INFORMATION LITERACY SKILLS AS CORRELATES OF EFFECTIVE USE OF ELECTRONIC LIBRARY RESORUCES BY LECTURERS IN UNIVERSITIES IN NORTH-CENTRAL, NIGERIA

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ABSTRACT

The aim of this study was to investigate the information literacy skills as correlates of effective use of electronic library resources by lecturers in universities in North-central, Nigeria. Specifically, six purposed and research questions guided the study. It adopted a descriptive survey design and had a population of 3,342 lecturers from federal, state and private universities in North-central Nigeria. The study used proportionate stratified sampling technique to select 404 lecturers from the nine selected universities. Structured type of questionnaire tagged information literacy and demographic factors as correlates of effective use of electronic library resources by faculty members in universities of North-central, Nigeria (ILDFCEUELRFMUNCN) with four point Likert scale was be used. The questionnaire is divided into five sections (A, B, C, D, E Fand G) according to the research questions. Observation checklist was used to supplement the questionnaire. Data collected were analysed using descriptive statistics of percentage mean scores, and Pearson correlation. The findings revealed among others that the lecturers were adequately skilled in information search skills and information literacy with mean score of ($\bar{x}$=3.17). Similarly, the findings also revealed that there is a direct relationship between search skills and use of e-library resources among lecturers in universities in North-central Nigeria ($r(435) = .002$, $P<.05$). The study recommended among others that management of the federal, state and private universities should ensure that the teaching of information literacy skills is prioritized so as to ensure increased usage of e-library resources by lecturers' is attained. The research concluded based on the findings that the lecturers acquired information literacy skills through various means such as, librarian's guide, consultancy from their colleagues, existing user's guide, among others. It also concluded that lecturers face several difficulties while acquiring information literacy skills ranging from lack of proactivity in spearheading or pushing information literacy initiatives by librarians among others.

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CHAPTER ONE

1.0 INTRODUCTION

1.1 Background to the Study

University libraries are referred to as academic libraries which play a vital role in the execution of academic activities in their parent institutions. They are saddled with the responsibility of providing necessary information resources and services for teaching, learning and research activities in line with the objectives of their parent institutions. In view of this Uzuegbu (2012) noted that the critical functions of the university libraries are the provision of information for their clientele which are made up of faculty members, students and researchers. The introduction of Information and Communication Technology (ICT) in libraries has given rise to improved library services. Popular among these is the electronic library (e-library) services.

As at May 2021, there are one hundred and ninety six (196) universities in Nigeria out of which 23 were in North-central geo-political zone of Nigeria (National University Commission, Regardless of the location of universities, they are charged with the responsibilities (objectives) of learning, teaching, research and community services. The university libraries were also established to support in achieving these objectives through the provision of information resources (Uzuegbu, 2016).

The electronic information resources (EIRs) have greatly transformed information handling and management in Nigerian university communities. According to Ani and Ahiauzu (2008), electronic information resources have gradually become a major resource in every university community. Electronic information resources are provided in different electronic formats including CD-ROM database, online databases, online journals, OPACs, Internet and other computer-based electronic networks.

E-library resource materials are available and can be accessed electronically via computer networking facilities such as online library catalogues, the Internet and the World Wide Web (www}, digital libraries and archives, government portals and websites, CD-ROM databases and online academic databases (Karunarathna, 2014). E-library resources are a collection of information created electronically that form part of an electronic record and that is usually stored basically within the digital file making up the electronic record as a whole. Every electronic record consists of at least one digital object, component or element, such as the bits of data that come together to create a word processed document.

In most university libraries, provision of e-library resources has become much relevant due to the needs of the 21st-century library users who want to find the technologies they are familiar with outside the library, in the library. It is, therefore, easier today to find electronic encyclopedias, newspapers, books, journals, theses and dissertations, CD-ROM databases, online databases and web-based resources in libraries. The use of electronic resources has myriad of advantages for library users who can now access information resources across the globe without restriction which was practically impossible in the past.

The provision of electronic resources in university libraries plays indispensable role in facilitating access to required information to users in an easy and quick manner. Electronic information resources, in reality have become essential in the academic community. They serve as motivating factor to lecturers as they provide them opportunity to access, transmit, acquire or download information, process and communicate effectively on any subject of interest. Electronic resources provision makes it possible for users to access new tools and applications for information seeking and retrieval. E-resources have become invaluable research tools which complement the print collection in the traditional library setting. These resources serve as veritable sources of information

which students could tap into to aid their class assignments, write research and term papers, search for information on their subject areas and so on.

Once electronic resources are provided by university libraries, it is expected that students will utilize them to justify the investment on such resources. Federal and state universities in Nigeria are funded with public money, and enjoy certain privileges such as the Educational Trust Fund (ETF) which seeks to improve the quality of education in Nigeria through a 2% education tax imposition on the profits of all registered companies and banks in Nigeria, and library consortium such as the Nigerian Research and Education Network (NgREN) to which 27 federal universities are currently members (Nigerian Research and Education Network, 2016). Private universities, on the other hand, depend mostly on subvention from their proprietors and other internally generated revenue (IGR).

The e-library is not confined to a particular location as it is virtually distributed all over the world. Users can get their information from their own computer screens by using the Internet. Actually, it is a network of multimedia systems, which provides information at fingertip access. E-library is not bound by location and time and as such users can access information in the e-library from anywhere they are in the world at any time as long as internet connection is available. Unlike traditional libraries, the e-library is not limited by storage space as it takes lesser space to store e-information resources, thus it serves as an extension to traditional libraries, it also allows multiple access of the same information resources from different users providing a more structured and easy approach to accessing information, retrieving information is also easy a user can use a word or a phrase to search an entire collection. Furthermore, e-information is not prone to physical damage like mutilation and pilfering, they are effortlessly preserved. Another very important advantage to note is that information can be shared between different e-libraries thus giving users a rich and wide experience in information search.

E-information requires little or no human intervention as the libraries have been preprogramed to work independently or with the aid of only an administrator. These and many more advantages are reasons that make e-library cost efficient than traditional libraries.

According to Fabunmi (2009), e-library is a library in which collections are stored in digital formats as opposed to print, microforms or other media. It can be accessed only through computers. An electronic library is a collection of networked digital information resources associated with technical and managerial infrastructure. The electronic library is assumed to include data and metadata in various formats that are created or assembled in order to provide services to users.

E-resources is also defined by Ekwelem, *et al.,* (2009) to mean information sources available and can be accessed electronically through computer networked facilities such as online library catalogues, the Internet and the World Wide Web (WWW), and Compact Disk Read Only Memory (CD-ROM) databases among others. The electronic resources could either be subscribed to or be digitised in-house.

Several factors have been attributed on the need to have e-library resources by many authors. For example, Abubakar and Adetimrin (2015) in describing the importance of e-resources submitted that apart from the fact that e-resources are easily retrievable in university libraries, they also meet users' information needs. This could be one of the reasons why university libraries worldwide are shifting preferences towards e-resources, which are found to be less expensive and more useful for easy access (Dadzie, 2007).

The use of electronic resources has gained prominence in universities across the globe and many academics are availing themselves of the opportunity to explore these resources to access relevant, current and updated information for diverse purposes. While libraries

approach a crisis point in financing collection development, these new technologies offer possible ways to reduce costs and revolutionise ways to access information. Electronic databases are more convenient for searching huge amounts of data within shortest possible time. However, the electronic library calls for skills in creating search strategies, metadata creation skills, the use of networked sources and bibliographic tools and the design of interfaces.

It is to be noted that despite the numerous advantages in using e-library resources, there are also some setbacks. These include the computer viruses, lack of standardisation for digitised information, quick degrading properties of digitized materials and its associated problems, health hazard, and nature of the radiation from monitors. Other limitations, according to the author include the followings:

i. Copyright: Virtualization violates the copyright law as others can freely transfer the thought content of one author without his acknowledgement. So one difficulty facing e-library is how to distribute information. How does an e-library distribute information at will, while protecting the copyright of the author?

ii. Speed of access: As more and more computers are connected to the internet its speed of access reasonably decreases. If new technology will not evolve to solve the problem in near future internet will be full of error messages.

iii. Bandwidth: E-library heeds need high band for transfer of multimedia resources but the bandwidth is decreasing day by day due to its over utilization.

iv. Initial cost is high: The infrastructure cost of an e-library the cost of hardware, software, leasing communication circuit is generally very high.

v. Efficiency: With the larger volume of e-information, finding the right material for a specific task becomes increasingly difficult.

vi. Environment: E-libraries cannot reproduce the environment of a traditional library. Many researchers still find reading printed material to be easier and comforting than reading material on a computer screen.

Library facilities and services have become increasingly integrated with research, teaching, and learning programme across campuses, including those housed in information technology programme and student services programme. University lecturers in collaboration with library of the twenty-first century university will find it necessary to set aside their roles as teachers and instead become designers of learning experiences, processes, and environments. The roles and responsibilities of university faculty members are closely tied to the central functions of university. One primary formal description of these functions was contained in the 1915 "Declaration of Principles" formulated by a representative committee of faculty members including members of the American Association of University Professors (AAUP). According to the declaration, the functions of universities are "to promote inquiry and advance the sum of human knowledge, to provide general instruction to the students, and to develop experts for various branches of the public service" (Joughin, 2009).

Correspondingly, university faculty members undertake research, teaching, and service roles to carry out the academic work of their respective institutions. Each of these roles enables university lecturers to generate and disseminate knowledge to peers, students, and external audiences. The balance among teaching, research, and service, however, differs widely across institution types and by terms of the faculty member's appointment. The teaching role of faculty members reflects their centrality in addressing the primary educational mission among universities. As faculty members teach, they disseminate and

impart basic or applied knowledge to students and assist students with the learning process and applying the knowledge. In this construction of the teaching role, the teacher is the content expert, and students are regarded as learners or novices to the academic discipline or field of study. Faculty members are expected to follow developments in the field so their expertise and knowledge base remain current. At many universities, faculty members are also expected to participate in creating the new developments that are taught. Many university faculty members engage in research, thereby contributing to the knowledge base of the discipline or academic field. Research commonly is associated with conducting empirical studies, whether confirmatory or exploratory, but in some academic disciplines research also encompasses highly theoretical work. The extent to which faculty members have a research role as part of their work responsibilities depends largely on the mission of the employing institution, with larger universities more likely to have research and knowledge creation as a significant part of their missions. Although higher education institutions are most often the sites for and sponsors of faculty members' research, the primary audience for most academic researchers is their national and international community of disciplinary colleagues.

Information literacy skills refer to knowledge of one's information needs, and the ability to identify, locate, evaluate, organize and effectively create, use and communicate information (The Association of College and Research Libraries, 2000). The skills are needed for active participation in the information society. Indeed, “not all information is created equal: some are authoritative, current, reliable, but some are biased, out of date, misleading, false; the amount of information available is going to keep increasing and the types of technology used to access, manipulate, and create information will likewise expand” (Lauer and Yodanis, 2012). To make the best out of the ever-growing list of

electronic resources, it is necessary for users to acquire basic information literacy skills necessary for the identification, retrieval and use of electronic resources.

The importance of information literacy skills to lecturers cannot be overemphasized because they enable the effective and efficient use of the e-library resources. These skills help users formulate a search query, identify appropriate information sources, select the right search tools, to employ suitable search strategies as well as enabling them to evaluate the searched results.

Apulu *et al.* (2011) identified problems in the adoption and use of ICT and online resources in Nigeria to include lack of adequate ICT skills among staff and users, low level of basic information literacy in the Nigerian population, and prohibitive cost of access to internet in developing countries. Another researcher Okiki (2013) also observed that there has been low level of information literacy skills which hinder the effective use of e-library resources by lecturers. In view of these observations therefore, this researcher decided to determine the information literacy skills as correlates of use of electronic library resources by lecturers in universities in North-central Nigeria.

1.2 Statement of the Research Problem

The possession and acquisition of skills including information literary skills in any environment or profession in life is likened to individuals who tactically are in possession of weapons with which they could fight their enemies or issues of contention. In a similar vein, users including lecturers who possess information literary skills would be able to make effective, efficient and ethical use of information resources including the electronic ones in the university libraries. University libraries provide electronic resources which offer diverse and innovative information and services to cater for lecturer's needs. The libraries also subscribe to e- resources such as online databases and academic journals of

full texts and abstract texts through consortiums. Besides, the libraries have access to open access e-journals with full texts and abstracts content for library users. The huge amount of electronic resources available to satisfy information needs require some set of abilities by the users to be able to recognise when information is needed and the ability to locate, evaluate, and use effectively the needed information. Information literacy skills is the main support for effective use of electronic information resources.

In spite of the value of electronic library resources in the provision of effective and efficient information for learning and research purposes. This is attributed to one or combination of the following reasons; many lecturers are not trained in the use of computer, phobia for learning ICT skills, and lack of computers for constant practice of ICT skill sets to research information and for classroom teaching, lack of adaptation to the digital ICT age since most of them may not be trained in computer related devices as well as lack of ICT facilities in some universities. Other reasons are erratic power supply, lack of collaboration among the lecturers, poor library automation and lack of support from the university authority. These observation formed the basis for the objectives of the study. It is against this backdrop that the researcher decided to investigate information literacy skills as probable correlating factors to the use of electronic library resources by lecturers in universities in North-central Nigeria.

1.3 Aim and Objectives of the Study

The aim of this study is to determine how lecturer's information literacy skills correlates with their use of e-library resources in universities in North-central Nigeria.

The objectives of the study were to:

i. determine the level of information literacy skills among lecturers of universities in North-central Nigeria.

ii. determine the extent of competencies of lecturers in universities. North-central Nigeria in relation to key information search skills.

iii. identify the types of electronic library resources available in university libraries in North-central Nigeria.

iv. determine the perceived effect of information literacy skills on the use of electronic resources by lecturers in universities in North-central Nigeria.

v. determine the extent of use of e-resources by lecturers in university libraries in North-central Nigeria.

vi. determine the means by which lecturers in university libraries in north-central Nigeria acquire information literacy skills

vii. identify factors militating against the acquisition of information literacy skills among lecturer in universities in North-central Nigeria.

viii. establish if there is any significant relationship between information literacy skills and use of e-library resources among lecturers in north central Nigeria universities.

ix. ascertain if there is any significant relationship between the lecturers searching skills and their use of e-resources.

1.4 Research Questions

The following research questions were formulated to guide the studies.

i. What are the levels of information literacy skills among lecturers of universities in North-central, Nigeria?

ii. What are the competencies of lecturers in universities in North-central Nigeria relation to key information search skills?

iii. What are the types of electronic library resources available in the university libraries in North-central Nigeria?

iv. What is the perceived effect of information literacy skills on the use of electronic resources by lecturers in universities in North-central Nigeria?

v. What is the extent of use of e-resources by lecturers in university libraries in North-central Nigeria?

vi. What are the means by which lecturers in universities in North-central Nigeria in acquire information literacy skills.

vii. What are the factors militating against the acquisition of information literacy skills among lectures in universities in North-central Nigeria?

1.5 Hypotheses

The following null hypotheses were tested at 0.5 level of significance

Ho_1: There is no significant relationship between information literacy skills and use of e-library resources among lecturers in universities in North-central Nigeria.

Ho_2: There is no significant relationship between search skills and use of e-resources by lecturers in universities in North-central Nigeria.

1.6 Significance of the Study

The findings of this study will be of enormous benefits to university managements, librarians, lecturers, students and future researchers as well as other researchers and the library profession. The findings of the study will be of immense benefits to the academic staff and students as it will provide them with handy information on how to effectively use e-Library resources in their academic pursuit to achieve their daily information needs.

It will also provide them with the platform of information utilization in achieving specific objectives. More so, the findings of this study will provide them with additional ways of using the electronic information resources in their university libraries for specific purpose at any time.

University librarians will benefit from the findings of this study as it will enable them to know the lapses in the use electronic information by their staff and students. This is because the students knowing the kind of electronic information resources they are looking for will place them on a better footing to determine their electronic information needs in the university libraries. The university librarians will in turn be aware of their electronic information bulletins needs of lecturers in the university libraries.

Other researchers will also benefit from the findings of this study. This is because the finding of this study will be used by other researchers in the form of literature. This will enable them build a strong base in their related field of study. In addition, it can be used by other researchers as a source for research topics; in that case, they can conduct the same study in another environment with or without different design and instrumentation. Finally, the findings of this study will add to the existing knowledge in the profession and thus contribute significantly to the literature of library and information technology. The study will keep the university management abreast of the factors responsible for ineffective utilisation of e-library resources. This can be noticed in the aspects of funding, staffing, power failure among others.

1.7 Scope of the Study

This study covered nine universities in North-central states and the Federal Capital Territory (FCT) of Nigeria. The states are Benue, Kogi, Kwara, Nasarawa, Niger, and Plateau. The study will be conducted in Federal, State and private owned universities.

The nine universities are: University of Jos, Plateau State; University of Agriculture, Makurdi; Benue State; Federal University of Technology, Minna,; Niger State; Kogi State University, Ayimgba, Kogi State; Ibrahim Badamosi Babangida University, Lapai, Niger State; Nassarawa State University, Keffi, Nassarawa State; Salem University Lokoja, Kogi State; African University of Science and Technology, Abuja and Al-Hikma University, Ilorin, Kwara State. The study limited itself to the investigation of information literacy skills as correlates of effective use of electronic library resources by lecturers in universities in North-central Nigeria. This study was confined to electronic databases available; extent of the use of open sources by lecturers in university libraries; effects of demographic factors on the use of electronic resources; effects of information literacy on the use of electronic resources; effect of using electronic library services and the challenges of using e-library resources by lecturers in university libraries.

1.8 Operational Definition of Terms

The following terms are defined as used in the study:

Correlates: is the relationship that exist between information literacy and effective use of e-resources.

E-Library: is a collection of electronic resources in the form of e-books and e-journals etc.

Effective Utilisation: is the best use of electronic information resources to meet desired information need(s).

Information Literacy: The ability of the lecturers in North-central Nigeria to identify, locate and use information resources in their universities to meet their information need.

Information Technology: The use of resources such as computers, Internet and telecommunications for storing, retrieving, and sending information.

