formats, whether free or fee-based, required to support research in the subject covered, which could be audio, visual, and text files.

Electronic Information Resources are information resources stored in computer or computer-related facilities which are usually accessed via the internet. Therefore, Electronic resources are electronic information storage systems that can be accessed via electronic systems and computer networks such as internet connectivity, (Khan, 2016). This corroborate with International Federation of Library Associations and Institutions (IFLA 2012), defined electronic resources as materials that need access either remotely (via the Internet using a personal computer or mainframe or handheld mobile device) or locally. Similarly, Evensen *et al.* (2012) also referred to e-resources as those materials that require computer access whether through a personal computer, mainframe, or handheld mobile device. An electronic resource comprises of part of information that is made available in the form of electrical signals which is commonly found on a computer that includes information available on the internet (Dongardive 2015). The importance of e-resources cannot be overemphasized as it serves as one of the driving forces that direct the formation of the educational society through the use of online materials available in digital format. Electronic resources are also referred to as digital materials that are materials available in a digital or electronic format such as CD-ROM, DVD, E-journals, and web sites (Johnson *et al.*, 2012). Electronic information resources is identified as recent developments in information society which is made available in different formats like e-books, digital libraries, online journal magazine, e-databases and online test. Similarly, Ekere *et al.* (2016) asserted that electronic information resources include

World Wide Web, WIFI, search engines, online indexes, video CDs, Very Small Aperture Terminal (VSAT) based Internet connectivity, online Library catalogue, online databases, portals, E-journals and E-books. These Electronic information resources allow individuals to search for relevant articles in any subject area from different varieties of sources and formats.

Electronic resources are the electronic representation of information which is made available in various forms like e-books, digital libraries, online journal magazine, e-learning tutors and online test. Due to the effective presentation with multimedia tools, these e-resources have become the most use source of information (Thanuskodi, 2012). Electronic resources provides the collection of information resources in a form of full text databases, e-journals, image collections, multimedia in the form of CD, tape, internet, web technology. E-resources also include e-journals, e-discussions, e-news, e-data archives, which are all referred to as electronic information resources. In addition, electronic information resource are available in a wide variety of formats ranging from electronic periodicals to CD-ROMs, from mailing list to databases, all with the same characteristics of being used and a times transformed by a computer (Ajayi *et al.*, 2014). All this identified products of electronic resources have common characteristics and work in a similar process in an online environment. There are several forms and types of electronic resources available on the internet, which are mostly available in an online which include the electronic journals, standards, technical specifications, reports, patents, full text articles, trade reports and hosts of other (Dhanavandan *et al.*, 2012). Electronic information resources in an online environment includes, e-books, e-journals, e-thesis and dissertations, e-databases, e-news which all provide current information resources that facilitates students learning.

### **2.1.5 Nature of Students' Research Activities.**

Higher education and research have become strategic activities for the development of the knowledge society. Research plays a fundamental role in the systematic development of new knowledge which is crucial to the effectiveness of all higher education. One of the elementary duties of higher education is to advance, by creating and disseminating knowledge through research and deliver service to the communal, constant supply of qualified young researchers to assist societies in cultural, social and economic development (Njuguna and Itegi, 2013). Through research, higher education contributes to innovation for mobilization of resources. Students undertake research to expand the body of knowledge in their field of study thereby proffering solutions to the problems in society. This includes engaging students in all activities of student academic life including: class attendance, assignment completion, interaction with peers and instructors, and enrolment and participation in extra-curricular activities (Schoffstall *et al.*, 2013). Research is the foremost source of information to establish facts and reach new conclusions which assist to transform people's understanding of the world around them and thus immeasurable educational problems are solved through research.

One of the basic goals of a university is to provide facilitating atmosphere for the conduct of research and dissemination of knowledge for societal development which also necessitate the use of information critically in order to be successful in research. This is also equivalent for students who, as learners in the field of academic writing, to study substantially and develop their ability in the conduct of research, thereby finding the necessary sources of information and making skillful use of information sources and also outline the knowledge they have congregated into academic assignments which also involves projects, thesis and dissertations, seminar papers, and presentations. In order to complete all these academic tasks, students have to carry out research, which primarily involves finding sources of information and using them properly in order to ease their

research writing, (Saunders, 2015). However, Roubtsova (2015) describes the nature of student's research project as quantitative, qualitative, experimental, descriptive, correlational and meta projects in nature. Thus, this nature of students' research can be used as a guideline by students to ascertain type of research they would likely embark on.

#### **2.1.6 Influence of Information Literacy Skills on Students Research Activities.**

Information literacy skills ensures that students' pose and develop fundamental skills for their academic success, work and everyday life, which includes skills such as critical thinking, problem solving, research, creative thinking, communication and teamwork which guide and assist them in conducting their research activities. Information Literacy skills is one of the basic necessity in the knowledge economy because the skills allows users of information to deal with evolving challenges of multidimensional information landscape by giving them the skills to know when and where to locate information effectively and efficiently, (The Association of College and Research Libraries ACRL, 2014). The significance of information literacy skills is very important to students at it facilitates their effective and efficient use of information resources in an electronic online environment. Information Literacy enables students to recognize untrue information and misinformation, inorder for them to make truthfully informed decision, by critically identifying sources of information, evaluating and synthesize information it original source (Mahmood, 2013). Thus, inorder to determine the credibility and the reliability of information in the present age where information is produced in a massive rate it is pertinent for students to make use of Information Literacy skills to identify sources of information, identify when information is needed, evaluate information sources critically and make effective and efficient utilization of information resources for their research activities.



Hence, due the increase in the volume of information resources, information users such as students and researchers are possess requisite search skills to effectively and efficiently exploit the available information resources. Therefore, Information Literacy is an essential skill that will guide and assist students to navigate literacy skills with the ability to access, evaluate and use information appropriately for their research activity in an ethical manner. Information literate students is expected to exhibit an awareness on how they gather, use, manage, synthesize, evaluate and create information in an ethical manner and also have the potential information literacy skills to effectively utilize information the available information resources, Society of College, National and University Libraries (SCONUL) Working Group on Information Literacy, (2011).

Information literacy skills guide and assist students in formulating a search strategy, recognizing appropriate information sources, identifying information needed, selecting the right search tools, employing suitable search strategies and also evaluate the searched results by synthesizing the information sources. Information literacy skills proffer solutions to identified problem and also encourage critical thinking skills in questioning and looking for answers, finding information, evaluating sources and making decisions sourcing for information while conducting research. Information literacy skills are fundamental research skills; this is in accordance with University of South Carolina (2018), which listed Ten Top Information Literacy Skills as follows:

**1. Know when information is required**

- Students should to be able to determine when information and research is needed for a specific assignment or academic task.

**2. Know how to write a research question**

- Once students know what information is required, they should understand how to formulate a research question.

- Know where to find information
- After receiving instruction from librarians and classroom teachers, students should be able to locate quality materials in the library and online.

### **3. Determine/understand sources of information**

- Students should understand where information comes from. For example, would an assignment be best served by using a book, article, website, or newspaper article, and knowing the difference between each?

### **4. Select the best source**

- Having sought out sources of information, students should be able to determine which ones are the best.

### **5. Organize information**

- The student should be able to decide how to compile and consolidate all of this information.

### **6. Use the information**

- After they have selected quality information sources, students should be able to use the information to complete the assignment, task, or project.

### **7. Present information**

- Whether it is a paper presentation, or project, there is always an outcome to information seeking.
- Students should be able to present a quality presentation or product.

### **8. Evaluate information**

- Students should be able to look back on their work to see what was successful and what could have been improved. What additional information could be located in the future, what information seeking behaviors could be changed?

### **9. Use information in an ethical manner**

- Students must know how to cite and use their information in a fair and ethical manner.

Thus, Information literacy skills enhance students' research activities experience by engaging, improving retention, and handling with motivating learning circumstances. The ability to find, analyze, and use information is essential in a knowledge society and global culture as information literacy skills equip students and researchers for a lifetime of independent learning and personal liberation. In addition, Soleymani (2014) and Brindha (2016) emphasized that the ability to accommodate oneself with the changes, competitiveness, and lifelong learning are required for success in the present day society as Information literacy presents an educational approach that enables students to better appreciate the importance of information and use information effectively and efficiently for their research activities.

Therefore, students, especially tertiary institution students, need to acquire vast amounts of knowledge and skills to function most favourably in their chosen discipline as well as occupations presently or in the nearest future. Information literacy skills are a substantial determining factor for vigorous and research result driven activities in the research process as it enhances students' proficiency which include evaluating, managing, and the use of information effectively and efficiently for their research activities as it has become an indispensable vital tool due the present era of information explosion (Odede, 2018). It is important for students to acquire Information literacy skills due to the rapid growth of information systems and information resources. The rate at which information is produced will not make students a better informed citizen, unless the students are acquainted with the responsibility of thinking critically and ability to use information sources skillfully of which they have access to inorder to develop their ability of searching skills for research activities.

### **2.1.7 Influence of Electronic Information Resources on Student Research Activities.**

Electronic information resources, has a great influence on students research activities as it has become a crucial element in the academic environment, this is due to advent of the 21st Century which is characterized by proliferation of electronic resources (e-resources) that has immensely change the information searching behaviour of students and researchers generally. The emergence of electronic information resources has immensely transformed information handling and management in academic environments (Gakibayo *et al.*, 2013). In recent times, electronic resources have been identified as the major sources for information dissemination in all spheres of life, especially in universities where students make use of electronic information resources for their academic and research activities as it has become a vital resources for teaching, learning, research and community growth in any academic environment, it also provide up to date information resources for students' academic purposes such as research which they mostly depend on for their academic activities, (Amankwah, 2014). Electronic Information Resources serve as an inspirational factor to students as it provide them with the opportunity to transmit, acquire or download, process and disseminate information on any subject of interest. For an individual to carry out research there is need for extensive searching of literatures which is one the reasons why students rely on the use electronic resources for their research activities. E-resources are described as information resources being published in electronic an electronic format which can be access via the internet by the researchers and students inorder to review literatures relevant to their research activities.

Hence, universities students make use of Electronic Information Resources for various academic research activities purposes. These activities include class assignments, writing term papers, augmenting class works, retrieving current literature for studies, following

blog discussions on subject areas of interest, searching for scholarship opportunities, searching for internship placement and for research purposes (Ukachi, 2015). However, Electronic Resources are veritable sources of information which students could easily tap into in order to aid their class assignments, writing research and term papers, and searching for information on relevant to their subject areas. Thus, the provision of Electronic Information Resources is important for students learning and research, due to the numerous importance of e-resources to students' academic activities which include: information communication, information delivery, retrieval as well as institutional delivery to aid teaching and research activities in higher institutions of learning (Egberongbe, 2011). Electronic information resources provision makes it possible for students to access new tools and applications for information seeking and retrieval which provides relevant information sources for the conduct of their research activities. Therefore, Electronic Information Resources are fundamental element in enhancing research, development activities and improving the intellectual efficiency of students and researchers, (Kumar, 2016). The use of Electronic Information Resources has increased to the extent that it serves as one of the fulfillment of students and academics research activities. Hence, Electronic Information Resources have increasingly become a valuable asset in education, research, teaching and learning owing to the fact that it has become an indispensable research tools that supplement knowledge and the print collections of information resources owing to the shift to non-print information resources.