Lecturers: Teachers who impart knowledge to students from undergraduate to postgraduate levels in universities in North-central Nigeria.

Relationship: Association or correlation between information literacy skills and the use of e-library to meet required information need.

Search Skill: The capabilities of lecturer to identify, know and use ICT facilities or library e-resources to meet their information needs.

Universities: Institutions where degree and higher degree programmes are run and awarded.

University libraries: These are institutions designed purposely to collect, organize, store and retrieve information resources to support the attainment of the objectives of the universities.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Conceptual Framework

The conceptual model as shown in Figure 2.1 depicts the connection among the dependent and the independent variables in this research.

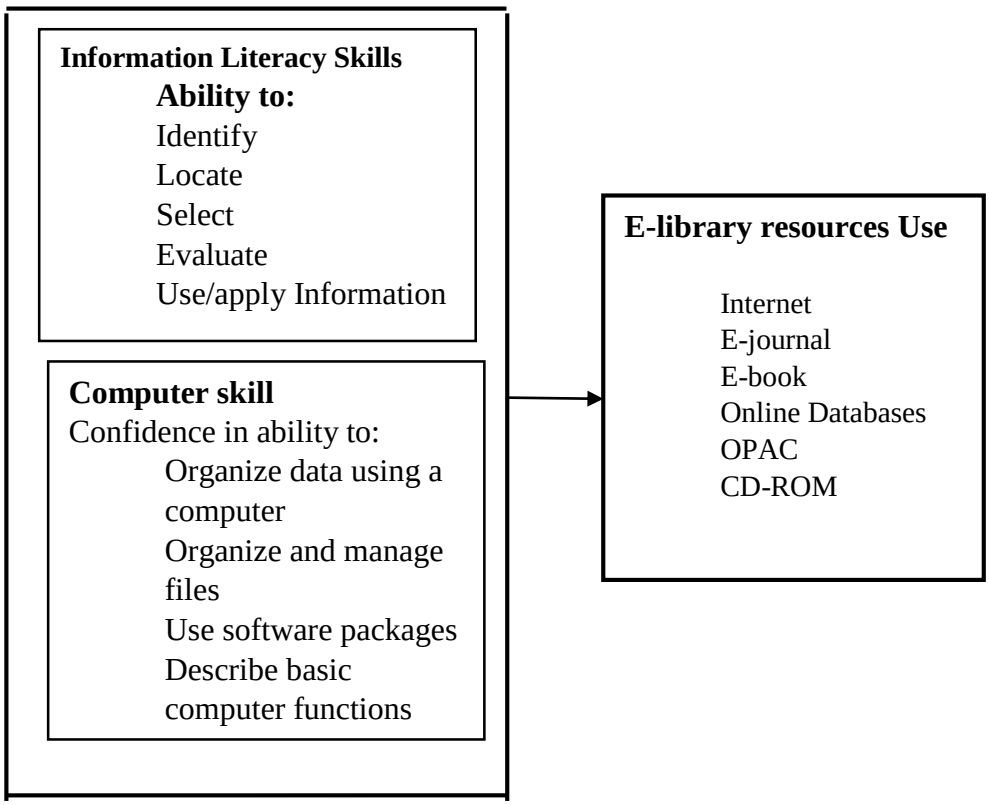

Figure 2.1: Conceptual Framework

Conceptual model for information literacy skills, e-resources usage (Author's)

The conceptual model was designed by the researcher based on the theories and literature reviewed. The model describes the relationship between the variables; information literacy skills, computer skill, and e- library resources use. It is assumed by this study that lecturers who have the ability to identify, locate, select, evaluate and apply information will use the electronic resources provided by the university library. Likewise, the study also assumed that lecturers who are confident in the use of computers, who do not exhibit

anxiety in the use of computer, who have computer experience/knowledge with strong proficiency to engage and accomplish assigned tasks will make use of electronic resources. In other words, the use of e-resources is dependent on information literacy skills and computer skills.

2.2 Conceptual Review

2.2.1 University libraries

University library is established to support teaching, learning, research and community services. Maidabino (2010) stated that the university library is the only centralized location where new and emerging information technologies can be combined with knowledge resources (information) in a user-focused, service-rich environment that support today's social and educational pattern of teaching, learning and research. Hence university libraries conserve the existing knowledge, transmit knowledge (Uzuegbu, 2012)

Okiro (2012) perceived academic libraries as libraries attached to tertiary institution especially the universities. The authors posited that libraries that are established, organized and maintained by the universities explicitly are referred to as university libraries. Such libraries, according to them, provide the information needs of the university publics, thereby supporting teaching, learning, research and public services of the parent institution. It is also reported that such libraries are usually larger than other academic libraries in both scope and objectives, and are meant to serve broader publics of the learned populace (Uzuegbu, 2012). In general, Uzuegbu (2012) opined that apart from the role of the university libraries in teaching, learning and research, it must collect, preserve, promote and disseminate information to her users. Thus, university libraries are organized to meet the information needs of the students, staff and school/faculty members of the universities. In view of this, university libraries as academic libraries are essentially

the heart of the institution that provide the students, lecturers and research scholars with the resources for the acquisition and advancement of knowledge (Chaturvedi, 1994). Therefore, based on the foregoing roles of university libraries, they are indeed the most essential libraries across the universe, courtesy of their statutory role in education and research globally. Subsequently, the users of university libraries, especially students, expect the libraries to make available directly or remotely and in real-time the needed information resources and services, formats notwithstanding (Anunobi and Ed

oka, 2010).

2.2.2 Information services and use

Information is broadly referred to as accurate, timely, specific and organize data that are presented within a context that gives it meaning and relevance to an increased understanding and decrease uncertainty of facts (Web-Finance, 2013). From the definition of information, it follows that information simply means processed data that are meaningful for decision making (that is raw facts that have been processed and organized for use by its intended users).

Port (2012) discussed the several information services used by academics as follows: **Factual information**: These are statements that can be proven or substantiated with additional materials such as statistics. They can be found in information sources such as World Almanac, Almanac of American politics, Encyclopedia Britannia, Grove's Dictionary of Music and McGraw Hill Encyclopedia of Science and Technology.

Biographical Information: These are histories of a person's life. They may be very brief sketches, journal articles, or entire books. Biographical indexes are necessary to locate books and directories. Biographical information can be found in a variety of information

sources such as Biographical and Genealogy Master Index, current Biography Dictionary of America Biography and Who's Who in America.

Graphical Information: These are information that are embedded in maps, pictures, art forms, diagrams, images or other types of graphical representations. Maps, images or graphic-based information can be found in a number of information sources as National Graphic Atlas of the World, Grays Anatomy, Dictionary of Art and the Observer's Sky Atlas with 50 stars charts covering the entire sky.

Statistical Information: These are raw information/data that have been analyzed and organized into numerical tables, bar charts, graphs, etc. Often you will need to understand terms such as: mean, average, per capita, etc. in order to be able to interpret this information. They can be found in a variety of information sources such as statistical abstract of United States Agricultural Statistics, Housing Construction Statistics, 1964-1989, and United States Census of Population.

Products Information: They are tangible items that may be raw material or something manufactured. Information on products includes not only what they are, but also where to get them, how much they cost, their specification etc. The World Wide Web (www) has made finding products and information about them easy but the most reliable information sources for products are still the formally compiled directories of manufactures and their products, such as: Thomas register of American Manufacturers and Thomas Register Catalogue file, McGraw's Blue Book and Vendors Catalogues.

Patent Information: This is the description of an invention that has been registered with the patents and trade mark office of the United State Government or equivalent agency of a foreign government. Patents can be found using prints or electronic patent indexes, such

as: United State patent and trademark office patent data base, trilateral web site (patent databases of European, Japanese and US patent).

Research Information: According to Web-Finance (2013) these propose a theory or a hypothesis and then conduct studies, experiments, or other investigations that provide the facts and data to prove or disprove the theory. Typically research addresses highly specific topics and provides in-depth analysis. Research articles and books are usually written in the technical vocabulary of their discipline. Books based on research are usually found in university libraries, and located through the libraries online catalogue. Research articles can be found in peer reviewed journals such as Educational Research, Journal of Animal Science and Environmental Ethics.

Professional Commentaries: This type of information includes articles essays and editorials written by an expert or knowledgeable person. While this type of information can be published in a variety of sources, they are primarily published in substantial news or general interest. They are publication written for the educated audience. Information is usually available regarding the author's expertise or authority to write on that subject. Commentaries and interpretations can be found in periodicals such as Harpers, News York, Smithsonian and National Geographic.

Popular opinion: Includes articles, editorials, commentaries, etc. Generally, they are not written by experts and can range from unsubstantiated comments to well researched opinion. Most of the time, no information is provided on the author or his expertise on the subject he is writing about. Popular opinions can be found in publication such as Time, US New and World Report, and Life.

Newspaper Information: Sometimes the only way to obtain information is to talk to an expert in the field or to someone in a company or organization involved in the topic you

are researching. If you are asking for opinion, beware that there will be a bias or point of view in any information you obtain. Contact information for people, companies, or organizations can be found in directories such as phone directories, switchboard.com, world's business directory of US private and public companies, Encyclopedia of Association and Corporate or organizational websites.

From a similar perspective, Stancey (2013) identified other sources of information services use by the academics to include primary, secondary and tertiary information and went further to explain them as follows:

Primary Sources of Information: These are information obtained from original materials which have been filtered through interpretation, condensation, or often, even evaluation by a second party; for example: Journal article, monograph reports, patents, thesis, diaries, letters, photographs, poems.

Secondary Sources of Information: These are information about primary or original information, which usually have been modified, selected or re-arranged for a specific purpose or audience. Its example includes: biographic, histories, review articles, text books, indexes, bibliographies.

Tertiary Sources of Information: These consist of facts which are a distillation and collection of primary and secondary sources. They includes: encyclopedia, almanacs, guides hand books, atlas etc

Al-mutairi (2011) formulated a relational model to illustrate the factors affecting the information use of managers of public civil services in Kuwait. In the model, dependent and independent variable (factors) were identified. The dependent variables identified were personal factors (sex, age and education) and professional factors (management level, information system use and job experience); while the independent variables

identified is the information dimension (consisting of information characteristics, types and sources). Using the model to conduct the study, the findings revealed that age, education and information system use are the only dependant variables that make a difference in the three information dimensions (type, characteristics and sources). It also revealed that there are significant differences in terms of the age, educational level and information system use, sex, management, professional factors. The model is as shown below:

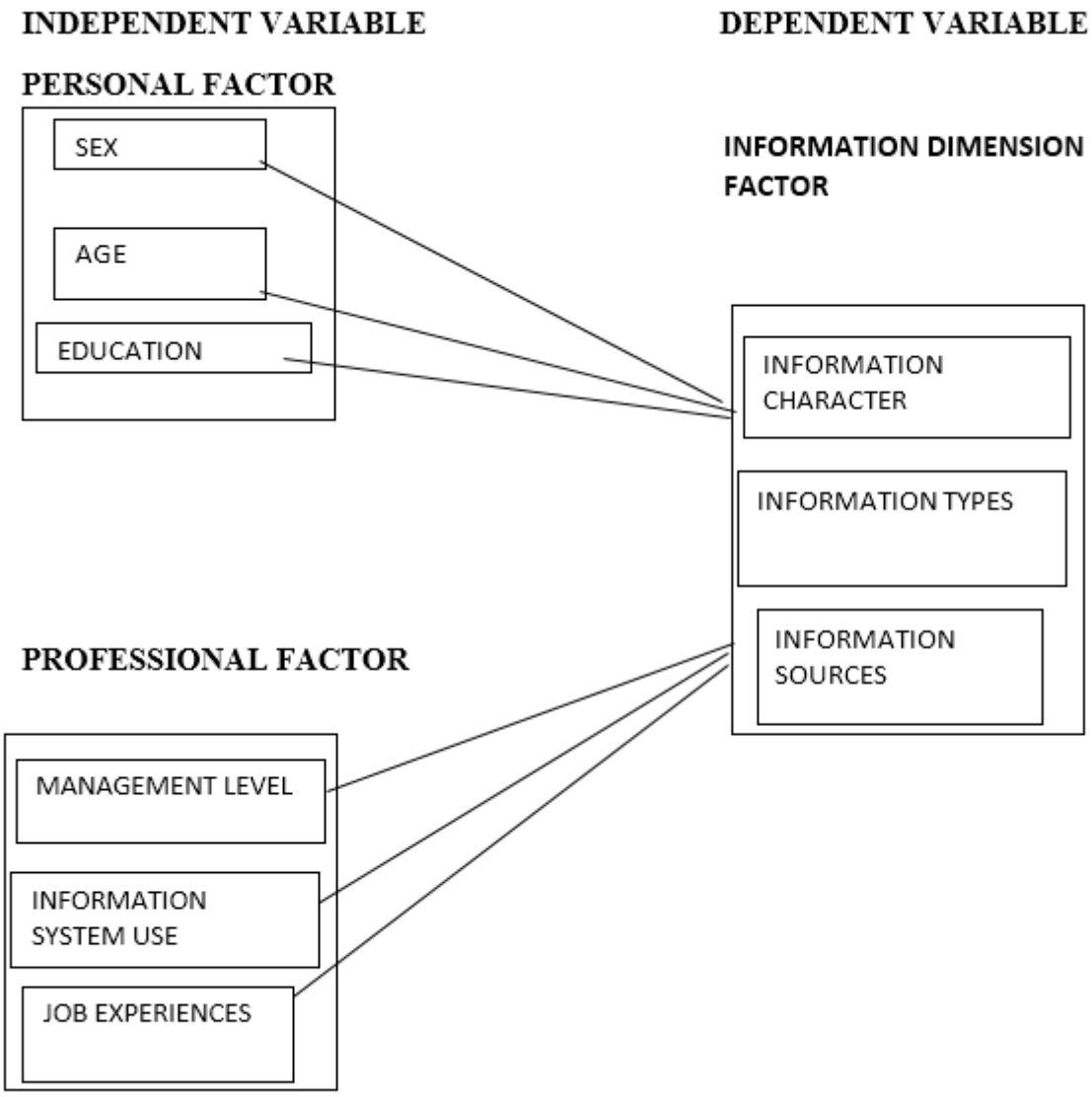

Figure 2.2: Schematic Diagram of Models of Factors Affecting Information Use/Seeking Pattern

Source: Al-mutairi (2011).

As can be seen from the model, the independent variable (information dimension factors) affect the dependent variables (personal and professional factors); thereby having a cross-sectional effect on the information use pattern of the managers of public service of Kuwait ministries (government).

2.2.3 Electronic library resources

A significant transformation has been noticed in collection development policies and practices in Universities (Sharma 2009). Print medium is increasingly giving way to the electronic form of materials (Sharma, 2009). Electronic resources, like CD-ROM, online journals, e-books, Only Public Access Catalogue (OPACs), and the internet, are slowly replacing the importance and usage of print media. The emergence of electronic information resources has tremendously transformed information handling and management in Nigerian academic environments, and university libraries in particular (Ani and Ahiauzu, 2008).

According to Arms (2007) an e-library is an organised collection of multimedia and other types of resources which are available in computer processable form. The acquisition, storage, preservation and retrieval of the resources is carried out through the use of digital technology. Access to the entire information collection is globally available directly or indirectly across a network which also supports users in dealing with information objects and helps in the organization and presentation of the objects via electronic/digital means. In the same vein, Issa *et al.* (2009) stated that e-library have assumed the role of educators, teaching users to find, evaluate, and use information both in the library and over electronic networks. As the use of e-library continues to soar, users are expected to develop information literacy skills.

These skills, as Julien in Issa *et al*. (2009) observed, will enable users to make efficient and effective use of information sources. The twenty-first century has been named the digital age, emanating from the proliferation of information through ICT. This calls for the possession of special information literacy skills. As such, information literacy skills equip the general population with the basic skills which will help them to end up as life-long learners. These skills will enable individuals to apply their insight from the natural environment to the new relationship of university libraries. Information literacy is the ability of an individual to identify and tactically use information maximally, thereby solving problems and meeting information needs (Arms, 2007).

According to Orgem (2012), lecturers need library resources because they are repositories of knowledge that provide the vital underpinning for national development. Similarly, Orgem (2012), citing Ranganathan, observed that the university or college teacher who thinks of education only in terms of his particular course aims and who confines himself to the use of lecture notes, textbooks and assigned readings all of his own choosing, has tradition and experience to assume his success. The collegiate teacher must suggest, provoke and guide reading and has to create interest where it does not exist. The lecturer can thus promote use of information sources in the library through teaching and research while the librarian will also do this through use of the library instruction.

Equally, the growth of information resources has become a global phenomenon, most especially in developed societies due to advancement in Information Technology (IT). Academic staff in developed countries are getting access to digital information and creating their information electronically (Ani and Ahiauzu, 2008). Similarly, Nigerian academic staff members are not left out in this paradigm shift. Faculty now has access to global digital information resources, particularly the Internet for their scholarly communication. According to Ekwelem, *et al,* (2009) the Internet and the World Wide

Web provide scholars with quick and easy access to electronic information resources located around the globe. Academic staff members now exchange preliminary drafts of research findings with colleagues and maintain contacts by monitoring electronic bulletin boards, chat rooms and list serve on subjects of interest. Information users now use the web to access remote databases and full-text document resources that were previously only available through expensive on-site research visits. Researchers use the Web to watch real-time images from remote research stations and satellites or participate in group discussions and group projects.

Dadzie (2007) cited in Gakibayo (2013) described electronic libraries as invaluable research tools that complement the print based resources in a traditional library setting. According to the researcher access to information remotely due to geographical location or finances, access to more current information, and provision of extensive links to additional resources related contents. Okiki and Asiru (2011) defined electronic library as information stored and transmitted in digital, electronic or computerised formats such as diskettes, CD-ROM databases, DVDs, online public access catalogues (OPAC), bibliographic and full-text databases, electronic journals, scholarly databases, information gateways, e-books, the Internet and electronic mails.

E-library services have successfully highlighted issues relating to the e-librarian's new and required roles in recent times. These issues include how e-library staff are obtained, trained and retrained to carry out this work. The issue of e-library services has enabled library staff to assume more specialized roles, as spelt out by Baro *et al*. (2013). These roles are that of Multimedia user comfortable with a wide range of formats; intermediary with a good knowledge of sources and requirement; enabler proactively connecting users with the information they require; metadata produce creating records of information sources in a variety of schemas; communicator formally and informally

liaising with users; team player working with colleagues in library, IT services, and academics; and innovator not just following the routine but also looking at improved ways to deliver services. Information that is available but not accessible to users is of no value. Electronic information resources offer today's student new opportunities that were not available to previous generations. Baro *et al.*,(2013) also argue that reading an e - journal is not the same as reading a printed issue, many students now acknowledge that electronic documents offer users advanced features and novel forms of functionality beyond those possible in printed form. Electronic information resources also offer today's lecturers new opportunities that were not available to previous generations.

As argued by Swain (2010), it is increasingly an important function of electronic information resources today to provide information in electronic formats including indexes, full-text articles, complete journals, and web resources. Electronic information has gradually become a major resource in every university across the globe, and its emergence has tremendously transformed information handling and management in academic environments. Further, researchers and scholars utilize the electronic resources in the academic perspective (Shuling, 2007). The new trend in the use of technology is the adoption of digital libraries for research activities. Information and communication technologies have revolutionized the concept of libraries. Students and academics benefit from an effective digital library as it provides a combination of digitally delivered content with learning support and services in the teaching and research activities (Mufutau, *et al.,* 2015.)

Libraries are now investing heavily on electronic resources especially academic libraries where users are exposed to various electronic resources outlets via Internet. This development is noticeable in the developed nations of the world. African countries and other developing nations are still struggling to bridge the digital divide that is preventing

them from the full benefits of electronic era. However, several efforts have been made to lunch African universities into the digital society with several initiatives by national and international bodies toward providing the required networked infrastructure that would enable them have access to free or heavily discounted journals and databases through programmes like AGORA, elFL, HINARI and PERI (Swain, 2010). Interestingly, Bar-Ilan *et al.* (2013) have maintened that the mo**s**t active users of electronic journals are the younger members of the teaching and research staff.

According to Kabede (2007), the accessibility of e-resources may be affected by the characteristics surrounding the user and information carriers, the characteristics of the contents of the e-resource and the overall information environment. Individual user characteristics such as levels of computer literacy and information literacy, language proficiency and preference to some information formats can also influence access and use of e-resources. E-resource characteristics may influence their accessibility and usage. The other factor influencing the accessibility of e-resources is the characteristic of the information carrier. CD or DVD-ROMs and web pages are some common formats of e-resources (Sife & Bernard, 2013). Accessing e-resources in these formats depends on the availability of devices needed for reading, connectivity and one's literacy level. The accessibility and usage of e-resources can also be influenced by the budget for purchasing devices, such as computers, to access these resources and for subscriptions paid to the publisher for access to a resource (Martin, 2010). When this budget is limited, accessibility and usage of e-resources may be low. Users' awareness about the existence of e-resources is also an important factor in the usage of such resources. Tyagi (2011) describes appropriate strategies to raise awareness in order to increase the usage of e-resources. Posters, e-mail lists, leaflets and brochures can be used to inform users about the available resources. For users to be able to access and effectively use e-resources, they

must also have adequate skills for retrieving information and evaluating the outputs of the search process. Mardis *et al*, (2008) refer to these skills as the competencies needed to access resources. These competencies include the information literacy skills, including skills to formulate a search, to identify appropriate information sources, to select the right search tools, to employ suitable search strategies and to evaluate the results. According to Bendersky *et al.* (2012), search formulation involves coming up with appropriate queries useful for finding the information needed by the information seeker. Catts and Lau (2008) point out that search formulation comes after the identification of the information needs. Search formulation helps the information seeker to retrieve information relevant to his or her needs.

Okoye and Ejikeme (2011) affirmed the necessity of accessing needed information research, in enriching education and sharing of knowledge; since there is a critical need to make research results available to as many academics and elite class as possible. However, despite the inherent benefits, researchers into the use of electronic resources have examined constraints associated with the use of ICTs and e-resources in Nigeria (Akpojotor, 2016). These include inadequate ICT skills among staff and users, low basic information literacy levels in the Nigerian population, prohibitive cost in developing countries of gaining access to internet through cybercafé, inadequate ICT infrastructure and expensive online access. Edem and Lawal (2014) noted that the growth in published materials particularly in the sciences, technology and medicine required that information in various formats be properly disseminated.

Aguolu and Aguolu (2011) asserted that Nigerian universities are responsible for conservation of knowledge, promotion and dissemination of knowledge through teaching, advancement of knowledge through research and development of human resources for meeting manpower needs and promotion of social and economic modernization. One of

the basic goals of a university is to provide enabling environment for the conduct of research and dissemination of knowledge for societal development (Hasim & Salman, 2010). Information is critical to be successful in research in the university. Adeloye (2007) lend credence to this view when he affirmed that access and use of information is needed for problem solving and decision making in research. The provision of timely information in the universities lead to numerous benefits which include increase in research productivity among postgraduate students. Hence, universities have been committing most of their resources to the acquisition of information resources through their libraries. It is increasingly an important function of university libraries today to provide information in electronic formats including indexes, full-text articles, complete journals, and web resources. Electronic information has gradually become a major resource in every university across the globe.

The emergence of electronic information resources has tremendously transformed information handling and management in academic environments (Gakibayo *et al.* 2013). Raghuveer and Kalyan (2014) emphasized that for learning, teaching, research, educational updates, the scholars need to be familiar with the available e-resources.

Universities managements are making efforts to adequately support research hence they acquire different forms of information resources, print and electronic, to build their collections. Nina (2008) confirmed that information sources are available in various forms such as journal articles, research paper, books, magazines film and audio/video recording plus the data stored in computer as well as in compact disks.

Hence, due to the advancement in information technologies in recent times, more attention is being given to the acquisition of e-resources to form part of libraries collections. In recent decades, Information and Communication Technologies (ICT) such as computer terminals, e-mail and the Internet and their applications have become the

major drivers of innovation, growth and social change. Mufutau *et al.* (2012) reported that the trend in the use of technology is the adoption of digital libraries for research activities. Information and communication technologies have revolutionized the concept of libraries. The author affirmed that students and academics will benefit from an effective digital library as it will provide a combination of digitally delivered content with learning support and services in the teaching and research activities. According to Williamson *et al.* (2007), the availability of and access to electronic information has been changing students' information-seeking behavior. The findings of their study revealed that the Internet and other electronic search tools influence the manner in which students search for information and the kinds of sources they select. Similarly, with the advancement of electronic information sources, the information needs of library users have also changed (Chen and Wu 2009).

Electronic resources are widely accepted and used in universities today for postgraduate research due to the several advantages associated with their use. Printed materials which served as the main sources of research materials for postgraduate research in tertiary institutions in the past are being replaced today by e-resources. Owolabi and Ajiboye (2012) maintained that university libraries no longer restrict themselves to print services but have extended their efforts to interdisciplinary concepts and computer software and hardware and telecommunication engineering and technology. Ndinoshiho (2010) stressed that the advances in information technologies have changed the way in which information for academic research is accessed and disseminated.

E-resources are utilized by students in the universities for several academic purposes. These purposes according to Ukachi (2013) include doing class assignments, writing term papers, augmenting class works, retrieving current literature for studies, following blog

discussions on the subject area of interest, searching for scholarship opportunities, searching for internship placement and for research purposes.

2.2.4 Acquisition of information literacy

According to Idiodi (2010), information literacy skills acquisition is an aspect of information literacy and may be seen as the process of gaining the tools that assist the development of information literacy in an individual. Information literacy implies the intellectual capabilities involved in using information, as distinct from the technical know-how required for using technology that hold or deliver data.

Hargittai (2008) in his study of online skills, defines skill as the ability to complete a task and the amount of time spent for completing it. Academics with low information literacy skill may spend too much time retrieving information owing to problems they may encounter when seeking information especially in electronic information resources. To retrieve information in the open web, both formal and substantial information skills are needed.

Similarly, Adigwe (2010) defined information literacy as the ability to locate, evaluate and use effectively the needed information. Information literacy has its roots in library user education, where librarians induct new users about the services offered by the library and teach them something about finding and evaluating information. The relevance of research among academics in any university system depends largely on the quality and quantity of information resources at the institution's disposal and their use for teaching, research and community activities by faculty members in the university system. The effectiveness of academics in any university system depends on the ability to exploit available information resources either in print or electronic formats. The need for faculty members in Nigerian universities to function effectively also calls for adequate

information literacy skills. Thus, libraries exist in universities to meet the information needs of students, members of academic staff and other researchers in the community where such universities exist. To actualise this objective, academic libraries acquire and organise both printed and electronic information resources for use by their clientele.

Boekhorst (2003) notes that all definitions and descriptions of information literacy presented over the years can be summarized in three concepts: (1) ICT concept which refers to the competence with which to use Information Communication Technology (ICT) to retrieve and disseminate information; (2) the information (re)sources concept, this refers to the competence to find and use information independently or with the aid of intermediaries and (3) the information process concept of information literacy, which refers to the process of recognizing information need, retrieving, evaluating, using and disseminating of information to acquire or extend knowledge. This concept includes both the ICT and use of information sources

Information literacy can enhance the accessibility and usage of e-resources. However, for effective access to, and usage of, e-resources individual and infrastructural factors must be considered as well. The present study set out to identify these factors, assess their impact and determine how to adjust their influence on accessibility and usage of e-resources. Various types of e-resources are used in education, including e-books, e-journals, web based resources, e-databases, data archives, manuscripts, maps, magazines, theses, newspapers, e-mail, research reports and online catalogues (Quadri, 2012; Sharma, 2009).

Audunson *et al.* (2013) also categorise information literacy into three main groups. The first group according to them describes technical capabilities, that is, computer literacy. The second deals with intellectual capabilities as they relate to traditional literacy, and

the third, communicative competence that presupposes technical as well as intellectual capabilities. For each dimension, the authors distinguish several levels of competence, from basic competence to super-user competence to in-depth competence and consider information literacy as the sum total of different kinds of literacy.

Abolade (2000) postulated that the personnel involved in information literacy work have emerged from different disciplines of teaching, educational research and libraries, bringing with them expertise and specialist knowledge from these diverse areas. Information skills mean skilled behaviour in respect of understanding as a result of successful interaction with a source of information, and if this is so, two things come to play. First, skills cannot be taught apart from the context of their operations. Second, we learn to study by studying and because they are in the end, indissolubly linked to personal knowledge, there is no set of skills to be acquired as if one has stretched out a hand and taken them from the environment. Instead, they are developed as part of personal developments.

Okiki (2013) finds it helpful to distinguish between 'skills-based literacy such as computer and library literacy, which essentially indicates a competence in handling information in a particular setting or context or format, and more general capabilities. These wider conceptions of information literacy stress capabilities beyond simple competence in retrieving or communicating information.

2.2.5 The Extent of electronic information use

The use of electronic library resources has contributed to reshaping information retrieval process and access to information by the academics. Before now, information was transferred from librarians to the user, but presently, most of the communication and transfer of information is between the users and the computers and this is due to the

existence of electronic library and its management. Academics who need to do research would benefit from a more effective electronic library as it would provide a combination of digitally delivered content with learning support and services. The electronic library provides more choices, enhances flexibility and often provide the learner with instant feedback. It allows students to select learning materials and is convenient to access at any time and at any place (Lee, 2008).

According to Islam (2011), the level of education, programme of study, age and gender are found to be significant in the effectiveness of electronic library on learning and research. However, race and marital status were found to have no significant effect on the effectiveness of learning system. Therefore, it is indicated that respondents with higher level of education may have accepted using e-learning tools, which includes online resources such as library portal as a learning program and therefore contribute to the effectiveness of the learning and research system. Many education organizations today practice the electronically learning method known as the e-learning that used the CD ROM, Internet, video conferencing, satellite transmissions, e-books, e-journals, OPAC, library portal etc. as tools to deliver knowledge across to the learners. Internet is still the most frequent used method as it covers a wider area and this is being used in both the public and private educational system. Okiki (2013) examined the factors that influence the use of electronic information sources among postgraduate students. His study covered six Universities in the South-West Nigeria namely University of Ibadan; University of Lagos; Olabisi Onabanjo University, Ogun State; Federal University of Technology, Akure; University of Agriculture, Abeokuta; and Lagos State University. The results show that males seem to enjoy browsing on the internet for enjoyment while female tend to only use it for work related purpose.

2.2.6 Use of open access electronic resources

According to Cullen and Chawner, (2011) access to scholarly and scientific information has been primarily controlled by many of the publishers. The publishers could be viewed as the most powerful authority on scholarly and scientific communication, especially in terms of the economy. This control has been viewed as barrier to scholars' access to information. With the emergence of Internet and the World Wide Web, a movement toward barrier-free access to scholarly and scientific information has begun. This movement is called Open Access (OA). While an increasing number of scholarly societies and institutions develop Open Access journals, academic libraries develop Open Access Repositories as part of their contribution to Open Access movement. Libraries have theses, dissertations, institutional documents and data, as well as other files that may likely be accessible to public. Higher education institutions are the major institutions that develop Open Access repositories and it is academic libraries that manage the development of Open Access repositories.

Schmidt and Shearer (2012) noted that other information professionals may collaborate with academic librarians to develop Open Access repositories. Academic libraries provide Open Access repositories in order to collect and make available the research output of their institutions. Latif *et al*, (2014) stated an interesting note in relation to Open Access movement as follows:

> "Repositories as systems for collecting, publishing, disseminating and archiving digital scientific contents have become one of the most prominent types of digital library applications. Especially with respect to Open Access publishing, repositories nowadays serve as platforms for acquiring and disseminating scientific content, which before had been almost exclusively released by commercial publishers. Making resources available through

> Open Access repositories will also help researchers and other academicians get scholarly information. The availability of pre-print and post-print, dissertation, theses, research reports, and other scholarly resources is valuable for scientific and knowledge development. The tradition of providing such resources has actually been done by libraries in the past and the collection was called grey literature. With the Open Access model, those resources are more visible and accessible and therefore more readers can get access to them. Libraries can preserve research documents, data, and other repository materials of their institutions for future use"

Commenting to the emergence of Open Access repositories, Hunter (2001) stated that actually academic libraries have embraced digital publishing to provide digital resources for both faculty and students. Libraries can be the resources and publishers all at once. Nowadays this has been practiced by some libraries and in the future, libraries will have more important roles both in publishing and disseminating knowledge.

Nicholas and Rowland (2005), posited that open access focuses on three main characteristics: that it is available on the internet, that there are no financial or legal barriers to accessing it, and that authors use copyright only to maintain the integrity of their work and retain the right of attribution. Jain (2011), the Budapest Open Access Initiative describes two methods of achieving open access: self-archiving and open access journals. Self-archiving includes both institutional repositories (IRs) and personal web archives. Self-archived materials may also be stored in a departmental or discipline-specific online repository. Some self- archived materials (for example, working papers) may restrict viewers to a certain group (for example, colleagues in a department), while others are freely available on the web. Open access journals are scholarly journals that are freely available online. Many are peer reviewed, but some are not. Some are online

only publications, while others are duplicates of print journals. Willinsky (2003) observed that the "delayed open access" model provides complete free access after an embargo period, often six months after the initial publication for subscribers. Another variation is "partial open access," which means that only a portion of the subscription-based journal is available for free online.

Besides offering Open Access repositories, librarians can also help scholars get Open Access resources by compiling and indexing the Open Access websites. Librarians can play a role in scholarly and scientific communication by providing access to research output and other documents from their institutions in the form of Open Access repositories. Realistically, it is the librarians' task to contribute to the scholarly and scientific communication by providing and marketing the resources instead of keeping them away from users. By providing resources through OA movement, librarians open the doors of scholarly communication.

2.2.7 Information literacy and use of information resources

Information literacy skills is imperative for effective utilization of e-resources. Adeleke and Emeahara (2016) summarized all definitions and descriptions of information literacy presented over the years in three concepts: The ICT concept which refers to the competence with which to use ICT to retrieve and disseminate information, the information (re)sources concept, which refers to the competence to find and use information independently or with the aid of intermediaries; and finally, the information process concept of information literacy, which refers to the process of recognizing information need, retrieving, evaluating, using and disseminating of information to acquire or extend knowledge. Information literacy forms the basis for lifelong learning and is common to all disciplines, to all learning environments, and to all levels of

education. It is a crucial skill in the pursuit of knowledge in the information encumbered environment.

Information literacy skills are essential components of a successful academic career (Oakleaf and Owen, 2010). The acquisition of information literacy skills has become very important for academic success in the 21st century since information is produced in large quantities. According to Umeji *et al*. (2013), information literacy is a tool which enables learners to master content and extend their investigations, become more self-directed and assume greater control over their own learning. Ivana (2016) asserted that scholarly communication is impossible without implementation of inter lit skills; scholars from all disciplines have to know how to search for information, how to evaluate it, how to produce and present new information in a proper, ethical manner. Kodani (2012) noted that lack of information search skills leads to delay and frustration in students' attempt to complete courses related works that require research. Lack of the basic skills to use available e-resources adversely affects the academic performance of students as well as their research output in the information era. Kumar *et al.* (2012) argued that the use of electronic devices do not guarantee knowledge of information literacy skills needed to access web-based resources or electronic databases in the library.Students need information for a variety of activities in the university and the e-resources are capable of meeting their needs. Information resources are exploding daily and there is the challenge of using these resources effectively. Imsong and Kharbudon (2016) observed that in using the e-resources, students lack skill in locating and evaluating information, which impedes their effective use. The author suggested that libraries should organize orientation programmes in the beginning of each session where the users can be taught how better they can access e-resources and be familiarised with the electronic environment.