Thus, the provisions of electronic resources in tertiary institutions of learning have become a new way of gaining quick access to unlimited number of research information and dissemination globally due to its advantages that includes: 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 (Egberongbe, 2011). As a result of the potential benefits offered by electronic resources, students have well harnessed to it as it provides them with exceptional opportunities to access scholarly information for from any geographical location for their research activities. Electronic Information Resources have transformed the conduct of research and teaching in universities by granting both Academic staff and students' the opportunity to access a wide range of accurate and timely information on various subjects (Owolabi *et al.*, 2012). Therefore, Electronic information resources serve as veritable sources of information which students could tap into to aid their class assignments, research and term papers, and also search for information on their subject areas. Electronic Information Resources are extremely essential teaching and research tools, which supplement print-based resources which enrich the learning and research processes in any academic institution (Iroaganachi, 2016). Electronic information resources are of paramount benefit to university students, who are struggling for academic achievement through research. However, in the academic environment, electronic resources are increasingly dominating the research activities of researchers this due the fact that researchers have realized the importance of such resources that is it timeliness and relevancy (Mammo and Ngulube, 2015). Electronic resources provide accurate and timely information, especially for students who are dependents on the electronic resources for information to advance their research activities. Due to the several advantages of electronic resources such as timeliness, search facilities, remote access and up datedness, it has become more indispensable in the academic environment. Thus, Electronic resources usage has become vital as it provides students and other users with timely, easy to access and up to date information which students find to be useful for their academic and research activities.

Electronic information resources are up-to-date, which can be accessed everywhere across the globe and it also add values to research and development activities. Electronic resources are generally accepted and used in universities today for student's research due to its relevancy. Printed materials which served as the main sources of research materials for students' research in tertiary institutions in the past are being interchanged today by electronic resources. Okite-Amugoro *et al.* (2014) opined that the academic world has come to an era where printed materials for research are being replaced by electronic materials that can be accessed via the internet. Electronic resources allow users to search multiple electronic print materials at a time more easily than using print equivalent. However, Msagati (2014) revealed in his study that scholarly electronic resources have become essential tools for learning and research in higher education due to the provision of quick access to timely, high quality and relevant scientific information to scholars with a view to keeping them abreast with new discoveries and development. Raghuveer and Kalyan (2014) ascertained that for learning, teaching, research, educational updates, the scholars need to be familiar with the available e-resources. It is necessary for students to have adequate knowledge of the electronic resources made available for in order to ease the searching for information resources that will guide in their scholarly writings.

#### **2.1.8 Challenges of Information Literacy Skills and Use of Electronic Information Resources on Student Research Activities.**

Fundamental and rapid changes in the information environment due to massive production of information have enabled more accessibility to a widespread of information material online, as it has contributed to numerous access points, which has resulted to the electronic information environment and this appears to be complicated to the tertiary institution students as they find it difficult to access electronic information resources. The lack of information literacy skills has brought about difficulty to the use of electronic

resources by students and this lower the quality of their academic performance in the technology era (Kodani, 2012; and Ivana, 2016). However, this is happening due to students inability to possess information literacy skills that will assist and guide them in accessing electronic information resources, some research students lack the skills and competencies in the identification, gathering and use of electronic information resources owing to the fact that they have not kept pace with the rate of change in information environment because as they find it difficult to access multiple format of information resources electronically.

Thus, the rate of the production of electronic resources has changed the whole status quo of education and information industry and students are facing challenges in accessing electronic information resources for their research activities due their low literacy skills. This has posed a great challenge to students research activities, due their inability to use and access multiple formats of information resources available effectively and efficiently (Dalvi *et al.*, 2020). The explosion of information at an alarming rate makes it difficult for students to obtain the relevant information resources needed for their academic success, because most of the students make low usage of the electronic information resources due to power erratic power supply challenges, internet connectivity problem, cost of using the internet and lack of information literacy skills. Thus, the low usage of e-resources is attributed to the lack of access to scholarly databases, which emanates from slow Internet speed, high cost of Internet use (Kwafoa *et al.*, 2014) and frequent power cuts (Amankwah 2014; Obeng-Koranteng and Dzandu, 2013). Similarly, Moustapha, (2021) also identified that the most common problems with e-resources are low speed internet connectivity, lack of awareness about the importance and provision for accessing e-resources by higher institutions students, technical problems such as electricity



problems, unavailability of sufficient e-resources and high purchase price of electronic databases.

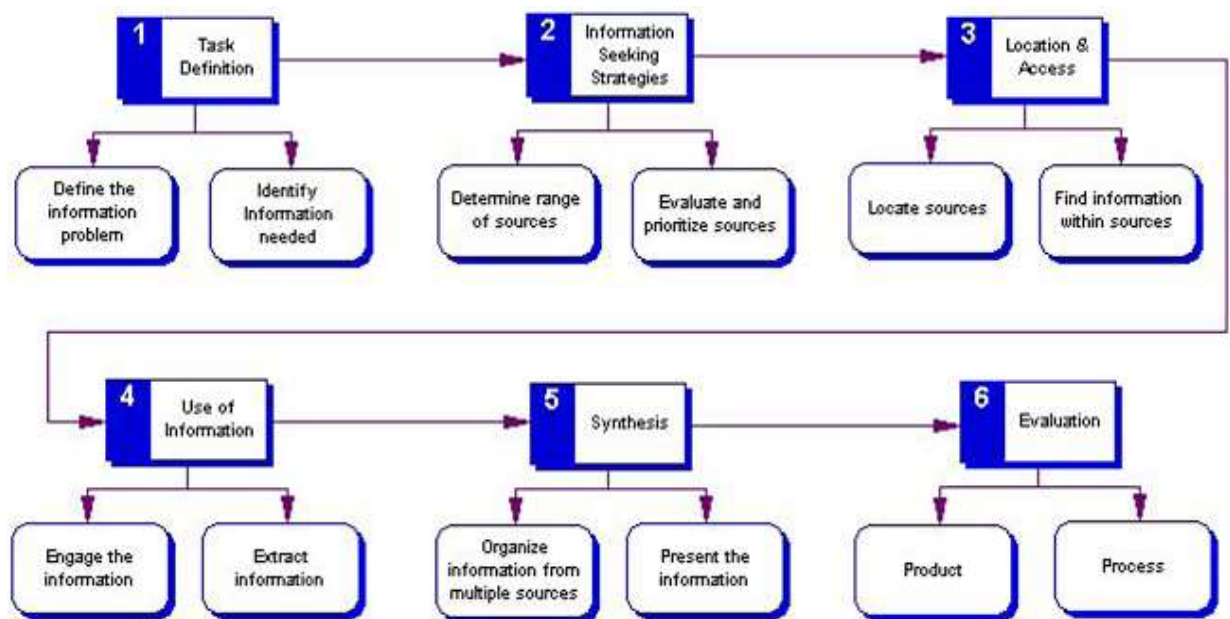
Students often get frustrated and stranded while searching for information resources in an online environment due to their inability to skillfully navigate searches which hinders their attempt to search for their related courses. Students always find it difficult to get relevant information for their research activities due to slow access speed of the internet which is the most common problem attached to students use of electronic information resources, (Madhusudhan and Singh, 2016). Students also lack the skills and ability to identify and search for information resources which can aid them in their research and general academic activities due to the lack of information search skills, lack of training skills and this hinders their search for electronic information resources. Thus, lack of basic skills to use available electronic resources have become a constraint to the academic performance of students as well as their research output in the information era, (Kodani, 2012). This corroborates with Imsong and Kharbudon (2016) who observed in their study the constraints in using e-resources include students' inadequate skills in locating and evaluating information and these impedes their effective utilizations which indicates that most of the students are not familiar with the electronic environment.

Furthermore, Studies conducted by Oluwaseye and Abraham (2013), Abubakar and Adetimirin (2015) revealed that the rate at which student make use of e-resources is poor due to under underutilization of available e-resources, which is attributed to lack of information literacy skills which has affect their ability to effectively and efficiently locate, identify and make use of needed information resources in an ethical manner for their research activities which hinders their use of electronic information resources. These also include lack of knowledge, inadequate skills in training students, and inability to access variety of information sources. Similarly, Egberogbe (2011) listed some factors

hindering the use of electronic resources in Nigeria higher institutions to include lack of strategic planning, adequate or reliable funding, and inability of tertiary institutions to provide free internet services to users amongst others. These challenges has pose a major constraint in the students use of electronic information resources for their research activities due to their low literacy skills, inability to identify, access, search, evaluate and use information ethically, efficiently and effectively for their research activities.

## **2.2 Theoretical Frame Work**

### **2.2.1 The Big 6 Information Skills Model**



**Figure 2: The Big Six Information Skills Model (Eisenberg and Berkowitz, 1990)**

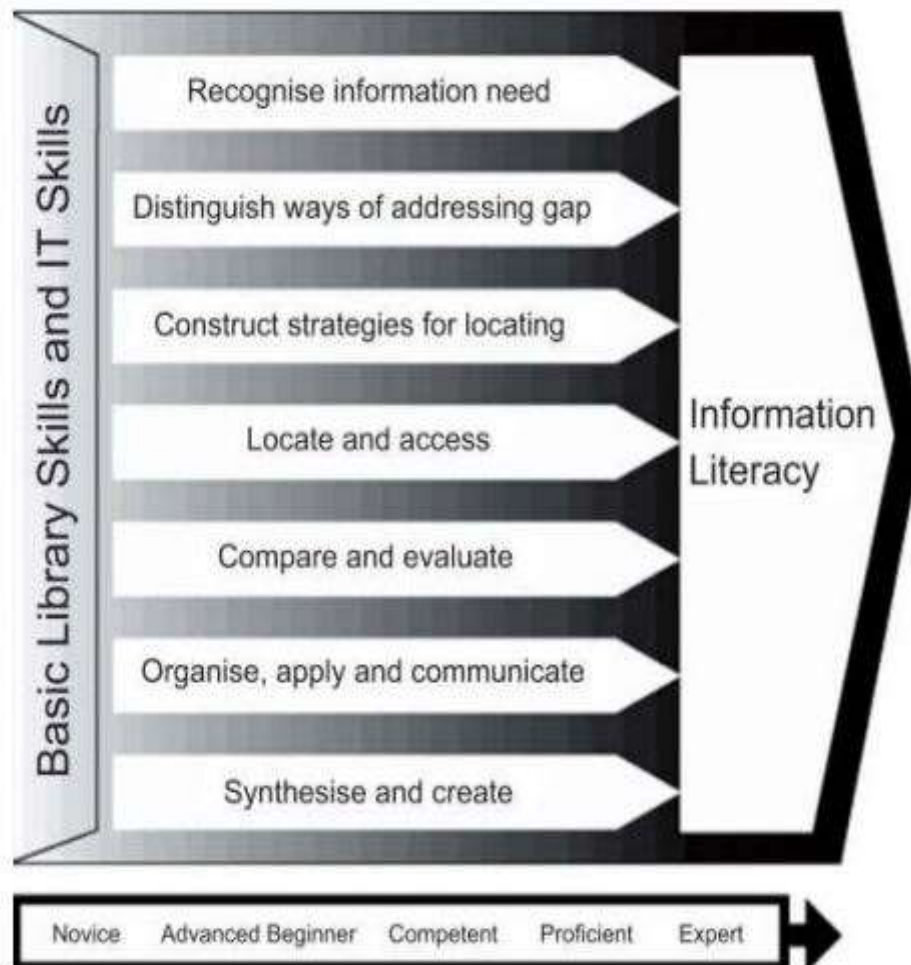
The Big Six information skills model developed by Eisenberg and Berkowitz in 1990 was adopted for this study (Figure 1). The Big 6 information skills Model developed by Eisenberg and Berkowitz in 1990, is a 6 stage model to help people solve problems or make decisions using available information. Each of the six steps has two sub-skills. **Task definition** requires students to identify the exact information problem presented to them. They must also identify the types of information needed in order to solve the problem. They must have a clear hypothesis, a specific question, and a clear understanding of what is needed in order to answer that question. The **Information seeking strategies stage** requires students first to identify all the possible sources of information, and then to evaluate each source to determine which are best for them to use. The next two steps, **location and access and use of information**, are comprised of traditional bibliographic skills. Students must not only find individual resources such as books, magazines, reference materials, and Web sites, but also find the information within each source through the use of tables of contents, indexes, and other resource-specific tools. Next, they must engage each source (read, view or listen) and extract specific information from it through the application of note-taking, highlighting, and summarizing. **Synthesis**

requires students to make a decision, create a product, or formulate an answer. Synthesis is linked to task definition in that students are expected to answer the specific question they created when initially engaging in the problem-solving process. Finally, **evaluation** requires students to evaluate not only their final product but also to evaluate how well they perform the information solving tasks.