Information technologies have brought so much change to the education environment with university libraries now subscribing to e-resources to meet information needs of their users in the 21st century. The 21st century is characterized by a constant explosion of information from myriad sources hence the knowledge of how to locate and retrieve information becomes imperative. Amalahu *et al.* (2009) described information literacy to include library literacy, computer literacy, search literacy, and critical thinking skill. These skills are important in the use of electronic resources because of the proliferation of information presently experienced as a result of series of research and developmental activities taking place globally (Ukachi *et al.* 2014). The explosion of information makes it nearly impossible for students to learn everything needed for a lifetime of success during their years of formal schooling. Therefore, teaching students to be information seekers and managers is a practical twenty-first-century educational goal and necessary personal disposition. Bhukuvhani *et al.* (2012) observed that access to electronic information resources can immensely improve academics' research productivity and their pedagogical practices but concluded that there is a need for electronic information resources skills training to overcome the nagging challenges of limited access, lack of knowledge and lagging behind in technological advancements.

The ability to find, analyze, and use information is essential in a democratic society and global culture as information literacy skills equip one for a lifetime of independent learning and personal empowerment. Soleymani (2014) emphasized that the ability to adopt oneself with the changes, competitiveness, and lifelong learning are required for success in the contemporary society. Ottong (2005) in Ukachi *et al.* (2015) reported that information literacy is an understanding of, set of abilities enabling individuals to recognize when information is needed, and have the capacity to locate, evaluate and use effectively the needed information.

According to Togia and Tsigilis (2009), the increase in information in electronic format now encourage students to learn how to find, select and use a wide range of resources. They argued that higher education has the responsibility of developing the skills required, in order to produce qualified individuals who would be engaged in the lifelong pursuit of knowledge for personal and professional growth. Soleymani (2014) saw information literacy as a set of information needed for searching, retrieval, evaluation, and making the best use of information.

The effective usage of e-resources in university libraries is more important in the management of the resources hence lecturers need to possess the skills required to explore electronic resources. Adeleke and Olurunsola (2010) submitted that the ability to use library resources effectively is increasingly becoming recognized as an integral part of the undergraduate study and a great concern to library practitioners the world over. Alison (2007) observed that information literacy includes evaluating and using information appropriately and ethically once it is retrieved from any media, be it electronic, human or print. The author argued that all stakeholders including librarians, lecturers, and administrators have the responsibility of helping people to become information literate.

In recent times, calls have been made to improve the educational curriculum and quality of education to train students sufficiently to adapt to the 21st century workplace.

Efe and Lucky (2013) argued that literacy is fundamental to national development, and thus nations subscribe to global literacy development agendas so as to eliminate illiteracy which often affects social development. The authors mentioned that individuals need to be adequately and functionally literate in order to be fully capable of living healthily, enjoying a long life and participating in the information driven and digital world. Information literacy helps to define a problem and find information to solve the problem. The acquisition of information literacy skills in society is important today as the

consequences for reaching adulthood with limited information literacy skills are becoming increasingly severe (Melissa and Don, 2007). Individuals who are unprepared to participate in our information-rich society are at an increasing disadvantage, the authors reiterated.

Issa *et al.* (2009) in their paper on information literacy opined that locating electronic information online requires the ability to locate, manage, critically evaluate and use information for problem solving, research and decision making. The authors enumerated certain skills required for effective and efficient use of library resources to include; specific online searching skills, ability to select appropriate search terminology and construct a logical research strategy, and evaluating information appropriately.

Kodani (2012) reported that the ability to locate information is necessary for quality research. A person must be able to recognise the need for information and have the ability to locate, evaluate and effectively use the needed information. To effectively use the e-resources provided by any institution, those who are meant to utilize such resources should possess the required skills to explore same. Literature has established that possession of information literacy skills is an important factors that determine the use of e-resources among students (Adeleke and Olorunsola, 2010). Trainings are organized to enable students acquire the skills that are required to explore e-resources in educational institutions. Training received by students among others include: (1) training given by the university library, (2) online instruction, (3) individual instruction, (4) and training on special request. All these are meant to equip students to enable them use the resources provided by their institutions.

Gui (2007) observed that sophisticated computer skills do not automatically translate into skills in search and retrieving of information. However, some studies, for example Kinengyere (2007), found out that available information is not necessarily accessed and

used by users. The study shows that the availability of information does not necessarily mean actual use because the users may not be aware of the availability of such resources, they do not know how to access these resources, or do not know what the resources offer.

According to Idiodi (2010), information literacy skills acquisition is an aspect of information literacy and may be seen as the process of gaining the tools that assist the development of information literacy in an individual. Information literacy implies the intellectual capabilities involved in using information, as distinct from the technical know-how required for using information technologies that hold or deliver data. This latter ability can be characterised as information technology literacy. Katz (2007) postulated that information literacy emanates from library education guide. Information explosion caused by the rapid development in modem technology can be controlled through the development of information processing. Bawden (2001), assert that the library instruction of present day focuses on routines that expose users to the use of library information resources and services. Emmanuel and Jegede (2011) explained the role of information search skills to educate information users on how to locate, manage and effectively use information for their immediate needs. Ojedokun (2007) asserted that information searching skills are important skills that allow people to effectively make decisions, solve problems and carry out other information activities. Information searching skills involve active processes that require searching for information from different sources.

Thousands of global television and radio networks, coupled with an immense array of online resources have challenged long-held perceptions of information management. Rather than merely possessing data, we must also learn the skills necessary to acquire, collate, and evaluate information for any situation. This new type of literacy also requires competency with communication technologies, including computers and mobile devices

that can help in our day-to-day decision making. Previous studies have shown that computer literacy is an important component of inquiry for information in university libraries (Chan-Lin, 2008). The use of computers for information searching is a direct function of the user's knowledge of the search strategies, as well as the ability to identify the information problem at the starting point of the search (Kim, & Sin, 2011).

Information searching as defined by Bashorun *et al.* (2011) is a specific and complex way of solving problems. Xie (2009) argued that lack of computer literacy among adult library users is one of the reasons that discourages them from taking advantage of library e-resources and services. As argued by Tella (2016), digital libraries and e-resources provide services supporting students to perform intense tasks that require complex interaction activities. This implies that postgraduates may not access and use e-resources without adequate computer literacy skills. How can postgraduate students access e-resources when they are not comfortable with computer usage? Also, how can they access e-resources when they cannot navigate through the internet? These are some of the pertinent questions confronting users utilizing to use e-resource in university libraries (Okello-Obura and Ikoja- Odongo, 2010).

Students sometimes lack both computer literacy and research skills and so do not find the best appropriate information; therefore, they are left to use whatever information they can find first and fast (Thachill, 2008). Dange (2010) studied postgraduates computer literacy viz-a-viz their e-resources use in Ku Vampu University, India and reported that the students entering the university at the postgraduate level had a mediocre knowledge of computer. Even though the students had some knowledge of the computer at their respective high schools, there are still more to learn in terms of information retrieval, storage and editing of their research works. Dange (2010) asserts that universities still need to provide introductory computing literacy subjects to ease postgraduates' use of e-

resources that will facilitate their research work. Eves and Dalzeil (2007) posit that computer literacy training is useful for effective use of e-resources in university libraries among postgraduates because most recent and up-to-date information are electronically stored. This submission reflects that of Dange (2010).

Khan (2011) researched the use and application of computer by different levels of students (undergraduates and postgraduates) in universities and found that their use of computers was below average. The study by Ozoemelem (2009) on use of e-resources by postgraduate students of the Department of Library and Information Science of Delta State University, Abraka, Nigeria observed that there was low level of computer literacy among the respondents. This low level of computer literacy has also been reported the study by Issa et al. (2009) among students (undergraduates and postgraduates) of the University of Ilorin, Kwara State, Nigeria where only 5% of their respondents use computers for searching education-related database.

Summarily, from the above analysis, it is evident that academics and students use information contained in varying information sources to achieve their numerous information needs. Hence, in whichever way information is classified, it is proficiently, contextually and formally used by academics, researchers, postgraduate and undergraduate students to satisfy their individual and collective quest for knowledge.

2.2.8 Factors militating against the acquisition of e-library services

The industrialized world is creating virtual libraries because of the high value placed on the availability of information, while the socio-technical condition to sustain virtual libraries does not exist in most African countries in general and Nigeria in particular. The infrastructure needed for the virtual library is not fully in place. Networks already exist in some universities in Nigeria, but access to the internet is limited. There is a

need to have a good telecommunication infrastructure in place for the implementation of a virtual library (Fabunmi, 2009).

Abdulsalami (2012) reported that challenges in the acquisition of e-resources, include poor and insufficient band width for effectiveness of the library, the limited number of library staff skilled in e-resources and internet searches, and poor power supply and limited back-up available (very few libraries have good and dedicated standby generators). Even though there have been a massive improvement in the telecommunication industry over the last few years in Nigeria, a lot still needs to be done to improve its present state. Web technology skills are needed to maintain web servers that host locally digitalized materials and other digital resources hosted remotely as well as maintaining proxy access to restricted resources.

Fabunmi (2004) observed that Nigeria has an acute shortage of digital systems librarians; the virtual library cannot exist in this situation because web servers that host locally digitized contents and proxy servers that provide authentication and remote access to subscribed electronic resources need to be on for twenty-four hours a day. Another challenge is the lack of purpose-built library buildings. Provision was not initially made in buildings for information technological devices. But with the advent of information technology, renovation of existing library buildings will need to be done to accommodate new trends, facilities and services.

The need for a virtual library system has therefore become the most urgent necessity in universities in Nigeria. Ya'u (2003) asserts that the virtual library has an opportunity to address the paucity of teaching and research materials in the libraries of higher institutions in Nigeria as well as give room for the sharing of research outputs with the global community amongst institutions and local researchers.

It will enhance access to national and international library and information resources for teaching, learning, research and pleasure that is the key to making Nigeria a true and active member of the global village polity. Fabunmi (2009) points out that the information and communication technologies (ICTs) infrastructure is poorly developed in Nigeria. This needs to be addressed so as to facilitate the smooth take-off and running of virtual libraries in Nigeria. Relevant teaching and learning materials are made available in digital format through virtual libraries for ease of access by end users; however, there is a need to have adequate human and infrastructural facilities for the sustainable development of virtual libraries in Nigeria. Fabunmi (2009) recommended that there is a need for the government to put in place policies and strategies that will enable libraries in Nigeria to achieve the objectives of virtual libraries. The government should make efforts to provide funds for policy implementation, provide necessary technology training for librarians, and develop information infrastructure. The training of librarians in Nigeria is inadequate, and needs radical restructuring to produce librarians suited to deliver services in digital libraries. Studies of libraries in general and university libraries in particular have consistently reported inadequate levels of ICT literacy as one of the major problems facing libraries in Nigeria in the twenty-first century (Baro, 2011).

ICT infrastructural development and poor funding have been identified as problems, followed by poor ICT skills among library staff (Baro and Zoukemefa, 2011). The present and future librarians should be able to exploit the use of information and communication technologies for modern library practice. Only then, will they be able to have greater access to a rich and diverse range of electronic library services that are currently dominating the world of information storage, processing, retrieval and dissemination.

It should be realised that many Nigerian libraries, especially in universities, face various problems in their attempts to computerize their library operations. These problems are not really of the library's making, but they are the usual problems confronting most computer installations all over the country, mostly the shortage of manpower. There is also the problem of constant computer breakdown due to the low level of electricity supply. This problem has really slowed down the activities of most Nigerian university libraries in utilizing global information and technological innovations for the services of their clientele. The erratic power supply often results in the burnout of some components, which are not easily replaced. Many other university libraries have at one time or the other planned to automate their activities. These plans had to be dropped halfway through as a result of the shortage of both personnel and equipment for effective implementation of projects.

Natarajan *et al*. (2010) established that the frequency of electronic resource utilization was low despite its wide range availability. These authors further identified constraints that included inadequate time, poor awareness, poor subject coverage, and slow downloading. Igbo and Imo (2010) identified lack of electronic resources and irregularity in subscription to electronic journals as some of the factors inhibiting the use of electronic information resources. In the same vein, Omotayo (2010) observed that a major issue that constrains users is lack of awareness of electronic information resources. However, he argued that awareness of electronic resources is not necessarily a proof of its use. A factor that could discourage some people, particularly the older ones, from using electronic resources is the consequence of prolonged e-book reading. Apart from straining the eyes, using e-resources efficiently will require some computer literacy.

Electronic resources are easier to be searched for especially among vast amount of data within the shortest possible time. Significantly, a good number of sources are available

with the aid of the Internet, some of which can be accessed without a fee of charge. Use of e-resources is becoming more pervasive. In the context of developing countries, Okello-Obura and Magara (2008) investigated electronic information access and utilization at the East African School of Library and Information Science, Makerere University, Uganda. Out of the 250 targeted students, 190 responded, giving a response rate of 76%. The study revealed that users derived a lot of benefits from electronic resources, gaining access to a wider range of information and improved academic performance as a result of access to quality information.

Chisenga (2004) carried out a survey of the use of ICTs in ten African Public Library Services. The survey found that although most libraries had internet connectivity, very few were offering web-based information services to their users. The study identified four barriers to the effective provision of electronic resources in those libraries, namely: lack of strategic planning, lack of adequate or reliable funding, lack of use of Internet to provide information services to users, and a lack of consistent training for users in new ICT services.

In the Nigerian context, Okiki (2013) investigated the accessibility and retrieval of electronic information at the University of Agriculture Library, Abeokuta, Nigeria. Four hundred and twenty five participants responded out of a survey population of 1,000, giving a response rate of 53.87 percent. The study revealed that electronic information availability cuts across all members of the University community, that it was to a greater extent easy to use, and that respondents were satisfied with their search outputs. The constraints identified included insufficient number of terminals available for use despite high demand and inadequate electricity supply. Ojo and Akande (2009) in a survey of 350 respondents examined students access, usage and awareness of electronic information resources at the University College Hospital (UCH) Ibadan, Nigeria. The study revealed

that the level of usage of the electronic information resources is not high. A major problem however identified was lack of information retrieval skills for exploiting electronic resources, thus making the level of usage of resources by medical students very low. Jagboro (2003) had also emphasized the emerging reliance on cybercafés, and attitude of users to electronic resources. In a study she conducted in some Nigerian Universities, it was found that 45.2% of respondents accessed electronic resources from cyber cafés. Though this attitude, according to her is due to the proximity of cyber cafés to user facilities.

Ajuwon *et al,* (2006) also carried out a study on acceptance of ICTs by health science students at the University College Hospital, Ibadan. This study found that 57% of students sampled could not use a computer, that the use of the database was poor, due to lack of awareness, lack of access to computers, insufficient training and the high cost of provision of electronic information services.

2.3 Theoretical Framework

The theoretical framework for this research is based on unified theory of acceptance and use of technology (UTAUT). This is a technology acceptance model formulated by Venkatesh *et al.* (2003). The UTAUT aims to explain user intentions in using an information system and subsequent usage behaviour. The theory holds that four key constructs (performance expectancy, effort expectancy, social influence, and facilitating conditions) are direct determinants of usage intention and behaviour (Venkatesh *et. al.,* 2003).

1) Performance Expectancy (PE) – This refers to the degree to which an individual believes that using the system will help him or her to attain goals or gains in job performance.

2) Effort Expectancy (EE) refers to the degree of ease associated with the use of the system.
3) Social Influence (SI) is the degree to which an individual perceives that important others (such as bosses, peers, subordinate,) believe he or she should use the new system.
4) Facilitating Conditions (FC) refers to the degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system.

Gender, age, experience, and voluntariness of use are posited to moderate the impact of the four key constructs on usage intention and behaviour (Venkatesh *et al.,* 2003). The theory was developed through a review and consolidation of the constructs of eight theories and models that earlier research had employed to explain information system usage behaviour. The eight theories and models are theory of reasoned action, technology acceptance model, motivational model; theory of planned behaviour; a combined theory of planned behavior/technology acceptance model, model of PC utilization; innovation diffusion theory and social cognitive theory. Subsequent validation of UTAUT in a longitudinal study found it to account for 70% of the variance in usage intention (Venkatesh *et al.,* 2003). The model is illustrated below:

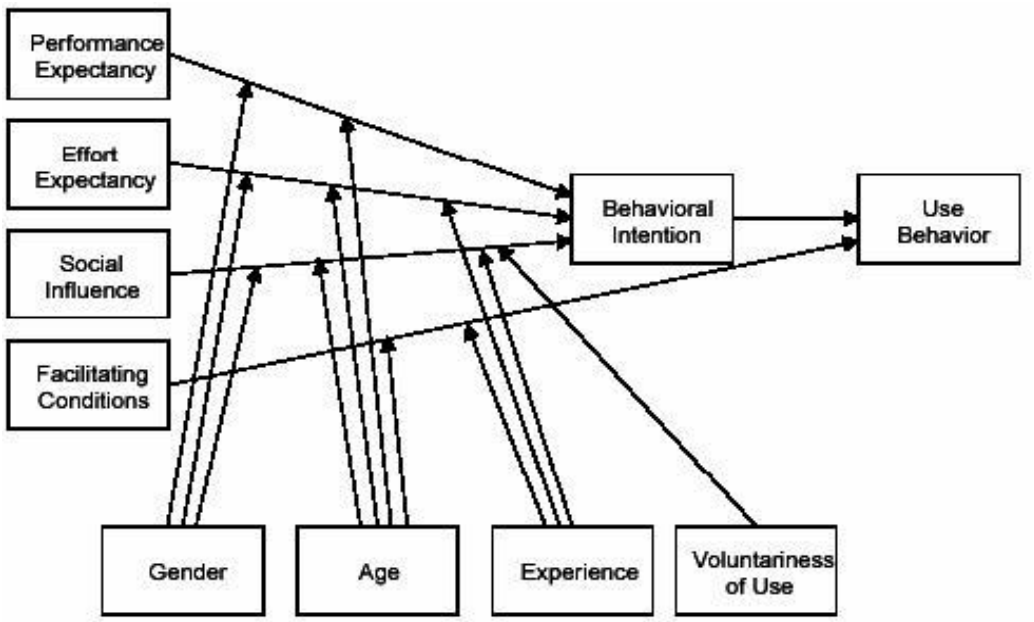

Figure 2.3: How field theory of acceptance and use technology model
Source: Venkatesh *et al*. (2003)

The Unified Theory of Acceptance and Use of Technology Model establishes a direct link between performance expectancy, effort expectancy, social influence, and facilitating conditions. The theory suggests that performance expectancy, effort expectancy and social influence significantly predicts students' intention to engage in use of e-resources which are technology-based. Maldonado *et al.* (2009) examined the acceptance of an e-learning technology in secondary school in Peru, and found that social influence significantly predicts behavioural intention. In the same study, they found behavioural intention to significantly predict use behaviour. Similarly, Carlsson *et al.* (2006) examined the acceptance of mobile telephone and found that performance expectancy, effort expectancy and social influence are predictors of behavioural intention.

As a product generated from experience of previous technology adoption theories, Unified Theory of Acceptance and Use of Technology is a comparably complete model. First of all, its explanatory power in technology usage behaviour is up to 70%, a much higher rate than other technology acceptance theories (Wu *et al.* 2008). With such

accuracy and broad application in explaining technology adoption behaviour, UTAUT model surpassed other theories and became a better choice for researchers in the area of technology usage behaviour. Secondly, its usage is not limited to mono industry but can be extended to industry such as mobile commerce (Xiao, 2006), online learning (Zeng, 2005), as well as medical surgery equipment (Bendersky *et al.* 2012) and clinical decision support system (Jeng and Tzeng, 2012).

The limitation of the Unified Theory of Acceptance and Use of Technology model is its inflexibility to adapt to different contexts. As Gahtani *et al.* (2007) reported in their research about information technology acceptance in Saudi Arabia, which is a middle-east country, cultural difference of Saudi Arabia from that of a typical western country became an obstacle for them to use UTAUT to analyze worker's adoption of computers in Saudi Arabia. Workers in Saudi Arabia had different work-related values from that of workers in western countries and this difference had negatively interacted with social influence and hence exerted negative influence on workers' acceptance of IT. Also in the research on students' acceptance of educational portal by Maldonado *et al.* (2009) the researcher have to do some adjustment on moderators such as experience, voluntariness and age to region. According to Trichenor's theory (1970), the higher the social-economic status the faster and easier people can acquire political and scientific knowledge including technology.

The Unified Theory of Acceptance and Use of Technology is relevant to this study being an investigation on how the information literacy skills correlates with use of e-library resources. Lecturers who have expectation that using the system will help them improve their teaching, learning and research activities; who believe that their senior colleagues expects that he or she should use the new system; or believe that an organizational and technical infrastructure exists to support use of the system, will show positive behavioural

attitude towards adoption and use of such system. Similarly, lecturers who have expectation that using e- library resources will improve their performance, perceive that using the system will be effortless or who have expectation that their institution will provide adequate ICT tools to facilitate effective use of e- library resources will show positive attitude towards accepting computer technology in retrieving information for research and other academic activities. Lecturers' attitude towards e- library resources usage and their computer self-efficacy will determine their use of the computer-based information resources.

2.4 Review of Related Empirical Studies

Yebowaah and Plockey (2017) examined awareness and use of electronic databases by lecturers in the University for Development Studies' library in Ghana. The study adopted a quantitative approach through the use of survey design. Findings of the study indicated that most of the respondents (54 or 67.5%) did not use electronic databases of the library while only 26 (32.5%) respondents indicated that they have been using electronic databases in the library. The findings also revealed the frequency of electronic databases utilisation in the library. It was found that only 2 (7.7%) respondents use electronic databases of the library every week, while 4 (15.4%) respondents used it twice every week. It was also discovered that 11 respondents (42.3%) used the electronic databases of the library once in every month, while 9 (34.6%) respondents used the facilities once a while. The above study relates to the current study in subject matter, purpose and method of data collection as they are directly related to that which this study will adopt. However, the study differs in terms of the area of the study and sample and sampling technique.

Ojo and Akande (2009) studied the role of individual differences in Internet searching in a survey of 350 respondents and examined undergraduate's access, usage and awareness

of online information resources at the University College Hospital (UCH) Ibadan, Nigeria. The major findings of the study revealed that the level of usage of the electronic information resources by undergraduates students was low. A major problem identified was lack of information retrieval skills for exploiting electronic resources, thus making the level of usage of resources by medical students to be very low. The above study relates to the current study in area of focus, purpose and method of data collection. However, the study differs in terms of the population of the study, area of the study and sample and sampling technique and scope. The study was limited to undergraduate student alone while the current study focuses on lecturers.

Bar-Ilan *et al*, (2013) conducted a survey on the use of electronic databases and electronic journals accessed through the web by the academic staff of Israeli universities. The findings showed that the most active users of electronic journals are the younger members of the teaching and research staff. The study relates to the current study scope- purpose and method of data collection. These are adopted in this study. However, the study differs in terms of the population of the study, area of the study and sample and sampling technique. The study was limited to academic staff in a single university while the current study intends to improve on this by focusing on lecturers from over 20 universities so as to have a wider view of the problems and peculiarities in the use of e-resources in the various universities.

On the other hand, Fatoki (2014) investigated the impact of the use of library resources and the Internet among undergraduate students in Ibadan and found that 65% of the students use the Internet for research work while 35% do not use the Internet for research work. Her findings also revealed that 60% of students preferred to use the university library's Internet services, 35% of them the cybercafé, and 5% neither. The above study relates to the current study in geographical location and method of data collection. The

study, however, differs in terms of the coverage, population of the study, area of the study and sample and sampling technique and scope. The study was limited to undergraduate student use of library resources and Internet alone while the present study focuses on lecturers' information literacy skills in the use of e-library to identify and close the gap that exist in this area.

Babatunde and Paschal (2015) examined barriers to ICT Deployment in Nigerian universities. The findings reveal that lack of adequate ICT infrastructure and affordable online access, absence of in-depth ICT skills, piratic irregular electricity supply, fear of internet security threats, amongst others are barriers to deployment of ICT in Nigerian universities. In the same vein, Ashcroft and Watts (2005), Adomi (2005), and Apulu *et al.* (2011) identified problems in the adoption and use of ICT and online resources in Nigeria. These include lack of adequate ICT skills among staff and users, low level of basic information literacy in the Nigerian population, and prohibitive cost in developing countries to gain access to internet through cybercafé. The above studies relate to the current study in terms of geographical location in Nigeria, contents and method of data collection. The studies however differ from the current study in terms of the coverage, population of the study, area of the study and sample and sampling technique and scope. The study was however, limited to one medical college library and the use of online resources in Nigeria alone which the current study intend to improve by focusing on lecturers information literacy skills in the use of e-library resources to identify close the gap that exist in this area.

Gakibayo *et al*, (2013) focused on the concept of utilization of electronic information resources in Mbarara University Library in their study. Quantitative and qualitative methods were employed to elicit data from library staff and undergraduate students from four faculties of Mbarara University in Uganda. Two hundred and sixty-six respondents

participated in the study. Data was collected by use of questionnaire, document analysis and interview guide. The study found that utilization of e- resources was not only affected by lack of computer skills and information literacy skills but also lack of enough computers and slow internet connectivity. The frequency of use of these resources indicated that a lot needs to be done to increase e-resource use. The study relates to the current study in terms of subject of research. The studies however differ in terms of the methodology, coverage, population of the study, area of the study, sampling technique and scope. This study was limited to undergraduate students computer skills while the current study focused on lecturers information literacy skills in the use of e-library.

Kinengyere (2007) examined the effect of information literacy (IL) on the usage of electronic information resources in academic and research institutions in Uganda. The researcher reports that availability of information does not necessarily mean actual use. The study shows that some of the available resources have not been utilized at all. This means that users are not aware of the availability of such resources, they do not know how to access them, or they do not know what the resources offer. All this calls for continued information literacy programme. Information literacy is very vital in influencing utilization of information resources. Information professionals are needed to pass on Information Literacy (IL) skills to library users, while library users should endeavor to find out what information is available online for their consumption.

Similarly, the study of Odede and Enakerakpo (2016) investigated undergraduate students' computer skills and the use of online learning resources by the students of library and information science in Delta State University, Nigeria. The objectives of the study were to find out the influence of computer skills on the use of online information resources, determine the level of undergraduate students' computer skills as well as examine the frequency of online information resources usage. The study adopted the

descriptive survey method. Questionnaire was used to collect data for the study. Findings revealed that majority of the respondents frequently made use of online resources, 91(45.5%) made use of online resources daily; 73 (36.5%) used online resources weekly, and 25 (12.5 %) used online resources monthly. While only 11 (5.5%) occasionally used online resources. Therefore, it could be interpreted that the undergraduate students under study frequently made use of online resources. This corroborates the study by Venkatesh V *et al.,* (2003). The study revealed majority of the respondents (66 or 53.65%) accessed electronic resources twice a week, followed by 36 (29.26%) everyday, and 15 (12.21%) once a week. Only 6 (4.88%) respondents used electronic resources rarely.

The above study relates to the current study in terms of research area and methodology. The study however, differs in terms of the coverage, population of the study, area of the study, sample and sampling technique and scope. The study was limited to only academic and research institutions in Uganda just as this study is only on universities but focusing only on lecturers information literacy skills in the use of e-library.

2.5 Summary of the Literature Review

In the course of this review, the researcher captured the conceptual framework and covered literature on Information literacy skills as correlates of effective use of electronic library resources by lecturers in universities. Literature reviewed include university libraries, information services and use, electronic library resources, acquisition of Information literacy, the extent of use of electronic Information Resources¸ use of open access electronic resources, information literacy and use of information resources, factors militating against the acquisition of e-library services and the theoretical framework for this research was based on unified theory of acceptance and use of technology (UTAUT) which is a technology acceptance model formulated by Venkatesh *et al.,* (2003). The

UTAUT aims to explain user intentions to use an information system and subsequent usage behaviour.

From the review, it is evident that varying authorities in relation to different aspects of the research topic were dealt with to a considerable level. Consequently, from both the conceptual and empirical review carried out, it is imperative to state that conceptually as various articles, publications and reports revealed that there are still some grounds to be covered as regards the information literacy skills of lecturers in universities especially in this digital age when information over flows the users' demand. It is observed that most of the studies dealt with information literacy skills on the use of library resources by students in universities, with a few dealing with information literacy skills as correlates of effective use of electronic library resources by lecturers in universities. Similarly, none of the empirical studies reviewed studied Information literacy skills as correlates of effective use of electronic library resources by lecturers in universities of North-central zone of Nigeria. As a result of these gaps this study investigates the Information literacy skills as correlates of effective use of electronic library resources by lecturers in universities to fill the gap.

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Research Design

This study adopted descriptive survey design. This design involves systematic collection of information of respondents' opinions, attitudes, feelings, beliefs and behavior. This research design was appropriate for this study because the study sought to collect data and describe in a systematic manner the information literacy skills as they correlate to the effective use of electronic library resources by lecturers in universities in North central, Nigeria. The design also provided for the use of reliable technique to collect data from a defined population or systematically selected segment of the population for the purpose of determining the attributes of the population needed for proper breakdown of the problem under study.

3.2 Population of the Study

The population of the study consisted of 18 librarians made up of Nine (9) university librarians and Nine (9) e-librarians, and 6,267 lecturers in federal, state and privately owned universities in North-central Nigeria (comprising Niger, Benue, Kwara, Nasarawa, Kogi, Plateau States and the Federal Capital Territory, FCT, Abuja). The breakdown of the sampled lecturer population is: University of Jos, 1471; University of Ilorin, 1656; Federal University of Agriculture, Makurdi, 374; Federal University of Technology, Minna, 753; University of Abuja, 319; Federal University Lokoja, 168 Nassarawa State University Keffi, 179; Ibrahim Badamasi Babangida University, Lapai, 186; Kogi State university Ayimgba, 205; Kwara State University, Malete, 190; Plateau State University, 165; Salem University Lokoja 85; Al-Hikma University, Ilorin ,111; Africa University of Science and Technology Abuja, 82; Bingham University, New Karu, 45; and Caritas University, Abuja, 38. The population of the study is as shown in Table 3.1

Table 3.1: Population of the Study

S/N	Universities	Ownership	Total Number of lecturers
1.	University of Jos, Jos	Federal	1,471
2.	University of Ilorin, Ilorin	Federal	1,656
3.	Federal University of Agriculture, Makurdi	Federal	374
4.	University of Abuja, Abuja	Federal	319
5.	Federal University of Technology, Minna	Federal	753
6.	Federal University, Lokoja	Federal	168
7.	Federal University, Lafia	Federal	179
8.	Ibrahim Badamasi Babangida University Lapai	State	186
9.	Kogi State University, Ayimgba	State	205
10.	Kwara State University, Malete	State	190
11.	Plateau State University, Bokkos	State	165
12.	Salem University, Lokoja	Private	85
13.	Alhikma University, Ilorin	Private	111
14.	Africa University of Science and Technology, Abuja	Private	82
15.	Nile University, Abuja	Private	23
16.	Varitage University, Abuja	State	18
17.	Benue State University, Makurdi	Private	57
18.	University of Mkar, Benue State	State	16
19.	National Open University of Nigeria, Head Quarters Abuja.	Federal	63
20.	Nassarawa State University, Keffi	State	42
21.	Landmark University Omo Ara, Kwara State	Private	21
22.	Bingham University, New Karu	Private	45
23.	Carital University, Abuja	Private	38
	Total		**6,267**

Source: (Author survey, 2017)

3.3 Sample and Sampling Techniques

The study adopted cluster sampling procedure to select the nine (9) out of 23 universities in the North-central, Nigeria based on their ownership; that is universities owned by federal, state governments and private individuals or groups. Three universities were selected from each cluster so as to have a uniform distribution of sampled universities. The selected universities are; University of Jos, Federal University of Agriculture, Makurdi; Federal University of Technology, Minna to represent federal government ownership; Kogi State University Ayimgba; Kwara State University; Nassarawa State University to represent state government ownership; and Salem University Lokoja; Alhikma University Ilorin and Africa University Abuja to represent private interests' ownership. Stratified sampling technique was adopted to choose 404 respondents (lecturers) from the selected universities. In selecting the sample size for each university Neyman's allocation formular for proportionate stratified random sampling technique Stat-trek, 2012 was used as shown in Table 3.2

$$n_h = \frac{n \times (N_h \times S_h)}{[\sum N_i \times S_i]}$$

Where; n_h is the sample size for stratum h

n is the total sample size

N_h is the population size for stratum h

S_h is the standard deviation of stratum h (Neyman, 1994)

Table 3.2: Determination of Sample Strata Size Using Neyman's Allocation formula

S/N	Universities	Faculty	Numbers of lecturers by Faculty	Strata sample size	Total
1	University of Jos, Jos	Education	142	$\frac{142}{2022} * \frac{404}{1} = 28$	78
		Natural Science	115	$\frac{115}{2022} * \frac{404}{1} = 23$	
		Engineering	126	$\frac{126}{2022} * \frac{404}{1} = 25$	
2	Federal University of Agriculture, Makurdi	Education	118	$\frac{118}{2022} * \frac{404}{1} = 24$	68
		Natural Science	105	$\frac{105}{2022} * \frac{404}{1} = 21$	
		Engineering	96	$\frac{96}{2022} * \frac{404}{1} = 19$	
3	Federal University of Technology, Minna	Entrepreneurship and Management Studies	45	$\frac{45}{2022} * \frac{404}{1} = 9$	94
		Information and Communication Technology	63	$\frac{63}{2022} * \frac{404}{1} = 13$	
		Engineering Technology	197	$\frac{197}{2022} * \frac{404}{1} = 39$	
		Environmental Technology	156	$\frac{156}{2022} * \frac{404}{1} = 31$	
4	Nassarawa State University	Education	87	$\frac{87}{2022} * \frac{404}{1} = 17$	44
		Natural Science	52	$\frac{52}{2022} * \frac{404}{1} = 10$	
		Art	47	$\frac{47}{2022} * \frac{404}{1} = 9$	
5	Kogi State University Ayimgba	Education	92	$\frac{92}{2022} * \frac{404}{1} = 18$	40
		Natural Science	61	$\frac{61}{2022} * \frac{404}{1} = 12$	
		Art	52	$\frac{52}{2022} * \frac{404}{1} = 10$	
6	Kwara State University Malete-Ilorin	Education	82	$\frac{82}{2022} * \frac{404}{1} = 16$	38
		Natural Science	61	$\frac{61}{2022} * \frac{404}{1} = 12$	
		Art	47	$\frac{47}{2022} * \frac{404}{1} = 9$	

7	Salem University Lokoja	Education	32	$\frac{32}{2022} * \frac{404}{1} = 6$	20
		Natural Science	31	$\frac{31}{2022} * \frac{404}{1} = 6$	
		Engineering	22	$\frac{22}{2022} * \frac{404}{1} = 4$	
8	Alhikma University, Ilorin	Education	32	$\frac{32}{2022} * \frac{404}{1} = 6$	22
		Natural Science	35	$\frac{35}{2022} * \frac{404}{1} = 7$	
		Engineering	44	$\frac{44}{2022} * \frac{404}{1} = 9$	
9	Africa University of Science and Technology, Abuja	Education	23	$\frac{23}{2022} * \frac{404}{1} = 5$	17
		Natural Science	34	$\frac{34}{2022} * \frac{404}{1} = 7$	
		Engineering	25	$\frac{25}{2022} * \frac{404}{1} = 5$	
Total			**2,022**	**404**	**404**

Thus, the sample size allocated to the universities was 78 from University of Jos; 68 from Federal University of Agriculture, Makurdi; 94 from Federal University of Technology, Minna; 44 from Nassarawa State University; 38 from Kogi State University Ayimgba; 36 from Kwara State University; 20 from Salem University Lokoja, 22 from Al-Hikma University Ilorin and 17 from Africa University Abuja and 18 librarians which comprise of 9 University librarian's and 9 e-librarian's. This information was obtained from the various establishment offices in the universities under study. The nine (9) selected universities with their sample size are shown in Table 3.3 below:

Table 3.3: Sample Size of the Population

S/N	Universities	Faculty	Numbers of Lecturers by Faculty	Strata sample size	Total	Librarian's
1	University of Jos, Jos	Education	142	28	78	2
		Natural Science	115	23		
		Engineering	126	25		
2	Federal University of Agriculture, Makurdi	Education	118	24	68	2
		Natural Science	105	21		
		Engineering	96	19		
3	Federal University of Technology, Minna	Entrepreneurship and Management Studies	35	7	75	2
		Information and Communication Technology	76	15		
		Engineering Technology	151	30		
		Environmental Technology	113	23		
4	Nassarawa State University	Education	87	17	**44**	**2**
		Natural Science	52	10		
		Art	47	9		
5	Kogi State University, Ayimgba	Education	92	18	**40**	**2**
		Natural Science	61	12		
		Art	52	10		
6	Kwara State University, Malete	Education	82	16	**38**	**2**
		Natural Science	61	12		
		Art	47	9		
7	Salem University, Lokoja	Education	32	6	20	2
		Natural Science	31	6		
		Engineering	22	4		
8	Alhikma University, Ilorin	Education	32	6	22	2
		Natural Science	35	7		
		Engineering	44	9		
9	Africa University of Science and Technology, Abuja	Environmental	23	5	17	2
		Natural Science	34	7		
		Engineering	25	5		
						18
Total			1,936	387	404	

Source: (Researcher's survey 2017)

3.4 Instruments for Data Collection

The instruments for data collection were tagged; Information Literacy and Factors on Electronic Library Uses Inventory (IFELUI) questionnaire. Researchers designed questionnaire, interview schedule and observation check list. Were developed and administered on the sampled respondents used for this study.