From the above model of information literacy, it attests that information literacy is vital when it comes to accessing electronic information resources because it serves as a guideline to students while identifying a problem. Therefore, it is pertinent to note that Information literacy skills and Electronic information resources can be used by students for their research activities and this is in line with the Big 6 Information Skills Model propounded by Eisenberg and Berkowitz in 1990 which will serve as one of the backbones that this research work will be built on. This is because the Big 6 Information Skills Model of Eisenberg and Berkowitz is more about information literacy skills and use of information resources.

However, this model is relevant to this research work because it mainly deals on the use of information skills and information resources. The model links information search skills and literacy skills to access electronic information resources in a logical method which involves find, use, apply, and evaluate information for specific needs and tasks. Thus, the use of electronic information resources by students and the extent to which they use them will depend on their ability to define their information need, locate information, evaluate and apply it accurately to meet their research activities which involves writing projects, thesis and dissertations, term papers, seminar presentations, writing assignments, supplementing class works and sourcing for information in their subject areas.

### **2.2.2 The Seven Pillars of Information Literacy model**



**Figure 3: The Seven Pillars of Information Literacy model by the Society of College, National and University Libraries (SCONUL, 2011).**

The study adopted the Seven Pillars of Information Literacy model by the Society of College, National and University Libraries (SCONUL, 2011). The model is designed practically to assist in developing ideas amongst information learners. The Seven Pillars model reflects a behavioural framework of information literacy and aims to provide a practical working model of information literacy that is useful for programmes in higher education.

From the pillars it shows an iterative process that is responsive to the information users as they progress through competency to expertise by practicing literacy skills. Individual pillar is a reflection of different process relating to information skills and behavioural

attitude. Therefore, students who demonstrate attributes as stipulated in the pillar is considered information literate as they have the ability to identify, locate, determine the extent of use of information for their research activities.

### **2.3 Review of Related Empirical Studies**

This section deals with empirical studies related to this research work conducted by different authors. Thus:

A study conducted by Adeniran and Onuoha (2018) on Influence of Information Literacy Skills on Postgraduate Students' Use of Electronic Resources in Private University Libraries in South-West, Nigeria. Survey method was used to randomly select the sample size 550 postgraduate students, while copies of questionnaire were adopted as data collection instrument. The study revealed that when the students were asked on the purpose why they use the following Electronic resources, majority of the respondents 221(45.9%) strongly agreed to the use of internet to source materials and information, 207(42.9%) agreed, while 47(9.85%) disagreed and 6(1.2%) strongly disagreed. On the purpose of using the internet for research the findings revealed that majority of the respondents 212(44.0%) of the respondents agreed, 210(43.6%) strongly agreed while 49(10.2%) disagreed and 10(2.1%) strongly disagreed. On the purpose of using Electronic Journals (E-Journals) to augment class works activities, the findings revealed that majority of the respondents 229(47.5%) agreed, 200(41.5%) strongly agreed while 40(8.3%) disagreed and 10(2.1%) strongly disagreed. The findings further revealed that majority of the respondents 251(52.2%) agreed to the use of E-Journals for writing term papers, 186(38.6%) strongly agreed while 36(7.5%) disagreed and 7(1.5%) disagreed. The study also revealed that 258(53.5%) agreed to the purposeful use of online Databases for searching information to augment class notes, 170(35.3%) strongly agreed while 49(10.2%) disagreed and 4(0.2%) strongly disagreed. On the purpose of using E-Journals

for Research, majority of the respondents revealed that 222(46.1%) agreed, 171(35.5%) strongly agreed while 68(14.1%) disagreed while 18(3.7%) strongly disagreed.

Furthermore the study revealed that 234(48.5%) of the respondents agreed on the use of OPAC for locating materials for their assignments, 155(32.3%) strongly agreed, while 72(14.9%) disagreed and 18(3.7%) strongly disagreed. Dealing with the frequency on the use E-Resources, the study revealed that majority of the respondents 293(60.8%) frequently use the Internet daily, 185(38.4%) of the respondents and 138(28.6%) of the respondents uses OPAC and the Online databases twice in a week, while 166(34.4%), 151(31.3%) and 137(28.4%) of the respondents uses E-journal, E-books and CD-ROMs weekly. Furthermore findings revealed that the information literacy skills level of majority of the respondents was high. In all, 222(46.1%) of the respondents were most skilled with the 'ability to initiate how and where to find needed information, 260(53.9%) of the respondents have the 'ability to locate information sources, followed by 254(52.7%) of the respondents who have the ability to select the information that is most appropriate to their needs and ability to select search strategies by date, subject and language.

The study revealed that 234(48.5%) respondents were skilled in being able to improve their information literacy skill by learning from information problem solving, 260(53.9%) of the respondents are being able to use many information resources at the same time to make a research; 212(44.0%) of the respondents are being able to use information to answer questions and/or solve problems, 238(49.4%), of the respondents have the ability to define needed information, 236(49.0%) have the ability to organize information sources, 245(50.8%) of the respondents have the ability to criticize quality of information seeking process, 223(46.3%) of the respondents have the capability to evaluate worldwide web (www), 239(49.6%) have the capability to organize, apply and communicate

information to others, 229(47.5%) of the respondents have the ability to introduce search strategies using Boolean logic and keywords, 220(45.6%) of the respondents have the ability to synthesize newly gathered information with previous information, 232(48.1%) Of the respondents have the ability to synthesize and build upon existing information, 238(49.4%) of the respondents have the ability to define the information needed, 233(48.3%) of the respondents have the ability to determine the authoritativeness, correctness and reliability of the information sources, 236(49.0%) of the respondents have the ability to organize information in a logical order, and 237(49.2%) of respondents have the ability to identify different sources of information. Thus, from the above analysis it is deduced that the respondents possess information literacy skills. The study recommended that the teaching of information literacy skills to postgraduate students should be promoted to ensure high level of the use of electronic resources. This is similar to the present study as both studies investigate Information Literacy Skills and Electronic Information Resources. However, current study laid emphasis on the influence of Information Literacy Skills and Use of Information Resources on Students Research Activities.

Olubiyo *et al.*, (2019) conducted a study on A Survey of Information Literacy skills among Undergraduate Students of College of Education, Ondo. Survey research method was adopted and population of 150 students were sampled using questionnaire as data collection instrument while 147 copies of the questionnaire were returned. The study revealed that 112(76.2%) of the respondents identified that they are aware of information literacy skills while 35(23.8%) of the respondents are not aware. The study further revealed the ways in which students evaluate information during research through the knowledge of information literacy. 60(25.6%) of them compare information from various sources, 56(23.9%) of the respondents indicated that they read text and select main ideas,



44(18.8%) investigate the various viewpoints of a literature, while 31(13.2%) indicated they use information techniques for studying, 20(8.5%) identified verbatim for later quoting, while 12(5.1%) of the respondents evaluate information by checking the qualification of the author and 11(4.7%) of the respondents identified and know the criteria used in evaluating the quality of a website. It can be inferred from the findings therefore that undergraduate students of Adeyemi College of Education evaluate information during research by reading text and select main ideas, compare information from various sources and by investigating various viewpoints of the literature.

The study also revealed the problems encountered by the undergraduate students in learning information literacy skills. However It was indicated that 54(23.8%) of the respondents indicates inadequate learning equipment, 50(22%) of the respondents highlighted that their class is overcrowded, while 47(20.7%) of the respondents noted poor/inadequate information literacy evaluation and assessment, 27(11.9%) said the time for training is inadequate and 25(11.1%) of the respondents highlighted lack of information literacy promotion and awareness in the lecture, 24(10.6%) of the respondents highlighted unfriendly attitude of their lecturers. It is revealed from the findings that the class is overcrowded, and there is inadequate learning equipment and poor/inadequate information literacy evaluation and assessment are the problems undergraduate students of Adeyemi College of Education encountered in learning information literacy skills.

The study recommended that necessary corrections should be taken into consideration; students become lifelong learners as they are grounded in the knowledge of information literacy. Thus, the uses of information ethically become easier for them. The study further recommended that college management should also address other challenges confronting students in the learning of information literacy. This study focused on the Information

Literacy skills among Undergraduate Students while the present study focuses on information Literacy Skills and Use of Information Resources on Students Research Activities.

Thanuskodi (2012), conducted a study on use of Electronic Resources by postgraduate students and Researchers of faculty of arts Annamalai University. The population of the study was 200, questionnaire was used as data collection instrument. A total of 200 questionnaires were distributed to the selected sample of Faculty of Arts; 180 valid samples were collected. The study revealed that the majority of the respondents which constitute 158(87.8%) indicated that they are aware about the availability of e-resources while 22(12.2%) are not aware. On the preference level of using e-resources, 86(47.8%) of the respondents noted that they prefer accessing electronic resources while 59(32.8%) of the respondents preferred reading the printed version of information resources and 35(19.4%) respondents prefer using both electronic and printed information resources. The study also revealed how the respondents frequently use e-resources, 88(48.9%) of the respondents uses e-resources weekly, while 42(23.3%) uses e-resources daily, also 38(21.1%) uses e-resources twice a week and 12(6.7%) uses e-resources monthly. When the respondents were asked on purpose of using e-resources majority of the respondents which constitute 138(76.7%) use e-resources for the purpose of writing papers, while 112(62.2%) uses e-resource for the purpose of studying course work, also 93(51.7%) uses e-resources for the purpose of research work and 81(45.0%) uses e-resources for updating subject knowledge. The study further revealed the reasons for difficulties in accessing e-resources majority of the respondents 108(60.0%) indicated that few e-electronic resources are available in their subject area, while 87(48.8%) reveals that the e-resources covered does not suit their research area, also 78(43.3%) of the respondents revealed that accessing e-resources is time consuming but 71(39.4%) indicated that while accessing e-

resources the information professionals does not render assistance to them and 64(35.6%) indicated the lack of training in accessing electronic resources.

The study recommended that, e-resources students and researchers should be taught about advanced searching strategies as well as the use of controlled vocabulary to ease the search process. The study also recommended that the university management should provide funds for subscribing more electronic primary sources and secondary sources. The former study was on the use of Electronic Resources while the current study laid emphasis on Information Literacy Skills and Use of Information Resources on Students Research Activities.