1. Information Literacy Skills of Electronic Library Resources by Lecturers in Universities in North-central Nigeria Questionnaire (ILSELRLUNCNQ)
2. The use of Electronic Library Resources by Lecturers in Universities in North-central Nigeria Questionnaire (UELRLUNCNQ)

The sets of questionnaire were developed by the researcher through the review of related literature and were rated on a response format of adapted (4) point likert scale of strongly agreed (SA), Agree (A) Disagree (D), and Strongly Disagree (SD). That is, the opinion of the respondents to be express shall be strongly agree (SA) 4, Agree (A) 3 point Disagree (D) 2.and strongly Disagree (SD) 1 point. As well as Very highly available and use (VHAU), Highly available and use (HAU), Fairly available and use (FAU) and Not available (NA) respectively. This questionnaire was subdivided into six section of: A. the level of information literacy skills among lecturers of universities; B. the extent of competencies of lecturers in universities; C. the perceived effect of information literacy skills on the use of electronic resources by lecturers in universities; D. the extent of use of e-resources by lecturers in university libraries: E. the means by which lecturers in university libraries; F. factors militating against the acquisition of information literacy skills.

Observation checklist was used to supplement the questionnaire. The researcher and research assistance personally observed the E-library units to ascertain the availability or

otherwise of E-library resources. They also observed respondents on how they accessed, manipulated system and used e-resources in the unit of the libraries. Research objective 1 was answered using observation checklist. Questionnaire was used to answer research objectives 2, 4 and 6, and research questions 3 and 5 were answered by the use of interview schedules.

3.5 Validity of Data Instrument

The questionnaire and observation checklist were screened and validated by three senior lecturers from LIT federal university of technology Minna and the researcher's supervisors from the Department of Library and Information Technology, Federal University of Technology, Minna. All the comments and suggestions of the lecturers were incorporated in the final version of the questionnaire.

3.6 Reliability of Data Instrument

Thirty (30) copies of the questionnaire were test re-tested using Cronbach Coefficient Alpha formula in two private owned universities: University of Mkar, Mkar Benue State and Bingham University New- Karu which were not part of the studied area. Responses of the staff to items in the instrument were analyzed to determine the degree of internal consistency of the questionnaire items. The result of the test instrument yielded 0.72, 0.79, 0.72, 0.76 and the overall 0.75 reliability on the Cronbach alpha scale respectively which confirmed that the instrument was reliable.

3.7 Method of Data Collection

The researcher administered copies of the questionnaire with the help of research assistants to the respondents in universities under study. Face-to-face interview was conducted using selected lecturers and was enhanced through the use of interview guides Observation checklist was used to ascertain the availability of the electronic database in

the university libraries. The researcher also observed the lecturers in terms of access to e-resources in the university libraries.

3.8 Method of Data Analysis

The data collected were analysed using descriptive statistics of mean and standard deviation, the mean scores with 2.5 as acceptable decision criteria and the hypotheses were tested using Pearson correlation respectively.

CHAPTER FOUR

4.0 RESULTS AND DISCUSSION

This chapter presents results and discussion of the result. The results are presented according to the research questions and hypotheses that guided the study. The result are presented using tables which also show the mean scores, standard deviation, observation checklist and decision rule in answering a research question.

4.1 Results

Research Question 1

What are the levels of information literacy skills among lecturers of universities in North-central, Nigeria?

To determine the levels of lecturer's information literacy skills in the universities, the options of 'Very High', 'High', 'Low', and Very Low'' were provided for the respondents to tick what is applicable to them. The average mean score and the standard deviation are indicated in the following tables.

Table 4.1: Levels of Lecturers' Information Literacy Skills in University studied

N/S	Information literacy skills of lecturers	VH	H	L	VL	FX	Mean	SD	Decision
		4	3	2	1				
1	To identify a needed information resources.	112(32%)	230(67%)	3(1%)	-	1144	3.32	.484	High
2	To evaluate the relevant information obtained from different sources.	117(34%)	223(65%)	5(1%)	-	1147	3.32	.499	High
3	To locate and access information resources on online databases	183(53%)	92(27%)	55(16%)	15(4%)	1133	3.23	.869	High
4	To organize, apply and communicate information resources obtained	194(56%)	106(31%)	41(12%)	4(1%)	1180	3.42	.743	High
5	To characterized existing information resources according to their value and relevance	181(52%)	123(36%)	39(11%)	2(1%)	1173	3.40	.709	High
6	To differentiate between specific and general information resources	167(48%)	143(41%)	24(7%)	11(4%)	1156	3.36	.728	High
7	To build strategies for locating information resources	31(9%)	77(22%)	137(40%)	100(29%)	729	2.11	.929	Low
	Overall Mean						**3.17**		

From the table, values in the parenthesis are percentages of the frequency counts. Decisions are made to each response based on the overall mean (3.17). VH= Very High, H= High, L= Low, VL= Very Low

Note: *Decision Rule: mean values less than 3.17 are regarded as Low or Very Low, while those equal to 3.17 are regarded high and those greater than 3.17 are Very High.*

Research question one addresses the level of lecturer information literacy skills in the universities: 112 respondents representing 32% indicated very high response to identify a needed information resources, 230 representing 67% had high response and 3 representing 1% indicated a low response. We also have 117 representing 34% with very high response. To evaluate the relevant information obtained from different sources. 223

representing 65% had high response and 5 representing 1% indicated low response. 183 representing 53% indicated very high response to locating and accessing information resources on online databases 92 representing 27% had high response, 55 representing 16% had low response and 15 representing 4% had very low response. 194 frequency of the respondents representing 56% indicated very high response to organizing, applying and communicating information resources obtained 106 representing 31% had high response, 41 representing 12% had low response and 4 representing 1% had very low response. 181 respondents representing 52% indicated very high response to characterized existing information resources according to their value and relevance, 123 representing 36% had high response, 39 representing 11% had low response and 2 representing 1% had very low response. 167 respondents representing 48% indicated very high response to differentiate between specific and general information resources, 143 representing 41% had high response, 24 representing 7% had low response and 11 representing 4% had very low response. While 31 respondents representing 9% indicated very high response to build strategies for locating information resources, 77 representing 22% hag high response, 137 representing 40% had low response and 100 representing 29% had very low response. The average mean score for the entire items in Table 4.3 is 3.17. From the table we observe that there are a large number of high based on decision made utilizing the overall mean of 3.17. This result indicate that the lecturers are highly skilled in information literacy but lack the ability of building strategies for locating of information resources as this item was ranked low in the table.

Research Question 2

What are the competencies of lecturers in relation to key information search skills in universities in North-central Nigeria?

To determine the information search skills of the respondents, various options were provided for the respondents to indicate the ones applicable to them. The mean and standard deviation values of their responses is calculated and indicated in Table 4.2

Table 4.2: Information Search Skills of the Respondents

S/N	Electronic information search skills	VH	H	L	VL	FX	Mean	SD	Decision
		4	3	2	1				
1	Definition of keywords to be used for electronic information	79(23%)	151(43%)	68(20%)	47(14%)	952	2.76	.957	**High**
2	Searching broadly and gradually narrowing down	69(20%)	157(46%)	66(19%)	53(15%)	932	2.70	.959	**High**
3	Search building techniques like synonyms and refining	37(11%)	13(4%)	147(42%)	148(43%)	629	1.82	.931	Low
4	Reading of search results	174(51%)	35(10%)	83(24%)	53(15%)	1020	2.96	1.167	**High**
5	Noting of clue like signs, profile authors and exclusion terms search results	174(51%)	31(9%)	80(23%)	60(17%)	1009	2.92	1.196	**High**
6	Finding relevant information	25(7%)	18(5%)	163(47%)	139(41%)	619	1.79	.839	Low
7	Rephrasing or repeating search	146(43%)	32(9%)	93(27%)	74(21%)	940	2.72	1.216	**High**
	Overall Mean						**2.52**		

From the Table 4.2, values in the parenthesis are percentages of the frequency counts. Decisions are made to each response based on the overall mean (2.52). VH= Very High, H= High, L= Low, VL= Very Low

Note: *Decision Rule: mean values less than 2.52 are regarded as Low or Very Low, while those equal to 2.52 are regarded high and those greater than 2.52 are Very High.*

Research question two addressed the information search skills of the respondents, 79 respondents representing 23% indicated very high response to define keywords when for electronic information, 151 representing 43% had high response, 68 representing 20% had low response and 47 representing 14% indicated very low response. 69 representing (20%) indicated very high response to search broadly and gradually narrow down, 157 representing (46%) had high response, 66 representing 19% had low response and 53 representing 15% indicated very low low. 37representing 11% indicated very high response to use search building techniques like synonyms and refining 13 representing 4% had high response, 147 representing 42% had low response 148 representing (43%) had very low response. 174 respondents representing 51% indicated very high response to know how to read your search results, 35 representing 10% had high response, 84 representing 24% had low response and 53 representing 10% had very low response.

174 respondents representing (51%) indicated very high response that they do not have clue on results like signs, profile authors and exclusion terms, 31 representing 9% had high response, 80 representing 23% had low response and 60 representing 15% had very low response. 25 respondents representing 7% indicated very high response to normally find relevant information, 18 representing 5% had high response, 163 representing 47% had low response and 139 representing 40% very low response. While 146 respondents representing 43% indicated very high response to repeat or rephrase your search, 32 representing 9% had high response, 93 representing 27% had low response and 74 representing 21% had very low response. The average mean score for the entire items in Table 4.3 is 2.52. Since there are a large number of high based on decision made utilizing the overall mean. This result indicates that the lecturers are adequately skilled in

information search skills but lack the ability to use search building techniques like synonyms and refining and finding relevant information as this items were ranked low in the table.

Research Question 3

What are the types of electronic library resources available in the university libraries in North-central Nigeria?

To find out the types of electronic library resources available in the university libraries in North-central Nigeria, the respondents were provided with varieties of databases in the questionnaire to indicate the availability. Their responses are presented in mean and standard deviation in Table 4.3.

Table 4.3: Response from Observation Checklist on E- Library Resources Available

S/NO	ELECTRONIC LIBRARY RESOURCES	UNIJOS	FUAM	FUTMX	NSU	KSU	KWASU	SUL	AUI	AUST	TOTAL
1	e-books	√ F	√ F	√ F	√ F	√ F	√ F	√ F	√ F	√ F	**9**
2	e-journals	√ F	√ F	√ F	√ F	√ F	√ F	√ F	√ F	√ F	**9**
3	CD-ROMS	√ F	√ F	√ F	-		√ NF	-	-	-	**4**
4	e-zines	-	-	-	-	-	-	-	-	-	**0**
5	e-newspapers	√ F	√ F	√ F	√ F	√ F	√ F	√ F	√ F	√ F	**9**
6	e-reports	√ F	√ F	√ F	√ F	√ F	√ NF	√ NF	√ NF	-	**8**
7	bibliographic databases	√ F	√ F	√ F	-	-	-	√ F	√ F	√ F	**6**
8	Opac	√ F	√ F	√ F	√ NF	√ NF	√ NF	√ NF	√ NF	√ NF	**9**
9	E-Theses and E-Dissertation	√ F	√ F	√ F	√ F	√ F	-	-	-	-	**5**
10	E-mail	√ F	√ F	√ F	√ F	√ F	√ F	√ F	√ F	√ F	9
	TOTAL	**9**	**9**	**9**	**7**	**7**	**7**	**7**	**7**	**6**	

Key: FUTMX= Federal University of Technology Minna; NSU = Nasarawa State University; UNIJOS= University of Jos; KSU= Kogi State University Ayimgba; KWASU= Kwara State University, Malete; FUAM= Federal University of Agriculture Makurdi; SALEM = Salem University Lokoja; AUI= Alhikma University, Ilorin and AUST= African University of Science and Technology, Abuja, √ = Available, - = Not available, F=Functional and NF= Not Functional.

Table 4.3 revealed that there are 9 electronic information resources available in Federal University of Agriculture, Makurdi; same 9 in University of Jos, all in use and functional; Nasarawa State University and Kogi State University each has 7 electronic library resources available, with 6 in use and functional; Kwara State University, Malate has 7 electronic library resources available out of which 4 are in use and functional; Salem University, Lokoja and Alhikma University, Ilorin each has 7 electronic library resources and each has 6 in use and functional; and African University of Science and Technology, Abuja has 6 electronic library resources, with 5 in use and functional.

Research Question 4

What is the perceived effect of information literacy skills on the use of electronic resources by lecturers in universities in North-central Nigeria?

To determine the perceived effect of information literacy skills on the use of electronic resources by the respondents, several items were provided in the questionnaire and respondents asked to indicate the ones applicable to them. The mean and standard deviation values of their responses is calculated and presented in Table 4.4.

Table 4.4: Perceived effect of information literacy skills on the use of electronic resources by faculty members in universities

S/N	Effect	SA	A	D	SD	FX	Mean	SD	Decision
		4	3	2	1				
1	Information literacy skill has enabled me access needed electronic resources with ease recognizing the nature of information needed	169(49%)	145(42%)	27(8%)	4(1%)	1169	3.39	.682	Agreed
2	Information literacy skill has improved my potentials of identifying relevant electronic sources critically and efficiently	139(40%)	163(47%)	36(11%)	7(2%)	1124	3.26	.723	Agreed
3	Information literacy skill has assisted me in developing effective search Strategies	136(39%)	166(48%)	33(10%)	10(3%)	1118	3.24	.741	Agreed
4	An information literacy skill has facilitated my access to electronic sources of Information.	123(35%)	172(50%)	44(13%)	6(2%)	1102	3.19	.719	Agreed
5	Information literacy skill has enable me to evaluate electronic information sources critically	156(45%)	153(44%)	22(7%)	14(4%)	1141	3.31	.765	Agreed
6	Information literacy skill has enable me to organize electronic information for practical application	142(41%)	163(47%)	33(10%)	7(2%)	1130	3.28	.717	Agreed
7	Information literacy skill has enable me to integrate new information from electronic sources into an existing body of knowledge	101(29%)	207(60%)	27(8%)	10(3%)	1089	3.16	.681	Agreed
8	Using electronic information sources in Critical thinking and problem solving	105(30%)	210(61%)	26(8%)	4(1%)	1106	3.21	.620	Agreed
	Overall Mean						**3.25**		

From the table 4.4, values in the parenthesis are percentages of the frequency counts. Decisions are made to each response based on the overall mean (3.25). SA= Strong Agree, A=Agree, D= Disagree, SD= Strongly Disagree

Note: *Decision Rule: mean values less than 3.25 are regarded as disagreed or strongly disagreed, while those equal to 3.25 are regarded agreed and those greater than 3.25 are strongly agreed.*

Research question four addresses the perceived effect of information literacy skills on the use of electronic resources of the respondents; 169 respondents representing 49% strongly agreed that Information literacy skill has enabled them access needed electronic resources with ease, recognizing the nature of information needed; 145 representing 42% agreed, 27 representing 8% disagreed and 4 representing 1% strongly disagreed that information literacy skills enable them access electronic resources with ease. 139 representing 40% strongly agreed that Information literacy skill has improved their potentials of identifying relevant electronic sources critically and efficiently, 163 representing 47% agreed, 36 representing 11% disagreed and 7 representing 2% indicated strongly disagreed it has improved their potentials. 136 representing 39% strongly agreed that Information literacy skill has assisted them in developing effective search strategies. 166 representing 48% agreed, 33 representing 10% disagreed and 10 representing 3% strongly disagreed. 123 respondents representing 35% strongly agreed that literacy skill has facilitated their access to electronic sources of Information; 172 representing 50% agreed, 44 representing 13% disagreed and 6 representing 2% strongly disagreed. 156 respondents representing 45% indicated agreed that Information literacy skill has enable them to evaluate electronic information sources critically; 153 representing 44% agreed, 22 representing (7%) disagreed and 14 representing (4%) strongly disagreed. 142 respondents representing 41% indicated strongly agreed response to the statement at information literacy skill has enable them to organize electronic information for practical application; 163 representing 47% agreed, 33 representing 10% disagreed and 7 representing 2% strongly disagreed; 101 respondents representing 29% indicated strongly agreed to the

statement that information literacy skill has enable them to integrate new information from electronic sources into an existing body of knowledge; 207 representing 60% agreed, 27 representing 8% disagreed and 10 representing 3% strongly disagreed. Result also show that 105 respondents representing 30% strongly agreed of using electronic information sources in critical thinking and problem solving; 210 representing 61% agreed, 26 representing (8%) disagreed, 4 representing (1%) strongly disagreed. The average mean score for the entire items in Table 4.4 is 3.25. This result show that the use of library electronic services is beneficial to faculty members in universities under study as ranked in the tables 4.4.

Research Question 5

What is the extent of use of e-resources by lecturers in university libraries in North-central Nigeria?