Edem and Egbe (2016) conducted a study on the availability of electronic resources by postgraduate students in University of Calabar Library. The population of the study was 382, Descriptive survey was adopted and questionnaire was used as the main instrument used for data collection. The study on the usage of electronic resources in the University of Calabar Library by postgraduate students revealed that majority of the respondents 330(86.4%) were aware of the existence of electronic resources in the University of Calabar made use of them while the remaining 52(13.6%) did not make use of the electronic resources. On the frequency of use of electronic resources, majority of the respondents 218(57.1%) indicated that they often made use of the electronic resources, followed by 107(28.0%) of the respondents who do not use electronic resources very often, only 34(8.90%) of the respondents use electronic resources in the University of Calabar Library very often, while 23(6.02%) of the respondents rarely made use of them. Responds to the purpose for using electronic resources in the University Library, the result revealed that majority of the respondents 165(32.9%) indicated that, they made use of e- resources for research work, followed by 119(23.7%) of the respondents who made use of them for completing assignment, furthermore 89(17.7%) of the respondents uses

electronic resources for the purpose of obtaining answers to specific questions, while 51(10.2%) of the respondents uses electronic resources for the purpose of reviewing literature, 43(8.57%) of the respondents use them for getting general information, while 35(7.00%) of the respondents made use of them for exams preparation.

On the type of electronic resources often used by the respondents, 158(60.5%) of majority of respondents make use of electronic journals, 61(23.4%) uses internet resources while 33(12.7%) uses internet resources and 9(3.5%) uses databases respectively. The study further indicated that despite the mammoth reasons for using electronic resources, postgraduate students still face some challenges in the use of electronic resources. The study revealed that majority of the respondents 126(31.5%) lack computer skills while, 110(29.1%) are engaged with the challenges of slow network, followed by inconsistent Internet service which constitute 66(17.3%) of the respondents, then power outage which constitute 43(11.2%) of the respondents and irrelevant electronic information resources which constitute 40(10.4%). Although none of the respondent identified insufficient computer as a challenge. However, 241(63.1%) of the respondents had no computer skills training which may have been responsible for identifying lack of computer skills as a challenge by majority of the respondents.

The study recommended that more relevant open access databases such as academic journals should be made accessible to postgraduate students. The Library Management should create awareness on the electronic resources available in the University Library and its importance to postgraduate studies and also inverter and battery system should be installed in the Electronic Library to ensure regular power supply. The former study was on the availability of electronic resources whereas the present study focuses on Information Literacy Skills and Use of Information Resources on Students Research Activities.

A study conducted by Odede and Zawedde (2018) on Information Literacy Skills in using Electronic Information Resources by PG students in delta state University, Abraka, University of Uyo and University of Calabar. Descriptive survey method was used to randomly select 124 PG while copies of questionnaire were adopted as data collections instrument. Findings revealed that majority of the respondents which constitute 63(54.8%) agreed that their use of electronic information resources is determined by their ability to locate information in multiple sources, 41(35.7%) strongly agreed while 3(2.6%) disagreed. Also, 53(46.1%) of the respondents agreed that they use electronic information resources due to their ability to recognise different methods of accessing information resources, 47(40.9%) strongly agreed, while only 4(3.5%) of the respondents disagreed. Also, 54(47%) of the respondents agreed that their use of electronic information resources is determined by their ability to browse online databases, while 50(43.5%) strongly agreed, however, none disagreed.

Furthermore, findings revealed that students' use of electronic information resources is determined by their ability to evaluate information critically (critical literacy). 62(54%) of the respondents agreed to the use of electronic information resources because they can compare and critically evaluate if the information collected is credible and relevant, 37(32.2%) of the respondents strongly agreed, 13(11.3%) were neutral, while only 2(1.7%) disagreed. Similarly, the majority 67(58.3%) of respondents also agreed that they could critically judge if the information on the website is authentic and accurate, 30(26.1%) strongly agreed, 8(7%) of the respondents were neutral and disagreed respectively. Also, 62(53.9%) of the respondents agreed to the use of electronic information resources as a result of their competency to compare and critically evaluate if the information is timely and appropriate, 24(29.6%) strongly agreed, 8(7%) were neutral and disagreed respectively, while 1(0.9%) strongly disagreed.

The study recommended that librarians should re-evaluate their roles in promoting information literacy; they must be active in the task of inculcating the principles of information literacy skills and ensuring that students are able to apply the various aspects of information literacy in appropriate situations. The former study was on Information Literacy Skills in using Electronic Information Resources which is similar to the present study. However, the geographical content varies.

Okorie (2018) conducted a study on influence of Electronic Information Resources utilization on academic performance of HND students of Federal Polytechnic Nekede, Owerri. The research was descriptive in design and adopted the quantitative survey method using questionnaire as instrument for data collection. The population of the study was 385 students, copies of 385 questionnaires were distributed and 322 were returned. The study revealed that on the type electronic information resources available, 213(66.2%) of the respondents indicated that E-books are available, while 109(33.8%) respondents indicated that E-books are not available to them, also 57 (17.7%) of the respondents noted that online database were available to them. 56(17.4%) of the respondents noted that free web resources were available to them, while 44 (13.6%) of the respondents attested to the availability of online public access catalogue. 32(10.0%) of respondents indicated that Electronic journal is available to them and 24(7.5%) of the respondents highlighted that CD-ROM is available to them.

The study further revealed that 120(37.2%) of the respondents access EIR on their personal devices such as phones and laptops. While 56(17.5%) of the respondents reveals that they had access to EIR in the institutional libraries, also 89 (27.6%), 32 (10.0%), and 25 (7.7%) of the respondents had access through Internet cafes, colleagues and public libraries respectively. Furthermore the study revealed that 196(60.9%) of the respondents indicated that the use of EIR influences their performance in seminar writing and

presentation while 102(31.7%) of the respondents did not agree that EIR influences their examination performance, also 101(31.4%) of the respondents disagreed that EIR influences performance in class and 94(29.2%) of the respondents also disagreed to the fact that the use of EIR influences their performance in class assignment.

On the challenges that undermine the students' use of EIR, 65(20.2%) of the respondents strongly agreed that their knowledge of available electronic information resources hinders them from accessing available electronic information resources, 28(8.7%) agreed, while 72(22.4%) disagree and 157(47.5%) respondents strongly disagreed that their knowledge of available EIR hinders them from accessing it. On poor orientation as a hindering factor, 75(23.3%) of the respondents strongly agreed, 132(41.0%) agreed, 48(14.9) disagreed, and 67(20.8%) strongly disagreed. Regarding the poor knowledge of ICT, 186(57.8%) respondents strongly agreed, 68(21.1%) agreed, 44(13.7%) disagreed and 24(7.5%) strongly disagreed. On the lack of ease of access, 187(58.1%) of the respondents strongly agreed, 62(19.3%) agreed, 21(6.5%) disagreed, and while 52(16.2) strongly disagreed. On the issue of Lack of steady power supply as a hindering factor for effective utilisation of EIR, 208(64.6%) of the respondents strongly agreed, 51(15.8) agreed, 38(11.8%) disagreed, and while 25(7.8%) strongly disagreed.

On the cost of accessing EIR, 201(62.4%) of the respondents strongly agreed while 43(13.4%) agreed and 54(16.8%) disagreed, while 24(7.5%) strongly disagreed. On the challenges of lack of time as a hindrance in the use of EIR, 132(41.0%) respondents strongly agreed, 87(27.0) agreed, 49(15.2) disagreed, and while 54(16.8%) strongly disagreed. The study recommended the use of EIR should be encouraged among students at all levels to enhance their seminar writing and presentation performances, as it will improve their research activities, More avenues for accessing EIR should be made available by the polytechnic library to reduce recourse to students' personal devices, e-

books should be made more available and accessible for the HND students by the polytechnic library since it is mostly used by them, Constant and stable electric power supply should be made available for students by the polytechnic management to ensure they are able to adequately utilize EIRs. The former study was on the influence of Electronic Information Resources utilization which is similar to the current study. However, the present study specifically focuses on Information Literacy Skills and Use of Information Resources on Students Research Activities.

Ankrah and Atuase (2018), conducted study on the use of Electronic Resources by Postgraduate students of the University Of Cape Coast. Cross-sectional Survey designed method was adopted for the study, sampling technique method was used to sample a total number of 275 post graduate students out of 915 using the simple ratio formula propounded by Neuman to get the sample size while questionnaire was used as data collection instrument.

The study revealed that 185(73.0 %) respondents indicated that they had knowledge about the available e-resources in the University of Cape Coast Library while 67(27.0%) of them responded otherwise. The study also revealed how frequently electronic databases was accessed by the respondents. Majority of the respondents which constitute 147(57.9%) of respondents indicated that they preferred to access information from other sources such as Google search, Google scholar, Yahoo, Wikipedia and amazon more than once a week while 72(28.6%) respondents accessed them on daily basis. In addition, 67(26.7%) of the respondents accessed Emerald databases more than once in a week and 47(18.7%) respondents accessed it on daily basis. Furthermore, 45(17.9%) of them accessed information from EBSCO host more than once in a month while 36(14.3%) respondents rarely accessed them. However, HINARI, Francis & Taylor and Sage



databases had low patronage because 64(24.2%), 54(21.4%) and 53(21.3%) respondents respectively indicated that they rarely accessed them.

The study further revealed the challenges encountered in accessing electronic resources, 183(72.6%) respondents were of the opinion that poor internet connectivity was the major challenge they faced in accessing e-resources. While 173(68.7%) confirmed that power outages in the library was a limitation they encountered in accessing electronic resources. Also, 165(65.5%) claimed insufficient skills hindered their ability to access resources while 157(62.3%) respondents indicated that they could not access e-resources effectively due to limited subscribed titles. However, a total of 143(56.7%) respondents indicated that they did not have effective access to e-resources in the library because of inadequate computers. Also, 32(12.7%) of them alleged that overload of e-resources was a challenge. While other postgraduate students stated other limitations such as passwords and user names on the e-databases of the library and the absence of research Centre for postgraduate students as hindrance for effective access of e- resources. Thus, the study recommended that in order to lessen the challenges hindering maximum use of e-resources, library management should put in place mechanisms to ensure that e-resources are completely accessed and utilized by users.

## **2.4 Summary of the Reviewed Literature**

The literature reviewed highlighted the key variables covered in the topic which include information literacy skills, electronic information resources and students research activities which serve as major constituents to higher institution students' research activities. Student's research is an enthusiastic activity that highlights the process of research, which encompass ways of promoting research activities by developing student's research skills. Information literacy compels that an individual develop the ability for the

need of information, the ability to find, search, effectively utilize and then use information in an ethical manner to identify and proffer solutions to problems or to make decisions. Electronic resources are collections of information produced by electronic means that form an integral part of an electronic record and which is usually kept separately inside a digital file that make up the whole of the electronic record. Thus information literacy skills and electronic information resources played a prominent role in student research activities as it compels and develop student ability for the need of information and utilization of information resources. Electronic Information Resources, Nature of Student Research activities, Influence of Information Literacy Skills on Students Research Activities, Influence of Electronic Information Resources on Student Research Activities and Challenges of Information Literacy Skills and Use of Electronic Resources were reviewed.

The study adopted the Big 6 Information Skills Model and the Seven Pillars of Information Literacy model for theoretical framework and also a conceptual model for Influence of Information Literacy Skills and Use of Electronic Information Resources and Students Research activities was developed by the researcher.