Research question five ascertained how often lecturers use e-resources. Several items were provided in the questionnaire and respondents asked to indicate the ones applicable to them. The mean and standard deviation values of their responses are calculated and shown in Table 4.5

Table 4.5: The extent of use of e-resources by lecturers in university libraries

S/NO	STATEMENT	VH	H	L	VL	FX	Mean	SD	Decision
1	Journals	176(51%)	97(28%)	24(7%)	48(14%)	1091	3.16	1.055	Low
2	Books	193(56%)	117(34%)	33(10%)	2(0.6%)	1191	3.45	.689	High
3	E-handbooks	183(53%)	92(27%)	55(16%)	15(4%)	1133	3.28	.886	Low
4	E-technical reports	167(49%)	115(33%)	52(15%)	11(3%)	1128	3.27	.832	Low
5	E-conference proceedings	155(45%)	141(41%)	24(7%)	25(7%)	1116	3.23	.869	Low
6	E-chapters-in-books	194(56%)	106(31%)	41(12%)	4(1%)	1180	3.42	.743	High
7	E-directories	181(52%)	123(36%)	39(11%)	2(0.6%)	1173	3.40	.709	High
8	E-encyclopedias	167(48%)	143(41%)	24(7%)	11(4%)	1156	3.36	.728	High
9	E-dictionaries	159(46%)	133(39%)	46(13%)	7(2%)	1134	3.29	.771	Low
10	E-databases	175(50%)	86(25%)	33(10%)	51(15%)	1075	3.12	1.088	Low
11	E-manuals	195(57%)	100(29%)	45(13%)	5(1%)	1175	3.41	.769	High
12	E-patents	175(50%)	84(24%)	64(19%)	22(7%)	1102	3.24	.887	Low
13	E-guides	171(50%)	100(29%)	59(17%)	15(4%)	1117	3.16	1.055	Low
	Overall Mean						**3.30**		

From the Table, 4.5 values in the parenthesis are percentages of the frequency counts. Decisions are made to each response based on the overall mean (3.30). VH= Very High Extent, H= High Extent, L= Low Extent, VL= Very Low Extent

Note: *Decision Rule: mean values less than 3.30 are regarded as Low Extent or Very Low Extent, while those equal to 3.30 are regarded high and those greater than 3.30 are Very High Extent.*

Research question five address and how often lecturers use e-resources. As many as 174 respondents representing 51% had very high extent response in use of journals, 97 representing 28% had high extent to use of journals, 24 representing 7% had low extent to use of journals and 48 representing 14% had very low extent to use of journals. 193 respondents representing 56% had very high extent to use of e-books, 117 representing

34% had high extent to use of e-books, 33 representing 10% had low extent to use of e-books and 2 representing 0.6% had very low extent to use of e-books. 183 respondents representing 53% had very high extent to use of e-hand books, 92 representing 27% had high extend to use of e-hand books, 55 representing 16% low extent to use of e-hand books and 15 representing 4% had very low extent to use of e-hand books. 167 respondents representing 49% had a very high extent to use of e-technical report, 115 representing 33% had high extent to use of e-technical report, 52 representing (15%) had low extent to use of e-technical report and 11 representing 3% had very low extent to use of e-technical report. 155 respondents representing 45% very high extent to use of e-conference proceedings, 141 representing 41% had high extent to use of e-conference proceedings, 24 representing 7% had low extent to use of e-conference proceedings and 25 representing 7% had a very low extent to use of e-conference proceedings. 194 respondents representing 56% had a very high extent to use of e-chapters in books, 106 representing 31% had high extent to use of e-chapters in books, 41 representing 12% had a low extent to use of e-chapters in books and 4 representing 1% had a very low extent to use of e-chapters in books. 181 respondents representing 52% had very high extent to use of e-directories, 123 representing 36% had high extent to use of e-directories, 39 representing 11% had low extent to use of e-directories and 2 representing 0.6% had a very low extent to use of e-directories. 167 respondents representing 48% had very high extent response to use of e-encyclopedia, 143 representing 41% had high extent to use of e-encyclopedia, 24 representing 7% had low extent to use of e-encyclopedia and 11 representing 4% had very low extent to use of e-encyclopedia. 175 respondents representing 50% had very high extent response to use e-data bases, 86 representing 25% high extent to use e-data bases, 33 representing 10% low extent to use e-data bases and 51 representing 15% had a very low extent to use e-data bases. 195 respondents

representing 57% had very high extent response to use of e- manual, 100 representing 29% had high extent to use of e- manual, 45 representing 13% had low extent to use of e-manual and 5 representing 1% had a very low extent to use of e- manual. 175 respondents representing 50% had very high extent response to use of e- patents, 84 representing 24% had high extent to use of e- patents, 64 representing 19% had low extent to use of e-patents and 22 representing 7% had a very low extent to use of e- patents. While 171 respondents representing 50% had very high extent response to use of e- guides, 100 representing 29% high extent to use of e- guides, 59 representing 17% had low extent to use of e- guides and 15 representing 4% had very low extent to use of e-guides. The average mean for the entire items in the Table 4.5 is 3.29. This result shows that the use of library electronic services by faculty members in universities under study is high

Research Question 6

What are the means by which lecturers universities in North-central Nigeria acquire information literacy skills?

The lecturers were asked to point out how they acquire information literacy skills universities in North-central Nigeria. Their responses is calculated and presented in Table 4.6.

Table 4.6: Means by which lecturers acquire information literacy skills

S/NO	STATEMENT	SA	A	D	SD	FX	Mean	SD	Decision
		4	3	2	1				
1	Through librarians guide	180(52%)	99(29%)	18(5%)	48(14%)	1101	3.19	1.047	Disagreed
2	Through Consultation with colleagues	196(57%)	119(35%)	28(8%)	4(0.6%)	1201	3.48	.669	Agreed
3	Through existing user's guide	186(54%)	92(27%)	52(15%)	15(4%)	1139	3.30	.880	Agreed
4	Through seminars organized by my faculty or department	172(50%)	115(33%)	47(14%)	11(3%)	1138	3.30	.822	Agreed
5	Through external conferences, workshops or seminars	160(47%)	142(41%)	18(5%)	25(7%)	1127	3.27	.858	Agreed
6	Through trial and error	198(57%)	106(31%)	37(11.4%)	4(0.6%)	1188	3.44	.730	Agreed
7	Through attending IT programme	184(53%)	123(36%)	36(10.5%)	2(0.5%)	1179	3.42	.699	Agreed
	Overall Mean						**3.34**		

From the table 4.6, values in the parenthesis are percentages of the frequency counts. Decisions are made to each response based on the overall mean (3.34). SA= Strong Agree, A=Agree, D= Disagree, SD= Strongly Disagree

Note: *Decision Rule: mean values less than 3.34 are regarded as disagreed or strongly disagree, while those equal to 3.34 are regarded as agree and those greater than 3.34 are strongly agree.*

Research question six address and how lecturers acquire information literacy skills as many as 180 respondents representing 52% strongly agreed that they acquire information literacy skills through librarians guide, 99 representing 29% agreed, 18 representing 5% disagreed, 48 representing 14% strongly disagreed. 196 representing 57% strongly agreed that they acquire information literacy skills by consultation with colleagues; 119

representing 35% agreed, 28 representing 8% disagreed, 4 representing 0.6% strongly disagreed.186 representing 54% strongly agreed that they acquire information literacy skills through existing users guide 92 representing 27% Agreed, 52 representing 15%

disagreed, 15 representing 4% strongly disagreed. 172 representing 50% strongly agreed that they acquire information literacy skills through seminars organized by my faculty or department 115 representing 33% agreed, 47 representing 14% disagreed, 11 representing 3% strongly disagreed; 160 representing 47% strongly agreed that they acquire information literacy skills through external conferences, workshops or seminars; 142 representing 41% agreed, 18 representing 5% disagreed, 25 representing 7% strongly disagreed; 198 representing 57% strongly agreed that they acquire information literacy skills through trial and error 106 representing 31% agreed, 37 representing 11.4% disagreed, 4 representing 0.6% strongly disagreed. Also 184 representing 53% strongly agreed that they acquire information literacy skills through attending IT program, 123 representing 36% agreed, 36 representing 10.5% disagreed, and 2 representing 0.5% strongly disagreed. The average mean scores for the entire items in the Table 4.6 is: 3.34. This result shows that lecturers acquire information literacy skills through various means.

Research Question 7

What are the factors militating against the acquisition of information literacy skills in university in North-central Nigeria?

Table 4.7: Factors militating against the acquisition of information literacy skills in universities

S/N	STATEMENT	SA	A	D	SD	FX	Mean	SD	Decision
.1	A particular e-library can provide the link to any other resources of other e-library very easily thus an integrated resource sharing can be achieved	170(49%)	145(42%)	23(7%)	7(2%)	1168	3.40	.680	Agreed
.2	The cost of maintaining e-library is much lower than of a traditional library. A traditional library must spend large sum of money paying for staff, book maintenance. e- Library do away with these fees.	162(47%)	136(39%)	43(13%)	4(1%)	1146	3.32	.734	Agreed
.3	Lack of proactivity in spearheading or pushing Information Literacy initiatives by librarians	118(34%)	224(65%)	3(1%)	0(0%)	1150	3.33	.490	Agreed
.4	Lack of computers and other teaching resources	124(36%)	216(63%)	5(1%)	0(0%)	1154	3.34	.506	Agreed
.5	Lack of Information Literacy standard	167(49%)	108(31%)	55(16%)	15(4%)	1117	3.24	.874	Agreed
.6	Lack of University commitment to the project	178(52%)	122(35%)	41(12%)	4(1%)	1164	3.37	.737	Agreed
.7	Poor awareness among librarians on their roles as Information Literacy instructor in the University system	170(49%)	134(39%)	39(11.5%)	2(0.5%)	1162	3.37	.703	Agreed
.8	Lack of Faculty unwillingness to incorporate information literacy into the curriculum	158(46%)	152(44%)	24(7%)	11(3%)	1147	3.32	.742	Agreed
	Overall Mean						**3.33**		

From the table, values in the parenthesis are percentages of the frequency counts. Decisions are made to each response base on the overall mean (3.33). SA= Strong Agreed, A=Agreed, D= Disagreed, SD= Strongly Disagreed

Note: *Decision Rule: Mean values less than 3.33 are regarded as disagree or strongly disagreed, while those equal to 3.33 are regarded high agree and those greater than 3.33 are strongly agreed.*

Research question seven addresses the factors militating against the acquisition of information literacy skills. This 170 respondents representing 49% strongly agreed to the statement that e-library can provide the link to any other resources of other e-library very easily thus an integrated resource sharing can be achieved; 145 representing 42% agreed, 23 representing 7% disagreed, 7 representing 2% strongly disagreed; 162 respondents representing 47% strongly agreed that the cost of maintaining e-library is much lower than that of a traditional library. Also a traditional library must spend large sum of money paying for staff, book maintenance. e- Library do away with these fees, 136 representing 39% agreed, 43 representing 13% disagreed, 4 representing 1% strongly disagreed; 118 respondents representing 34% Strongly agreed that lack of proactivity in spearheading or pushing information literacy initiatives by librarians is a factors militating against the acquisition of information literacy skills, 224 representing 65% Agreed, 3 representing 1% disagreed; 124 respondents representing 36% strongly agreed that lack of computers and other teaching resources is a factors militating against the acquisition of information literacy skills, 216 representing 63% agreed, 5 representing 1% disagreed; 167 respondents representing 49% strongly agreed that lack of information literacy standard is a factor militating against the acquisition of information literacy skills, 108 representing 31% agreed, 55 representing 16% disagreed, 15 representing 4% strongly disagreed; 178 respondents representing 52% strongly agreed that lack of university commitment to the project is a factor militating against the acquisition of information literacy skills, 122 representing 35% agreed, 41 representing 12% disagreed, 4 representing 1% strongly disagreed; 170 respondents representing 49% strongly agreed that poor awareness among

librarians on their roles as information literacy instructor in the University system is a factor militating against the acquisition of information literacy skills, 134 representing 39% agreed, 39 representing 11.4% disagreed, 2 representing 0.6% strongly disagreed; 158 respondents representing 46% strongly agreed that lack of faculty unwillingness to incorporate information literacy into the curriculum is a factor militating against the acquisition of information literacy skills, 152 representing 44% agreed, 24 representing 7% disagreed, and 11 representing 3% strongly disagreed. The average mean scores for the eight items in Table 4.7 is: 3.29. This shows that the academics in the university under study faced challenges in the use of e-library resources as revealed in several means.

4.2 Test of Hypotheses

Hypothesis One

There is no significant relationship between information literacy skills and use of e-library resources among lecturers in universities in North-central Nigeria.

To test the hypothesis and analyze the data, Spearman Correlation was used. A relationship test was carried out by associating both information literacy skills and use of e-library resources. The result of the analysis is summarized and presented in Tables 4.8. The (manual computation of Spearman Correlation) and 4.8.1 (statistical software result from SPSS 26).

Table 4.8: Spearman Correlation for Information Literacy Skills and e-library Resources Use

e-library resources use (X)	Information Literacy Skills (Y)	Rank X	Rank y	d	d^2
1091	1101	2	6	-4	16
1191	1201	13	13	0	0
1133	1139	7	10	-3	9
1128	1138	6	8.5	-2.5	6.25
1116	1127	4	7	-3	9
1180	1188	12	12	0	0
1173	1179	10	11	-1	1
1156	1138	9	8.5	0.5	0.25
1134	0	8	3	5	25
1075	0	1	3	-2	4
1175	0	11	3	8	64
1102	0	3	3	0	0
1117	0	5	3	2	4
					138.5

$$r = 1 - \frac{6\sum d^2}{n(n^2 - 1)}$$

$$r = 1 - \frac{6(138.5)}{13(13^2 - 1)}$$

$$r = 1 - \frac{831}{13 \times 168}$$

$$r = 1 - \frac{831}{2184}$$

$$r = 1 - 0.3805$$

$$r = 0.6195$$

Table 4.8 shows the computational approach of Spearman Correlation for information literacy skills and e-library resources use. Table 4.8.1 shows the result of the spearman rank (r), p-value and sample size of the research.

Table 4.8.1: Relationship between Lecturers Information Literacy Skills and E-Library Resources Use

	N	Spearman (r)	P-value	α	Decision
Information Literacy Skills	345	0.6195	0.02733	0.05	Significant; we reject the null hypothesis
e-library Resources Use	345				

(r (345) = 0.619, P<0.0273)

In Table 4.8.1, the analysed result presented indicate that there is a strong positive significant correlation between information literacy skills and e-resources use(r **(**345) = 0.619, P<0.0273). Based on the finding, information literacy skills of lecturers increased their use of electronic library resources. In other words, there is a direct relationship between information literacy skills and e-library resources use by lecturers in universities in North-central, Nigeria and Hypothesis one is therefore rejected.

Hypothesis Two

There is no significant relationship between search skills and use of e resources by lecturers in universities in North-central Nigeria.

The hypothesis was tested using Spearman Correlation was used. A relationship test was carried out by associating lecturers search skills statistics of e-library resources. The analysed result is summarized and presented in Table 4.9. (Manual computation of Spearman Correlation) and Table 4.9.1 (statistical software result from SPSS 26).

Table 4.9: Spearman Correlation for search skills and use of some e-resources by lecturers in universities in North-central, Nigeria

Lecturers search skills	use of e resources by lecturers	Rank X	Rank y	d	d2
952	1091	5	1	4	16
932	1191	3	7	-4	16
629	1133	2	4	-2	4
1020	1128	7	3	4	16
1009	1116	6	2	4	16
619	1180	1	6	-5	25
940	1173	4	5	-1	1
					94

$$r = 1 - \frac{6\sum d^2}{n(n^2 - 1)}$$

$$r = 1 - \frac{6(94)}{7(7^2 - 1)}$$

$$r = 1 - \frac{564}{7 \times 48}$$

$$r = 1 - \frac{564}{336}$$

$$r = 1 - 1.6786$$

$$r = -0.6786$$

Table 4.9 shows the computational approach of Spearman Correlation for lecturers search skills and use of some e resources by lecturers in universities in North-central, Nigeria.

Table 4.10 Relationship between lecturers search skills and use of e-library resources

	N	Spearman (r)	P-value	α	Decision
Lecturers search skills	345	-0.6786	0.0073	0.05	Significant; we reject the null hypothesis
e-library resources use	345				

((r (345) = -0.6786, P<.05)

The result of the analysis presented in Table 4.9.1 indicate that there is a significant strong negative relationship between lecturers search skills and some of the e-library resources

usage listed in this research (r (345) = -0.6786, P<.05). Based on the finding, there is a strong correlation between search skills and use of e-library resources use among lecturers in universities in North-central Nigeria. The null hypothesis is thereby rejected.

4.3 Discussion of Findings

Research question one sought to determine the levels of information literacy skills among lecturers of universities in North-central, Nigeria. The findings show` that there are a large number of high responses based on decision made utilizing the overall mean of 3.17. This result indicate that the lecturers are highly skilled in information literacy but lack the ability of building strategies for locating information resources as this item was ranked low. This may possibly be due to exposure to ICT training programmes in workshops and conferences in terms of information search and retrieval.

The findings of this study is consistent with these of Ojo and Akande (2009) who studied the role of individual differences in Internet searching in a survey of 350 respondents on undergraduates students' access, usage and awareness of online information resources at the University College Hospital (UCH) Ibadan, Nigeria. The major findings of the study revealed that the level of usage of the electronic information resources by under graduates students was low. A major problem however identified was lack of information retrieval skills for exploiting electronic resources, thus making the level of usage of resources by medical students very low.

The finding in this study also supported the findings of Ozoemelem (2009) whose study investigated e-resources usage by postgraduate students of the Department of Library and Information Science Delta State University, Abraka, Nigeria and found that the student respondents' ICT skills level was low and hence recommended training in ICT to equip students with skills required to use the computer-based resources. In accordingly

Abubakar and Adetinmirin (2015), investigated the influence of computer literacy on postgraduates student use of e-resources in Nigerian university libraries and found that computer literacy had a positive relationship with postgraduates' usage of e-resources that was positive, very strong and significant ($r = .740$; $DF=2284$; $p< .05$). The implication is that, the more the postgraduate students are exposed to computer literacy skills, the better the use of e-resources for their research.