The empirical review of existing studies on Influence of Information Literacy Skills and Use of Electronic Information Resources on Students Research Activities was done in order to identify the gaps in the studies. The previous works have been mainly on Information Literacy Skills in using Electronic Information Resources, Influence of Information Literacy Skills on Postgraduate Students' Use of Electronic Resources and Information Literacy Skills in using Electronic Information Resources by PG students. Hence the present study seeks to examine the Influence of Information Literacy Skills and use of Electronic Information Resources on Students Research Activities in Federal Universities in North Central, Nigeria. This study is necessary in order to provide a

reference work for future studies. It is also the gap of knowledge observed which this study is meant to fill.

## **CHAPTER THREE**

### **3.0 RESEARCH METHODOLOGY**

#### **3.1 Research Design**

The study adopted descriptive survey research design. The descriptive survey approach was adopted for the study as it serves as a means of providing basic information in an area of study. Descriptive survey enables a researcher to use questionnaire to collect relevant data for the study by giving the respondents the freedom of expression so as to attain the aim of the study. Descriptive survey is more applicable in a study that intends to investigate phenomena in their natural setting without any influence. Sharma (2017) stated that descriptive survey research method deals with describing the situation of a given population using some characteristics or features common among them. It is a process that involves a number of steps: (a) planning the survey (b) questionnaire design (c) sampling (d) data collection (e) data processing and (f) drawing conclusion. Therefore

this research design method is adopted for this study because the research work use sample of the population to find out the influence of information literacy skills and the use of electronic information resources on students research activities in Federal universities of North-Central, Nigeria.

### 3.2 Population of the Study

Population is the total number of the items or objects under study. It usually indicates all the members of the target of the study as defined by the aims and objectives of the study (Popoola, 2011). Therefore the population of the study was 137,888 which comprised of all students of federal universities in North-Central, Nigeria as shown below:

**Table 3:1. Population of Students of Federal Universities in North-Central, Nigeria.**

S/N	University	Population
1	Federal University Lafia, Nasarawa State.	1,677
2	Federal University Lokoja, Kogi State.	4,133
3	Federal University of Technology, Minna, Niger State.	20,604
4	University of Abuja, Nigeria.	19,211
5	University of Agriculture, Markurdi, Benue State.	18,529
6	University of Ilorin, Kwara state.	47,620
7	University of Jos, Plateau State.	26,114
TOTAL POPULATION		137,888

**Source: National Universities Commission (NUC) 2018 Statistical Digest**

### 3.3 Sample and Sampling Technique

The simple random technique was used to randomly select the size of the population using Krejcie and Morgan (1970) table of sample size. A total population of 2,545 was realized as the sample size which is shown below:

**Table 3.2 Sample Size**

<b>S/N</b>	<b>University</b>	<b>Population</b>	<b>Sample Size</b>
1	Federal University Lafia, Nasarawa State.	1,677	310
2	Federal University Lokoja, Kogi State.	4,133	351
3	Federal University of Technology, Minna, Niger State.	20,604	377
4	University of Abuja, Nigeria.	19,211	375
5	University of Agriculture, Markurdi, Benue State.	18,529	375
6	University of Ilorin, Kwara state.	47,620	380
7	University of Jos, Plateau State.	26,114	377
	<b>TOTAL</b>	<b>137,888</b>	<b>2,545</b>

From the Krejcie and Morgan table, for a population of 1,600 a sample size of 310 is sufficient, 2,000 a sample size of 322 is sufficient, for a population of 2,800 a sample size of 338 is sufficient, for a population of 15,000 a sample size of 375 is sufficient, for a population of 20,000 a sample size of 377 is sufficient, for a population of 30,000 a sample size of 379 is sufficient and for a population of 40,000 a sample size of 380 is sufficient.

### **3.4 Data Collection Instrument**

Questionnaire was used as the instrument for data collection for this study. Questionnaire was appropriate for this study because the respondents are literate as they easily and appropriately fill the questionnaire. The researcher used closed structured questionnaire which was tag “Influence of Information Literacy Skills and use of Electronic Information Resources on Students’ Research Activities in Federal Universities in North Central, Nigeria (ILSEIRSRA). The questionnaire was designed with six sections; the first section focuses on the demography of the respondents and sections B-G focuses on the specific objectives of the study.

### **3.5 Validity of Data Collection Instrument**

Validity is the degree to which a measuring instrument measures what it is design to measure. The data collection instrument was subjected to face and content validation. The questionnaire was validated by the researcher’s supervisors and two experts in statistics from statistics department, Federal University of Technology, Minna.

### **3.6 Reliability of Data Collection Instrument**

Reliability refers to consistency of any result between independent measurements of the same phenomena. The corrected questionnaire was subjected to reliability test by conducting a pilot study at Ibrahim Badamasi Babangida University Lapai, Niger State (IBBU) where 30 copies of the questionnaire were administered to students using split half method. The reliability coefficient of 0.79 was obtained using Cronbach's Alpha reliability method which was analysed using Statistical Package for Social Sciences (SPSS) version 20. This indicated that the instrument selected is reliable for this study.

### **3.7 Procedure for Data Collection**

The copies of questionnaire were administered by the researcher with the help of research assistants. All questionnaires were administered to both undergraduate and post graduate students of various departments of the universities studied. Letter of introduction was collected from the Department of Library and Information Technology, Federal University of Technology, Minna and attached to the questionnaire. Distribution and collection of questionnaires was done in SIX weeks.

### **3.8 Methods of Data Analysis**

Descriptive statistics such as frequency counts, simple percentages, means, standard deviations and Statistical Package for Social Sciences (SPSS) version 20 were used to analyze demographic data and research questions, The null hypotheses were tested using correlation coefficient.

## **CHAPTER FOUR**

### **4.0 RESULTS AND DISCUSSION**

This chapter presents the analysis and interpretation of the data collected from the respondents and testing of the hypotheses. Interpretation of results were organised under the following sub-headings:

#### **4.1 Response Rate**

Out of 2,545 copies of questionnaire administered on respondents in the seven (7) federal universities under study. 2,373 copies of questionnaire were filled, returned and found usable for the analysis and this represents 93% response rate. Table 4.1 shows the response rate based on the copies of questionnaire administered, returned and the percentage in each of the studied federal universities



**Table 4.1: Response Rate**

<b>S/N</b>	<b>Name of Federal University.</b>	<b>No. of Administered Questionnaire</b>	<b>No. of Returned Questionnaire</b>	<b>Percentage(s) (%)</b>
1	Federal University of Agriculture, Makurdi	310	297	96
2	Federal University, Lafia	375	364	97
3	Federal University, Lokoja	351	336	96

4	Federal University of Technology, Minna	377	364	97
5	University of Abuja	310	297	96
6	University of Ilorin	380	361	96
7	University of Jos	377	324	86
	<b>Total</b>	<b>2,545</b>	<b>2,373</b>	<b>93</b>

Table 4.1 reveals that 375 copies of questionnaire were administered to students in Federal University of Agriculture, Makurdi, 327 copies representing 87% were returned, 375 copies of questionnaire were administered in Federal University, Lafia, 364 copies representing 97% were returned, 351 copies of questionnaire were administered in Federal University, Lokoja, 336 copies representing 96% were returned, 377 copies of questionnaire were administered in Federal University of Technology, Minna, 364 copies representing 97% were returned, 310 copies of questionnaire were administered in University of Abuja, 297 copies representing 96% were returned, 380 copies of questionnaire were administered in University of Ilorin, 361 copies representing 95% were returned and 377 copies of questionnaire were administered to students in University of Jos, 324 copies representing 86% were returned.

#### **4.2 Descriptive Analysis of Demographic Data**

The respondents were asked to indicate their demographic variables, Table 4.2. shows the responses based on the name of university and gender.

**Table 4.2: Demographic Data of the Respondents**

<b>Federal University</b>	<b>Frequency</b>	<b>Percentage(s)</b>
Federal University of Agriculture, Makurdi	327	14
Federal University, Lafia	364	15
Federal University, Lokoja	336	14
Federal University of Technology, Minna	364	15
University of Abuja	297	13
University of Ilorin	361	15
University of Jos	324	14
<b>Total</b>	<b>2,373</b>	<b>100</b>

<b>S/N</b>	<b>Gender</b>	<b>Frequency</b>	<b>Percentage(s)</b>
1	Male	1,366	58
2	Female	1,007	42
	<b>Total</b>	<b>2,373</b>	<b>100</b>

The results from Table 4.2 shows that 327(14%) of the students were in Federal University of Agriculture, Makurdi, 364(15%) of the students were in Federal University, Lafia, 336 (14) of the respondents were in Federal University, Lokoja, 364(15%) of the students were in Federal University of Technology, Minna, 297(13%) of the students were in University of Abuja, 361(15%) of the students were in University of Ilorin and 324(14%) of the students were in University of Jos. On the other hand, 1366(58%) of the respondents are male, while 1,007 (42%) of the respondents are female. This shows that most of the respondents were males.



### 4.3 Answering Research Questions

**Research Question One:** What is the level of information literacy skills possessed by federal university students in federal universities in North-Central, Nigeria?

**Table 4.3: Level of Information Literacy Skills by Students in Federal Universities under Study**

S/N	Statements	VH	H	L	VL	N	FX	$\bar{x}$	Std	Decision
		4	3	2	1					
1	I have the ability to initiate how and where to find the information I need	910	897	430	136	2373	7327	3.08	0.58	High
2	I have the ability to locate and access needed information related to my topic	758	1002	411	202	2373	7062	2.97	0.47	High
3	I have the ability to determine needed information for a specific assignment	987	1216	100	70	2373	7866	3.31	0.81	High
4	I have the ability to use information in critical thinking and problem solving	992	1221	114	46	2373	7905	3.33	0.83	High
5	I have the ability to use many information resources at the same time	259	312	1108	694	2373	4882	2.05	0.45	Low

6	I have the ability to evaluate worldwide web (www) sources	217	478	1011	667	2373	4991	2.10	0.40	Low
7	I have the ability to determine the authority, correctness and reliability of information sources	238	694	1004	437	2373	5479	2.31	0.91	Low
8	I have the ability to introduce search strategies using Boolean logic and keywords	116	572	1000	685	2373	4865	2.05	0.45	Low
9	I have the ability to integrate new information into existing knowledge	54	721	998	600	2373	4975	2.09	0.41	Low

Table 4.3 shows the level of information literacy skills of students. The result shows that out of the nine items listed for students to indicate their level of information literacy, four items have high mean scores above 2.5 bench mark. These items include item 4: I have the ability to use information in critical thinking and problem solving ( $\bar{x}$ =3.33; SD=0.83), item 3: I have the ability to determine needed information for a specific assignment ( $\bar{x}$ =3.31; SD=0.81), item 1: I have the ability to initiate how and where to find the information I need ( $\bar{x}$ =3.08; SD=0.58) and item 2: I have the ability to locate and access needed information related to my topic ( $\bar{x}$ =2.97; SD=0.47). On the other hand, five items produced low mean scores below the bench mark of 2.50 because they were skills not well utilised by students as expected. These include item 7: I have the ability to determine the authority, correctness and reliability of information sources ( $\bar{x}$ =2.31; SD=0.91), item 5: I have the ability to use many information resources at the same time ( $\bar{x}$ =2.05; SD=0.45), item 8: I have the ability to introduce search strategies using Boolean logic and keywords

( $\bar{x}$ =2.05; SD=0.45), item 6: I have the ability to evaluate worldwide web (www) sources ( $\bar{x}$ =2.10; SD=0.40) and item 9: I have the ability to integrate new information into existing knowledge ( $\bar{x}$ =2.09; SD=0.41).

**Research Question 2:** What is the influence of information literacy skills on students' research activities in federal universities in North-Central, Nigeria?

**Table 4.4: Influence of Information Literacy Skills on Students Research Activities.**

S/N	Statements	SA	A	D	SD	n	FX	$\bar{x}$	Std	Decision
		4	3	2	1					
						2373				
1	My ILS enable me to put together ideas from different sources when completing my research	776	964	431	202	2373	7060	2.97	0.47	Agreed
2	My ILS enable me to locate information in multiple choices for my research activities	698	871	591	213	2373	6804	2.87	0.37	Agreed
3	My ILS enable me to recognize different methods of accessing electronic resources for my research activities	311	378	1113	571	2373	5175	2.18	0.32	Disagreed
4	My ILS enable me to compare and evaluate critically if the information collected is credible and relevant to my research activities	996	1013	300	64	2373	7687	3.24	0.74	Agreed
5	My ILS enable me to browse numerous online databases to locate relevant information resources for my research activities	71	577	1111	614	2373	4851	2.04	0.46	Disagreed
6	My ILS enable me to judge the accuracy and authenticity of website information	351	614	984	424	2373	5638	2.37	0.13	Disagreed



**Key: Strongly Agreed (SA), Agreed (A), Disagreed (D), Strongly Disagreed (SD).**

The data presented in Table 4.4 shows that six items were listed for students' to respond on the influence of information literacy skills on their research activities. Three items produced high mean scores which were above the bench mark of 2.50 which include item 4: My ILS enables me to compare and evaluate critically if the information collected is credible and relevant to my research activities ( $\bar{x}$ =3.24; SD=0.74), item 1: My ILS enable me to put together ideas from different sources when completing my research ( $\bar{x}$ =2.97; SD=0.47) and item 2: My ILS enable me to locate information in multiple choices for my research activities ( $\bar{x}$ =2.87; SD=0.37). The three items that have mean scores above the bench mark of 2.50 shows that information literacy skill influences the research activities of students.

**Research Question 3:** What is the nature of students' research activities in federal universities in North-Central, Nigeria?

Table 4.5 shows that nature of students' research activities in the federal universities under study.

**Table 4. 5 Nature of Students' Research Activities.**

S/N	Statements	SA	A	D	SD	n	FX	$\bar{x}$	Std	Decision
		<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>	<b>2373</b>				
1	My research activities is more of historical research	87	601	1249	436	2373	5085	2.14	0.36	Disagreed
2	My research activities is more of correlational research	797	1084	384	108	2373	7316	3.08	0.58	Agreed
3	My research activities is more of experimental research	758	1012	450	153	2373	7121	3.00	0.50	Agreed
4	My research activities is more of descriptive research	952	1052	340	29	2373	7673	3.23	0.73	Agreed
5	My research activities is more of evaluative research	698	871	591	213	2373	6804	2.87	0.37	Agreed

**Key: Strongly Agreed (SA), Agreed (A), Disagreed (D), Strongly Disagreed (SD).**

The data presented in Table 4.5 shows that five items were listed for students to respond on the nature of their research activities. Four items produced high mean scores above the bench mark of 2.50. These items include item 4: My research activities is more of descriptive research ( $\bar{x}=3.23$ ;  $SD=0.73$ ), item 2: My research activities is more of correlational research ( $\bar{x}=3.08$ ;  $SD=0.58$ ), item 3: My research activities is more of experimental research ( $\bar{x}=3.00$ ;  $SD=0.50$ ) and item 5: My research activities is more of evaluative research ( $\bar{x}=2.87$ ;  $SD=0.37$ ). On the other hand, one item produced low mean score below the bench mark mean of 2.50 which is item 1: My research activities is more of historical research ( $\bar{x}=2.14$ ;  $SD=0.36$ ). This indicates that the four items above the bench mark of 2.50 positively affect the nature of students' research activities.

**Research Question 4:** What are the information literacy skills that assist students in carrying out research activities in federal universities in North-Central, Nigeria?

Table 4.6 shows the information literacy skills that assist students in carrying out their research activities.

**Table 4.: 6 Information Literacy Skills that Assists Students in Carrying out their Research**

S/N	Statements	SA	A	D	SD	N	FX	$\bar{x}$	Std	Decision
		4	3	2	1	2373				
1	My ILS assist me in my proposal writing	954	999	320	100	2373	7553	3.18	0.68	Agreed
2	My ILS assist me in choosing topics	178	393	976	826	2373	4649	1.96	0.54	Disagreed
3	My ILS assist me in reviewing literature	413	548	894	518	2373	5602	2.36	0.14	Disagreed
4	My ILS assist me in completing my assignment	811	886	419	257	2373	6997	2.95	0.45	Agreed
5	My ILS assist me in my referencing	638	792	540	403	2373	6411	2.70	0.20	Agreed
6	My ILS assist me in my personal study	582	659	580	552	2373	6017	2.54	0.04	Agreed
7	My ILS assist me in setting objectives for my study	631	822	500	420	2373	6410	2.70	0.20	Agreed
8	My ILS assist me in consulting information sources for my research	597	799	720	257	2373	6392	2.69	0.19	Agreed
9	My ILS assist me in searching for new bibliographic information	480	548	900	445	2373	5809	2.45	0.05	Disagreed

**Key: Strongly Agreed (SA), Agreed (A), Disagreed (D), Strongly Disagreed (SD).**

Table 4.6 shows that nine items were listed for students to respond on the information literacy skills that assist them in carrying out their research activities. Six items produced high mean scores which were above 2.50 bench mark. These items include item 1: My ILS assist me in my proposal writing ( $\bar{x}=3.18$ ;  $SD=0.68$ ), item 4: My ILS assist me in completing my assignment ( $\bar{x}=2.95$ ;  $SD=0.45$ ), item 5: My ILS assist me in my referencing ( $\bar{x}=2.70$ ;  $SD=0.20$ ), item 7: My ILS assist me in setting objectives for my study ( $\bar{x}=2.70$ ;  $SD=0.20$ ) and item 6: My ILS assist me in my personal study ( $\bar{x}=2.54$ ;  $SD=0.04$ ). On the other hand, three items produced low mean scores lower than 2.50 bench mark which include item 9: My ILS assist me in searching for new bibliographic information ( $\bar{x}=2.45$ ;  $SD=0.05$ ), item 3: My ILS assist me in reviewing literature ( $\bar{x}=2.36$ ;  $SD=0.14$ ) and item 2: My ILS assist me in choosing topics ( $\bar{x}=1.96$ ;  $SD=0.54$ ). The three items that have means scores lower than 2.50 do not well assist students in their research activities.

**Research Question 5:** What is the influence of use of electronic information resources on students' research activities in federal universities in North-Central, Nigeria?

Table 4.7 shows how use of electronic information resources influences the research activities of students in the federal universities studied.

**Table 4.7: Influence of Electronic Information Resources on Students' Research Activities**

S/N	Statements	SA	A	D	SD	N	FX	$\bar{x}$	Std	Decision
		4	3	2	1	2373				
1	It enables me to access a wide range of information resources for my research activity	594	622	861	296	2373	6260	2.64	0.14	Agreed
2	It enables me to access timely and up-to-date information resources for my research activity	225	502	1113	533	2373	5165	2.18	0.32	Disagreed
3	It enables me to search for information resources relevant to my research work from different databases	447	638	900	388	2373	5890	2.48	0.02	Disagreed
4	It enables me to transmit, acquire and disseminate information on any subject interest	588	791	809	185	2373	6528	2.75	0.25	Agreed
5	It enables me to gain access to scholarly information resources for my research activity	547	797	902	127	2373	6510	2.74	0.24	Agreed
6	It enables me to access new tools for information seeking and retrieval for my research activity	288	502	1014	569	2373	5255	2.21	0.29	Disagreed
7	It enables me to of gain quick access to unlimited number of research information resources	667	1009	461	236	2373	6850	2.89	0.39	Agreed

**Key: Strongly Agreed (SA), Agreed (A), Disagreed (D), Strongly Disagreed (SD).**





The data presented in Table 4.7 shows that seven items were listed for students to respond on the influence of electronic information resources on their research activities. Five items produced high mean scores which were above 2.50 bench mark. These items include item 7: It enables me to of gain quick access to unlimited number of research information resources ( $\bar{x}=2.89$ ;  $SD=0.39$ ), item 4: It enables me to transmit, acquire and disseminate information on any subject interest ( $\bar{x}=2.75$ ;  $SD=0.25$ ), item 5: It enables me to gain access to scholarly information resources for my research activity ( $\bar{x}=2.74$ ;  $SD=0.24$ ) and item 1: It enables me to access a wide range of information resources for my research activity ( $\bar{x}=2.64$ ;  $SD=0.14$ ). On the other hand, two items produced low mean scores below 2.50 bench mark which include item 6: It enables me to access new tools for information seeking and retrieval for my research activity ( $\bar{x}=2.21$ ;  $SD=0.29$ ) and item 2: It enables me to access timely and up-to-date information resources for my research activity ( $\bar{x}=2.18$ ;  $SD=0.32$ ). The two items that have mean scores lower than 2.50 indicated that the electronic information resources did not positively influence the research activities of students.

**Research Question 6:** What are the challenges of information literacy skills and use of electronic information resources on students' research activities in federal universities in North-Central, Nigeria?

Table 4.8 shows the challenges information literacy skills and use of electronic information resources by students on their research activities in the studied areas.

**Table 4.8: Challenges Confronting the Use of Electronic Information Resources by Students on Their Research Activities**

S/N	Statements	SA	A	D	SD	N	FX	$\bar{x}$	Std	Decision
		4	3	2	1	2373				
1	Lack of awareness to use electronic information resources	302	501	900	670	2373	5181	2.18	0.32	Disagreed
2	Insufficient search skills	1003	1019	217	134	2373	7637	3.22	0.72	Agreed
3	Poor Internet connectivity	1015	1102	219	37	2373	7841	3.30	0.8	Agreed
4	Erratic power supply	1009	1124	197	43	2373	7845	3.31	0.81	Agreed
5	Lack of ease of access	474	799	861	239	2373	6254	2.64	0.14	Agreed
6	Information overload	831	902	404	236	2373	7074	2.98	0.48	Agreed
7	Irrelevant electronic information resources	313	492	1011	557	2373	5307	2.23	0.27	Disagreed

**Key: Strongly Agreed (SA), Agreed (A), Disagreed (D), Strongly Disagreed (SD).**

The data presented in Table 4.8 shows that seven items were listed for students to indicate the challenges encountered with the use of electronic information resources on their research activities. Five items produced high mean scores which were above 2.50 bench mark. These items include item 2: Insufficient search skills ( $\bar{x}=3.22$ ;  $SD=0.72$ ), item 4: Erratic power supply ( $\bar{x}=3.31$ ;  $SD=0.81$ ), item 3: Poor Internet connectivity ( $\bar{x}=3.30$ ;  $SD=0.8$ ), item 6: Information overload ( $\bar{x}=2.98$ ;  $SD=0.48$ ), item 5: Lack of ease of access ( $\bar{x}=2.64$ ;  $SD=0.14$ ), while two items produced low mean scores below 2.5 bench mark which are item 7: Irrelevant electronic information resources ( $\bar{x}=2.23$ ;  $SD=0.27$ ) and item 1: Lack of awareness to use electronic information resources ( $\bar{x}=2.18$ ;  $SD=0.32$ ). The five items that have high means scores shows that the challenges are mainly affecting information literacy skills and use of electronic information resources on students' research activities.

#### **4.4 Testing of Hypotheses**

**H<sub>01</sub>:** There is no significant relationship between the level of information literacy skills and the nature of students' research activities in federal universities in North-Central, Nigeria.

The Table below shows the relationship between the level of information literacy skills and the nature of students' research activity

Table 4.9: Correlation analysis showing whether there is no significant relationship between the level of information literacy skills and the nature of students' research activity in federal universities in North-central, Nigeria.

		Information Literacy	Nature of Research Activity
Information Literacy	Pearson Correlation	1	.834**
	Sig. (2-tailed)		.000
	N	2373	2373
Nature of Research Activity	Pearson Correlation	.834**	1
	Sig. (2-tailed)	.000	
	N	2373	2373

\*\* . Correlation is significant at the 0.01 level (2-tailed).

From table 4.9 shows whether there is significant relationship between the level of information literacy skills and the nature of students' research activity in Federal universities in North-central, Nigeria. The  $r=0.834$ ,  $p\text{-value} = (0.000) < 0.05$ , implies that there is significant relationship between the level of information literacy skills and the nature of students' research activity in federal universities in North-central, Nigeria. This implies that increase in information literacy skills will enhance the nature of students' research activities.

**H<sub>02</sub>:** There is no significant relationship between the use of electronic information resources and students' research activity in federal universities in North-Central, Nigeria.

The Table below shows the relationship between the use of electronic information resources and students' research activity

Table 4.10: Correlation analysis showing whether there is no significant relationship between the use of electronic information resources and students' research activity in federal universities in North-central, Nigeria.

		Electronic Information Resources	Student Research Activity
Use of Electronic Information Resources	Pearson Correlation	1	.886**
	Sig. (2-tailed)		.000
	N	2373	2373
Student Research Activity	Pearson Correlation	.886**	1
	Sig. (2-tailed)	.000	
	N	2373	2373

\*\* . Correlation is significant at the 0.01 level (2-tailed).

From table 4.10, it shows whether there is significant relationship between the use of electronic information resources and students' research activity in Federal universities in North-central, Nigeria. The  $r=0.886$ ,  $p\text{-value} = (0.000) < 0.05$ , implies that there is significant relationship between the use of electronic information resources and students' research activity in federal universities in North-central, Nigeria. This implies that adequate utilization of electronic information resources will boost students' research activities.

**H<sub>03</sub>:** There is no significant relationship between the information literacy skills and the use of electronic information resources on students' research activities in federal universities in North-Central, Nigeria.

The Table below shows the relationship between information literacy skills and use of electronic information resources.

Table 4.11: Correlation Analysis showing whether there is significant relationship between information literacy skills and the use of electronic information resources on student's research activities in federal universities students in North-central, Nigeria.

		Information Literacy	Use of Electronic resources
Information Literacy	Pearson Correlation	1	.940**
	Sig. (2-tailed)		.000
	N	2373	2373
Use of electronic resources	Pearson Correlation	.940**	1
	Sig. (2-tailed)	.000	
	N	2373	2373

\*\* . Correlation is significant at the 0.01 level (2-tailed).

From table 4.11 shows whether there is significant relationship between information literacy skills and the use of electronic information resources on student's research activities in Federal universities students in north central, Nigeria. The  $r=0.940$ ,  $p\text{-value} = (0.000) < 0.05$ , implies that there is significant relationship between information literacy skills and the use of electronic information resources on student's research activities in Federal universities students in North-central, Nigeria. This implies that literacy in search skills will enhance the use of electronic information resources by students thereby enhancing their research activities.

#### **4.5 Summary of Major Findings**

Based on the result of the analysis, the following are the summary of major findings:

1. The study revealed that the level of information literacy skills possessed by most of the respondents was high which majorly are the ability to locate and use information in critical thinking and problem solving, ability to determine needed information for a specific assignment, ability to locate and access needed information related to topic of interest and the ability to initiate how and where to find needed information.
2. The respondents agreed that information literacy skills has a positive influence on their research activities as it enables them to compare and evaluate critically if information collected were credible and relevant to their research activities, enables them to locate information in multiple choices for their research activities and also enables them to compare and evaluate critically if the information collected is credible and relevant to their research activities.
3. The nature of students research activities were mainly correlational and descriptive research
4. The respondents indicated that information literacy skills assist them majorly in their proposal writing and in consulting information sources for their research, completing their assignments, assist them in setting objectives for their study and also assist them in their referencing.
5. The respondents indicated that the use of electronic information resources influences and enables them to access wide range of information resources for their research



activities, to gain access to scholarly information resources for their research activity and also to gain quick access to unlimited number of research information resources.

6. The respondents indicated insufficient search skills, poor Internet connectivity, erratic power supply, lack of ease of access and information overload were the challenges confronting the use of electronic information resources on students research activities
7. There is significant relationship between the level of information literacy skills and the nature of students' research activity.
8. There is significant relationship between the use of electronic information resources and students research activities.
9. There is significant relationship between information literacy skills and the use of electronic information resources on student's research activities.

## **Discussion of the Findings**

### **Research Questions**

#### **4.6.1 Research question 1:**

The findings of the study revealed that information literacy skills utilized by students were mainly the ability to initiate how and where to find information they need, ability to access needed information related to their topic of research, ability to determine needed information for a specific assignment and the ability to use information in critical thinking and problem solving. This could be that every user of an information resources is expected to possess some requisite skills on when and why you need information, where to find it in order to harness information resources and navigate them towards his/her essential use. This is in line

with the Chartered Institute of Library and Information Professional (CILIP) (2018) that the essence of students research activities in the university system depends on the ability of the student to exploit available information resources either in print or electronic formats to augment their academic and research activities through the use of their information literacy skills knowledge to effectively use electronic information resources at their disposal. However, the level of information literacy skills such as the use of Boolean logic and keywords, the ability to determine the correctness, authority and reliability of information resources and the ability to evaluate World Wide Web (WWW) sources were low among the respondents. This is in contrast with the findings of Goode (2018) that information literacy skills have extended to the search for information on the Internet or in a book through the use of searching skills as it involves one's ability to determine whether or not the information obtained is true and reliable and the ability to apply the information where needed.

#### **4.6.1 Research question 2:**

The study revealed that the influence of information literacy skills on students' research activities is moderate. The respondents indicated that information literacy helps them put together ideas from different sources, enable them locate information in multiple choices for their research activities and information literacy skills also enable them compare and evaluate critically the credibility and relevance of information collected for their research activities (Table 4.5). The ability to possess these skills would enable students to become independent lifelong learners. This is in line with Moustapha (2021) that information literacy skills improves critical thinking that involves effective use of information resources, ability to identify when information is needed, ability to evaluate and synthesize information sources

in order to become independent life-long learners. This corroborates with the findings of Tyagi (2014) that electronic information resources have become a vital research tools that complement student research activities as it enables students have access to various information sources. On the other hand, information literacy skills on the ability to judge the accuracy and the authenticity of website information, the ability to browse numerous online databases to locate relevant information resources did not well influenced the academic activities of students.

#### **4.6.1 Research question 3:**

The study showed that the nature of students' research activities is high. The study revealed that the nature of students research activities were mainly correlational, experimental, descriptive and evaluative researches. This can be attested to the fact that when researches conducted by students, academicians and researchers are transformed into practice contributing to societal development. This is in line with the findings of Bently and Kyvik (2013) that knowledge acquired from research through project writing, theses and dissertations when transformed into practice contributes to education through improvement in educational outcomes and refinement in skills leading to improved standards of societal development. This further agrees with the findings of Razeghi (2019) that research activities involves specialized forums which leads to the production of academic writings that involves projects, thesis and dissertations, seminar papers, scientific seminar, book review sessions, conferences and workshop which is of a great benefit to researcher's educational attainment.

#### **4.6.1 Research question 4:**

The analysis from research question four showed that information literacy skills assists the respondents through proposal writing, completing assignment, referencing, personal duty, setting of objectives for their studies and consulting information sources for their research activities. This corroborates with the findings of Razeghi (2019) that research activities leads to the production of academic writings that involves specialized forums which leads to the production of writings that involves projects, thesis and dissertations, seminar papers, scientific seminars, book review sessions, conferences and workshops which is of great benefit to researchers educational attainment, while information literacy skills on how to choose topics, review literatures and searching of new bibliographic information did not well assist students in carrying out their research activities.

#### **4.6.1 Research question 5:**

The study revealed that the use of electronic information resources among students influences access to wide range of information resources for their research, searching of information resources relevant for their research work from different sources, enable them transmit, acquire and disseminate information on any subject and enables them gain access to unlimited number of research information resources. This is in tandem with the findings of Dongardive (2015) that the importance of e-resources cannot be overemphasized as it enables users to search, acquire and disseminate information and also serves as one of the driving forces that direct the formation of the educational society through the use of online materials available in digital format.

#### **4.6.1 Research question 6:**

The study equally revealed that the respondents agreed with all the factors inhibiting or confronting the use of electronic information resources for students' research activities with the exception of item 1 and 7. This indicated that the use of electronic information resources for research activities of students' is negatively affected. As such, urgent attention needs to be given on the provision of more Internet bandwidth, provision of alternative power supply, provision of better search skills and provision of easy access to information resources. The explosion of information at an alarming rate makes it difficult for students to obtain the relevant information resources needed for their academic success, because most of the students make low usage of the electronic information resources due to power erratic power supply challenges, Internet connectivity problem, cost of using the internet and lack of information literacy skills. This is in line with the findings of *Kwafoa et al.* (2014) that the low usage of e-resources is attributed to the lack of access to scholarly databases, which emanates from slow Internet speed, high cost of Internet use and frequent power cuts. Similarly, Moustapha, (2021) verifies that the most common problems with e-resources are low speed Internet connectivity, lack of awareness about the importance and provision for accessing e-resources by higher institutions students, technical problems such as electricity problems, unavailability of sufficient e-resources and high purchase price of electronic databases.

#### **4.7 Findings on the Tested Hypotheses**

**H<sub>01</sub>: Relationship between the level of information literacy skills and the nature of students' research activities in federal universities in North-Central, Nigeria.**

The test of null hypothesis one revealed that there is significant relationship between information literacy skills and the nature of students' research activities in the federal universities studied. This implies that increase in information literacy skills will lead to increase in the nature of students' research activities. For students to effectively and efficiently identify when information is needed and utilize available information, it is necessary for them to acquire literacy skills for them to become independent lifelong learners. This is in agreement with the findings of Okon *et al.*, (2014) that information literacy is the ability to identify which information is needed, understand how the information is organized, the extent to which information is needed, identifying the best sources of information for a given time, locate the sources where information can be retrieved, evaluate the sources critically by examining the source of the information and share that information for effective utilization by students. Therefore, the successful in searching and retrieving of information will be determined by an individual student level of information literacy skills. It is necessary that students acquire literacy skills in order to improve on their search strategies thereby satisfying their information needs. This is in agreement with the findings of Madu and Dike (2012) that it is necessary for students to acquire this literacy skills in order properly navigate their search strategies and be able to proffer solutions to their identified problems.

**H<sub>02</sub>: Relationship between the level of information literacy skills and the nature of students' research activities in federal universities in North-Central, Nigeria.**

The test of null hypothesis two revealed that there is significant relationship between the use of electronic information resources and students' research activities in the federal universities studied. This implies that adequate utilization of electronic information resources will

enhance students' research activities. In recent times, electronic resources have been identified as the major sources for information dissemination in all spheres of life, especially in universities where students make use of electronic information resources for their academic and research activities as it has become a vital resources for teaching, learning, research and community growth in any academic environment, it also provide up to date information resources for students' academic purposes such as research which they mostly depend on for their academic activities, (Amankwah, 2014). Electronic Information Resources serve as an inspirational factor to students as it provide them with the opportunity to transmit, acquire or download, process and disseminate information on any subject of interest. For an individual to carry out research there is need for extensive searching of literatures which is one the reasons why students rely on the use electronic resources for their research activities.

**H<sub>03</sub>: Relationship between information literacy skills and the use of electronic information resources on students' research activities in federal universities in North-Central, Nigeria.**

The test of the null hypothesis between information literacy skills and the use of electronic resources on students' research activities in federal universities studied has shown that there is significant relationship between them. This implies that increase in information literacy search skills among students' will improve or increase their use of electronic resources thereby enabling them meet their research activity needs.

## **CHAPTER FIVE**

### **5.0**

## **CONCLUSION AND RECOMMENDATIONS**



## **5.1 Conclusion**

The study presented a survey on the influence of information literacy skills and use of electronic information resources on students' research activities in federal universities in North-central, Nigeria. From the findings of the study it could be deduced that 21<sup>st</sup> century has created a need for information literacy programmes that goes beyond academic curriculum because of the nature of information generated or provided in an electronic format. The level of information literacy and the use of electronic information resources among students affect academic performance/excellence. The level of information literacy skills possessed by students plays significant role in determining their degree of electronic resource use. The teaching of information literacy skills to students should be promoted to ensure high level of usage of electronic information resources because information literacy skills are essential for effective service delivery of students in North-central, Nigeria. However factors such as insufficient search skills, poor Internet connectivity, erratic power supply, lack of ease of access and information overload are seen as major factors confronting information literacy skills and the use of electronic information resources by students' on their research activities in the federal universities studied. With all these, there would not be effective use of electronic information resources by students and therefore, affects their research activities negatively.

## **5.2 Recommendations**

Based on the findings of the study, the following recommendations are made:

1. The management of Federal Universities in North-central, Nigeria should encourage students on their information literacy skill set by introducing search strategies using Boolean logic and keywords and also enlighten them through workshops and seminars on how to evaluate World Wide Web (WWW) sources as not only sources available on the web can be used for academic activities.
2. The management of the Federal Universities studied should create avenue such as seminar, workshops and library user education programmes for students so as to improve them on their information literacy and search skills. This would enable students to judge the accuracy and authenticity of web information especially when using it for their academic pursuit and also be acquainted on how to browse numerous online databases to locate relevant information resources for research.
3. The universities curriculum of the Federal Universities studied should be revised so as to accommodate courses where information literacy skills could be taught at both undergraduate and postgraduate levels.
4. Current and up-to-date information resources should be provided by the management of the Federal Universities in North-central, Nigeria in order to support the research activities of students.
5. The management of Federal Universities in North-central, Nigeria should try to install Internet services as well as provide alternative means of power supply for effective and efficient use of electronic information resources among students to support their research activities.

### **5.3 Contribution to Knowledge**

The study contributes to knowledge in the following areas:

1. The study provided empirical evidence on the level of information literacy skills posed by students that they are not literate enough in terms of search skills and how to utilize electronic information resources and this is instrumental to not meeting their research needs.
2. The study provided empirical evidence that even though students are expected to use electronic information resources for their academic activities, they still need to put in more effort especially with the use of ICT facilities to search and locate information resources relevant to their research and information needs.
3. The study has equally added to the already existing body of literatures available on information literacy.

### **5.3 Suggestion for Further Research**

1. This study was on the influence of information literacy skills and use of electronic information resources on students' research activities in federal universities in North-central, Nigeria. As such, it is therefore, necessary for one to suggest a similar research on information need and information literacy skills on the use of electronic information resources by students in university libraries in Nigeria.
2. Information needs assessment and utilisation of digital information resources among library users in federal university libraries in Western Nigeria.
3. There is also the need for research on state owned universities to get more findings on the information literacy skills and use of electronic information resources by students' in carrying out their research activities in South-west, Nigeria.

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## **APPENDICES**

## Cronbach Alpha Reliability Analysis Result

### Notes

Output Created	14-MARCH-2021 23:32:59
Comments	
Input	Data C:\Users\dell\Desktop\DEFAULT BACKUP\ANALYSIS\Habiba.sav
	Active Dataset DataSet1
	Filter <none>
	Weight <none>
	Split File <none>
	N of Rows in Working Data File
	Matrix Input
Missing Value Handling	Definition of Missing User-defined missing values are treated as missing.
	Cases Used Statistics are based on all cases with valid data for all variables in the procedure.
Syntax	RELIABILITY  /VARIABLES=SB1  SB2 SB3 SB4 SB5  /SCALE('ALL VARIABLES') ALL  /MODEL=ALPHA.
Resources	Processor Time 00:00:00.00
	Elapsed Time 00:00:00.02

## CRONBACH ALPHA RELIABILITY COEFFICIENT DATA

### SECTION C

#### Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.818	.829	8

### SECTION D

#### Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.635	.614	9

### SECTION E

#### Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.795	.653	8



## SECTION F

### Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.817	.638	10

## SECTION G

### Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.892	.835	10

The total Cronbach's Alpha =  $0.818 + 0.635 + 0.795 + 0.817 + 0.892$   
5

$$= \frac{3.957}{5} = 0.7914$$

**Cronbach's Alpha = 0.79** (This indicates that the instrument is reliable and can therefore be used for the study).

Department of Library and Information Technology,  
Federal University of Technology, Minna  
Niger State.  
10<sup>th</sup>, march, 2021

Dear Respondent,

**LETTER FROM THE RESEARCHER**

I am JIBRIN, Habiba Yusuf, a postgraduate student of the Department of Library and Information Technology, Federal University of Technology, Minna. I am currently working on a research topic, titled “Influence of Information Literacy Skills and Use of Electronic Information on Students Research Activities in Federal Universities in North Central, Nigeria”.

I will appreciate it if you could kindly complete the attached questionnaire as it will be instrumental to the completion of my programme. Any information obtained in connection to the study will be used strictly for the purpose of this research and will be treated with utmost confidentiality.

Thank you for your anticipated cooperation.

Yours Sincerely,

JIBRIN, Habiba Yusuf  
MTECH/SICT/2018/8645

## RESEARCH QUESTIONNAIRE

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

### Section A: Demographic Data

1. Name \_\_\_\_\_ of \_\_\_\_\_ University  
 .....
2. Gender: Male [  ] Female [  ]

### Section B: What is the Level of Information Literacy Skills Posed by Students?

Please indicate your level of Level of Information Literacy skills. Tick () the appropriate option that corresponds to your opinion about each particular question using; Very High (VH), High (H), Low (L) and Very Low (VL)

3. What is your Level of Information Literacy Skills

S/No	Information literacy skills	VH	H	L	VL
i.	I have the ability to initiate how and where to find the information I need				
ii.	I have the ability to locate and access needed information related to my topic				
iii.	I have the ability to determine needed information for a specific assignment				
iv.	I have the ability to use information in critical thinking and problem solving				
v.	I have the ability to use many information resources at the same time				
vi.	I have the ability to evaluate worldwide web (www) sources				
vii.	I have the ability to determine the authority, correctness and reliability of information sources				
viii.	I have the ability to introduce search strategies using Boolean logic and keywords				

ix.	I have the ability to integrate new information into existing knowledge				
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**Section C: What is the influence of information literacy skills (ILS) on federal university students research activities?**

Kindly tick (√) the appropriate option that corresponds to your opinion about each particular item using Strongly Agreed (SA), Agreed (A), Disagreed (D) and Strongly Disagreed (SD).

4. Influence of information literacy skills (ILS) on students research activities?

S/No	Statement	SA	A	D	SD
i.	My ILS enable me to put together ideas from different sources when completing my research				
ii.	My ILS enable me to locate information in multiple choices for my research activities				
iii.	My ILS enable me to recognize different methods of accessing electronic resources for my research activities				
iv.	My ILS enable me to compare and evaluate critically if the information collected is credible and relevant to my research activities				
v.	My ILS enable me to browse numerous online databases to locate relevant information resources for my research activities				

vi.	My ILS enable me to judge the accuracy and authenticity of website information				
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**Section D: What is the nature of students' research activities, in Federal universities in North Central Nigeria?**

Kindly tick (√) the appropriate option that corresponds to your opinion about each particular item using Strongly Agreed (SA), Agreed (A), Disagreed (D) and Strongly Disagreed (SD).

5. Nature of students' research activities.

S/No	Statements	SA	A	D	SD
i.	My research activities is more of historical research				
ii.	My research activities is more of correlational research				
iii.	My research activities is more of experimental research				
iv.	My research activities is more of descriptive research				
v.	My research activities is more of evaluative research				

**Section E: How do information literacy skills assist students in carrying out research activities?**

Kindly tick (√) the appropriate option that corresponds to your opinion about each particular item using Strongly Agreed (SA), Agreed (A), Disagreed (D) and Strongly Disagreed (SD).

6. Information literacy skills that assist me in carrying out my research activities.

S/No	Statements	SA	A	D	SD
i.	My ILS assist me in my proposal writing				
ii.	My ILS assist me in choosing topics				
iii.	My ILS assist me in reviewing literature				
iv.	My ILS assist me in completing my assignment				

v.	My ILS assist me in my referencing				
vi.	My ILS assist me in my personal study				
vii.	My ILS assist me in setting objectives for my study				
viii.	My ILS assist me in consulting information sources for my research				
ix.	My ILS assist me in searching for new bibliographic information				

**Section F: What are the influences of electronic information resources on student research activities?**

Kindly tick (✓) the appropriate option that corresponds to your opinion about each particular item using Strongly Agreed (SA), Agreed (A), Disagreed (D) and Strongly Disagreed (SD).

7. Electronic Information Resources influence my research activities in the following ways:

S/No	Statement	SA	A	D	SD
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i.	It enables me to access a wide range of information resources for my research activity				
ii.	It enables me to access timely and up-to-date information resources for my research activity				
iii.	It enables me to search for information resources relevant to my research work from different databases				
iv.	It enables me to transmit, acquire and disseminate information on any subject interest				
v.	It enables me to gain access to scholarly information resources for my research activity				
vi.	It enables me to access new tools for information seeking and retrieval for my research activity				
vii.	It enables me to of gain quick access to unlimited number of research information resources				

**Section G: What are the challenges of information literacy skills and use of electronic information resources on student research activities?**

Kindly tick (√) the appropriate option that corresponds to your opinion about each particular item using Strongly Agreed (SA), Agreed (A), Disagreed (D) and Strongly Disagreed (SD).

8. Challenges of information literacy skills and use of electronic information resources on student research activities

S/No	Statement	SA	A	D	SD
i.	Lack of awareness to use electronic information resources				
ii.	Insufficient search skills				
iii.	Poor internet connectivity				

iv.	Erratic power supply				
v.	Lack of ease of access				
vi.	Information overload				
vii.	Irrelevant electronic information resources				