Research question two sought to find out the level of information search skills among lecturers in the universities in North-central Nigeria. It was found that majority of the respondents were highly skilled in information search skill. That is, they had knowledge on how to identify, locate, use and evaluate information. The findings correspond with these of Issa et al (2009) whose study on information literacy found that majority of his respondents claimed comfort with various information literacy skills. The findings of this study, are also in line with these of Adeleke and Emeahara (2016) whose study investigated the relationship between information literacy and use of e-resources by postgraduate students of the University of Ibadan. The study found that over two-third of the postgraduate students' information literacy skills level was high. The result of this study however, differs considerably from the findings of Alison (2007) whose study on the effect of information literacy on the utilization of electronic information resources by graduate students in Uganda found that the respondents' information skills level was low due to lack of information literacy training.

Research question three, sought to find out types of electronic library resources available in the university libraries in North-central Nigeria. It was found that several types of electronic library resources are available in the university libraries under study such as library website and portal services, online reference services, electronic alert, e-mail bibliographic databases, e-theses, e-dissertation and library blog site.

The researcher observed the various electronic databases available in the studied libraries in North-central Nigeria. The availability was partly made possible as a result of the intervention of the federal government through the Tertiary Education Trust Fund (TETFund) which is providing assistance to academic libraries in Nigeria to ensure adequate provision of online information resources in Nigeria university libraries for library users.

The finding is consistent with the result of a study by Obaseki (2014) which found that electronic information resources are available in university libraries, as data revealed that all the university libraries used for the study had one form of electronic information resources or the other. The analysis implies that information in the electronic format is complementing the printed format of information resources. The study was also confirmed by Ankrah and Acheampong (2017) in their study of students' use of electronic resources in University of Professional Studies, Accra (UPSA), Ghana. Revealed that Emerald, Wiley Online Library, Sage Journals Online, Ebscohost, Jstor, Oxford University Press, Policy Press Journals, Taylor and Francis, and IMF e Library were available in the library studied. This finding also infers that libraries and information centres should have varieties of information resource to support the institutional objectives and programmes. The implication of this findings is that a good number of electronic information data bases are available in the university libraries which may translate to quality teaching, research and learning. Similarly, Rosenberg (2010) also noted that electronic information sources are good instruments that aid in conducting acceptable research. However, the finding of this study controverted the finding of Kinengyere (2007), who found out that available information is not necessarily accessed and used by users. The study showed that the availability of information does not necessarily mean actual use because the users may not be aware of the availability of such

resources, they do not know how to access these resources, or do not know what the resources offer.

Research question four sought to find out the perceived effect of information literacy skills on the use of electronic resources in universities of North-central, Nigeria. This result showed that information literacy skills have positive impact on the use of electronic resources by lecturers in universities under study. This means that knowledge obtained enhance the effective use of e-resources. The findings of this study is supported by the finding of Okello-Obura and Magara (2008) whose study revealed that users derived a lot of benefits from electronic resources gaining access to a wider range of information and improved academic performance as a result of access to quality information. In the same vein, Thanuskodi (2012) observed that there is a general and common perception of new entrant postgraduate students into universities, having more computer literacy than was the case in the past. Similarly, Ming-der (2012) found that for library users' to benefit from the wide range of electronic information resources, a person must be able to recognize the need for information and have the ability to locate, evaluate and effectively use the needed information.

Research question five sought to find out the extent that lecturers used e-library resources such as e-Journals, e-books, e-handbooks, e-technical reports, e-conference proceedings, e-books chapters, e-directories, e-encyclopedias, e-dictionaries, e-databases, e-manuals, e-patents and e-guides state the findings. The finding contravenes Natarajan *et al*., (2010) who found that the frequency of usage of electronic resources was low despite its wide range and availability. These authors further identified constraints which included inadequate time, poor awareness, poor subject coverage, and slow downloading. In the same vain Igbo and Imo (2010) identified lack of electronic resources and irregularity in

subscription to electronic journals as some of the factors inhibiting the use of electronic information resources.

Finding on research question six revealed that the lecturers acquire information literacy skills through various means such as librarian's guide, consultation with colleagues, existing user's guide, seminars organized by faculty or department, external conferences, workshops or seminars, trial and error and attending IT programmes. The finding is in agreement with the study of Kumar and Kumar (2008), which examined the perception and use of e-resources and the Internet by the engineering, medical and management students. The study found that many of the students and lectureres learn about the electronic information sources use either by trial and error or through the advice of friends.

Research question seven is on factors militating against the acquisition of information literacy skills in universities. Findings show that lecturers face several difficulty while acquiring information literacy skills ranging from lack of proactivity in spear-heading or pushing information literacy initiatives by librarians, lack of computers and other teaching resources, lack of Information literacy standard, lack of university commitment to the project, poor awareness among librarians on their roles as information literacy instructor in the university system and lack of lecturers willingness to incorporate information literacy into the curriculum. This is in agreement with the findings of Ojedokun (2007) who studied information literacy skills of librarians in South West Nigeria and found that lecturers have difficulty in identifying significant words and the role of Boolean operators; were unable to distinguish between library catalogues and bibliographic databases; and had limited understanding of web search tools. Therefore, lecturers need to improve their information literacy skills in the area of computer use and internet search skills through training and retraining.

4.4 Summary of the Findings

1. The findings showed that the lecturers student are skilled in information search ($\bar{x}$=2.52) (Table 4.2)
2. Majority of the respondents are highly skilled in information literacy. That is they have knowledge on how to identify, locate, use and evaluate information ($\bar{x}$=3.17) (Table 4.1).
3. Several types of subscribed and open databases are available in the university libraries studied such as Scholarly Journals (World Wide Web); Science Direct; Library Online Scirus for Scientific Information; EBSCO host Integrated Search; Encyclopedia of Life Support Systems (EOLSS); E-prints in Physics, Mathematics, Computer Science and Quantitative Biology; Educational Resources Information Centre (ERIC); FreeFullText.com Gutenberg etc (Table 4.3).
4. Information literacy skills have positive effect on the use of electronic resources by lecturers in universities studied ($\bar{x}$=3.25) (Table 4.4).
5. The respondents use e- resources such as e-book. E-journal, e-theses etc. effectively across the universities (Table 4.5).
6. The lecturers acquire information literacy skills through various means such as librarian's guide, consultation with colleagues, existing user's guide, seminars organized by faculty or department, external conferences, workshops or seminars, trial and error and attending IT program was (Table 4.6).
7. Lecturers face several difficulties in acquiring information literacy skills ranging from lack of proactivity in spearheading or pushing Information literacy initiatives by librarians, lack of computers and other teaching resources, lack of information

literacy standard, lack of University commitment and poor awareness among librarians (Table 4.7).

8. There is a significant positive relationship between information literacy skills and e-library resources use among lecturers in universities (r (345) = .080, P<0.5).(Table 4.8).
9. There is a direct relationship between search skills and use of e-library resources among lecturers in universities in North-central Nigeria (r (435) = .002, P<.05) (Table 4.9).

CHAPTER FIVE

5.0 CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

The use of e-library resources by lecturers' in federal, state and private owned university libraries in North-central Nigeria is crucial to their teaching, research and community services. This implies that the use of e-library resources provide access to information and thereby improve academic research and teaching in the university. Based on the findings of this study, two major factors are identified. First, the lecturers are not adequately skilled in information search skills. This may be due to non-exposure to ICT training programmes in workshop and conferences in terms of information search skills and retrieval. Similarly, information literacy skills also plays a significant role in determining lecturers' level of electronic library resources use. The findings show that lecturers' ability to identify the needed information confirms their level of electronic library resources used in the study area.

Second it was found that a negative relationship exists between information search skills and use of e-library resources among lecturers in universities in North-central Nigeria. The result of the analysis presented on the level of lecturers' search skills indicate that there is a significant strong negative relationship between lecturers search skills with some of the e-library resources usage listed in this research. Based on the finding, there is a strong correlation between lecturers' search skills and use of e-library resources among lecturers in universities in North-central Nigeria. Furthermore, the research concluded that lecturers used e-library resources to a high extent. The type of e-resource used are e-journals e-books, e-handbooks, e-technical reports, e-conference proceedings,

e-books chapters, e-directories, e-encyclopedias, e-dictionaries, e-databases, e-manuals, e-patents and e-guides.

The lecturers acquired information literacy skills through various means such as librarians' guide, consultation with colleagues, existing user's guide, seminars organized by faculty or department, external conferences, workshops or seminars, trial and error and attending IT programmes. It also concluded that lecturers face several difficulty while acquiring information literacy skills ranging from lack of proactivity in spearheading or pushing information literacy initiatives by librarians, lack of computers and other teaching resources, lack of information literacy standard, lack of university commitment, poor awareness among librarians on their roles as information literacy instructors in the university system and lack of university willingness to incorporate information literacy into the curriculum.

5.2 Recommendations

The following recommendations are made based on the findings of the study:

1. The management of the federal, state and private universities should ensure that the teaching of information literacy skills is prioritised so as to ensure increased usage of e-library resources by lecturers.
2. The library management of the federal, state and private owned universities should always engage lecturers through advocacy programmes such as sensitisation and organising workshop on information search skills as this will ensure continued and more effective utilisation of e-library resources among lecturers.
3. The library managements of the federal, state and private owned universities should extend access to e-library resources by making it available via remote access.

4. The library management of the federal, state and private owned universities should devise means of making e-library resources available to lecturers in the comfort of their offices via wifi connectivity.
5. The management of the federal, state and private universities should ensure that the teaching of information literacy skills is prioritised so as to ensure increased usage of e-library resources by lecturers.
6. Lecturers of the federal, state and private owned universities should be encouraged to engage themselves in information literacy and computer skills training regularly in order to be highly skilled in the various aspects of information literacy skills as this will ensure a continued and more effective utilization of e-resources.

5.3 Contribution to Knowledge

The study contributed to knowledge in the following ways:

1. The findings revealed several types of subscribed and open databases available in the university libraries north central Nigeria including those that many users are not aware of and their mode of access.
2. The findings revealed that lecturers may be skilled in identifying needed information.
3. The study found that the availability of e-library resources aided research productivity of academics in Nigerian federal, state and private owned universities.
4. The study found that e-library resources provided more advantages compared to traditional print-based sources.

5.4 Suggestion for Further Studies

This study have not been able to extensively deal with the area of information literacy skills as correlates with use of e-library resources in universities. There is need for further research in the following areas.

1. A comparative study on the Influence of information literacy skills of lecturers as correlates with use of e-library by postgraduate students in private universities Nigeria. .
2. Influence of information literacy skills of lecturers as correlates with use of e-library in university needed to be extended to other lecturers' from colleges of education and polytechnic in North-central, Nigeria.
3. Effect of information search skills of lecturers as correlates with use of e-library in universities in South-South, Nigeria and other geo-political zone.
4. The challenges of information search skills of lecturers as correlates with use of e-library in academic libraries in Nigeria.

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Appendix A

Letter of Introduction

Department of Library and Information Technology
Federal University of Technology, Minna
Niger State.

30th December, 2021

Dear Lecturers

The Use of Electronic library resources by lecturers in universities in North-central Nigeria Questionnaire (UELRLUNCNQ)

I am a Ph.D research student of the above department and university. I am undertaking a study on information literacy skills and use of electronic library resources by lectures in Universities in North-central Zone of Nigeria.

I write to request your assistance in responding to the items in this questionnaire. Please note that the exercise is purely an academic one and has nothing specifically with you as a person and your university. Your answers are your personal views and will be treated as strictly confidential

Thank you very much for your anticipated cooperation.

Yours faithfully

Ndagi Saidu Sonfada
Ph.D Student

FEDERAL UNIVERSITY OF TECHNOLOGY MINNA
SCHOOL OF INFORMATION AND COMMUNICATION TECHNOLOGY (SICT)
DEPARTMENT OF LIBRARY AND INFORMATION TECHNOLOGY

VICE – CHANCELLOR:
Prof. Abdullahi Bala *PhD, fssn*

REGISTRAR:
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HEAD OF DEPARTMENT:
Dr .K.A Saka, *NCE, BLIS (ABU), MLS (BUK), Ph.D. (UniMaid)*
E-mail: s.katamba@futminna.edu.ng **Tel: 07038706880**

14TH October, 2016

TO WHOM IT MAY CONCERN – LETTER OF INTRODUCTION: NDAGI, SAIDU SONFADA PhD /SSTE/2015/700

The above named is a Ph.D. Student of the Department of Library and Information Technology, Minna, Niger State.

He is writing a thesis titled: ***"Information Literacy Skills as Correlates of Use of Electronic Resources by Lecturers in Universities in North-Central, Nigeria"***.

I therefore request you to kindly give him all necessary assistance to enable him complete his research work.

Thank you for your anticipated cooperation.

Yours sincerely,

Dr. K.A. Saka
H.O.D/LIS

APPENDIX 6

VALIDATION OF QUESTIONNAIRE

FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA
SCHOOL OF INMFORMATION AND COMMUNICATION TECHNOLOGY
DEPARTMENT OF LIBRARY AND INFORMATION TECHNOLOGY

Dear Sir/Madam,

INSTRUMENT VALIDATION FORM

The bearer is a student of the above named University and Department. He/She is conducting a research and you have been selected as one of those with requisite expertise to validate his instrument. Kindly grant him/her all necessary assistance to make the exercise a success.

Your competence and expertise was considered as factor that will serve to improve the quality of his/her research instrument. We therefore crave your assistance to validate his/her instrument. The completion of the form serves as evidence that the student actually validates his/her instrument.

Thanks for your anticipated assistance.

Dr K.A Saka 30/10/2016

(Head of Department) (Signature, Date, and Official Stamp)

Students' Surname: NDAGI ..... Other Name: SAIDU SONFADA

Registration Number: PhD/SSTE/2015/700 Programme: PhD

Title of the Instrument: QUESTIONNAIRE

ATTESTATION SECTION:

Summary of the Remark on the instrument .....

.....

.....

.....

I hereby attest that the above named student brought his/her instrument for validation.

Name of Attester: Dr. S.J. Udoudoh

Designation: Associate Professor, Name & Address of Institution: FUT, MINNA

0703 908 7071 Phone No: ..... E-Mail: sam.udoudoh@futminna.edu.ng

Signature & Date: 01/11/2016

Please comment on the following:

1. Appropriate of the instrument for the purpose of it's designed for..... The instrument is appropriate for the study.
2. Clarify and simplicity of the language used..... The language is clear and simple to understand.
3. Suitability for the level of the targeted audience..... suitable
4. The extent in which the items cover the topic it meant to cover..... The items in the cell of the questionnaire covers the topic
5. The structuring of the questionnaire..... The structuring of the questionnaire quite okay.
6. Others (grammatical errors, spelling errors and others)..... Over grammatical rendition, spelings are fair enough.
7. General overview of the instrument..... It is above aver age

Suggestions for improving the quality of the instrument

1. All questions pased to the respondent must be
2. Clearly and understandable.
3.
4.
5.

Name of validator..... SAMUEL I. UDOUDOH (PhD) (CLN)

Areas of specialization..... LIBRARY & INFORMATION SCIENCE

Name of institution..... FED. UNIVERSITY OF TECHNOLOGY Department..... LIBRARY & INFO. SCIENCE

Signature..... date..... 01/11/2016

Thank You

APPENDIX 6

VALIDATION OF QUESTIONNAIRE

FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA
SCHOOL OF INMFORMATION AND COMMUNICATION TECHNOLOGY
DEPARTMENT OF LIBRARY AND INFORMATION TECHNOLOGY

Dear Sir/Madam,

INSTRUMENT VALIDATION FORM

The bearer is a student of the above named University and Department. He/She is conducting a research and you have been selected as one of those with requisite expertise to validate his instrument. Kindly grant him/her all necessary assistance to make the exercise a success.

Your competence and expertise was considered as factor that will serve to improve the quality of his/her research instrument. We therefore crave your assistance to validate his/her instrument. The completion of the form serves as evidence that the student actually validates his/her instrument.

Thanks for your anticipated assistance.

Dr K. A Saka 30/10/2016

(Head of Department) (Signature, Date, and Official Stamp)

Students' Surname: NDAGI ..... Other Name: SAIDU SONFADA .....

Registration Number: PhD/SSTE/2015/701 Programme: PhD .....

Title of the Instrument: QUESTIONNAIRE .....

ATTESTATION SECTION:

Summary of the Remark on the instrument .....

.....

.....

.....

I hereby attest that the above named student brought his/her instrument for validation.

Name of Attester: Dr G.A Bababola .....

Designation: SL ....., Name & Address of Institution: FUT, Minna .....

..... Phone No: 08034374224 E-Mail: gbabalola@futminna.edu.ng

Signature & Date: 02/11/2016

Please comment on the following:

1. Appropriate of the instrument for the purpose of it's designed for...
...........very good...
2. Clarify and simplicity of the language used...
...........clear and unambiguous...
3. Suitability for the level of the targeted audience...
...........highly suitable...
4. The extent in which the items cover the topic it meant to cover.......The items
...........covers the topic it is designed for for about 75%...
5. The structuring of the questionnaire...
...........Well structured...
6. Others (grammatical errors, spelling errors and others)...
...........Minor...
7. General overview of the instrument...
...........very good...

Suggestions for improving the quality of the instrument

1. ....All corrections pointed out
2. ....must be religiously carried
3. ....out not missing a point
4. ....
5. ....

Name of validator..........Dr G.A Babalola..........

Areas of specialization..........Productivity/Publishing/Trends in the digital age..........

Name of institution..........FUT, Minna..........Department..........LIT..........

Signature..........[signature]..........date..........02/11/2016..........

Thank You

APPENDIX 6

VALIDATION OF QUESTIONNAIRE

FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA
SCHOOL OF INMFORMATION AND COMMUNICATION TECHNOLOGY
DEPARTMENT OF LIBRARY AND INFORMATION TECHNOLOGY

Dear Sir/Madam,

INSTRUMENT VALIDATION FORM

The bearer is a student of the above named University and Department. He/She is conducting a research and you have been selected as one of those with requisite expertise to validate his instrument. Kindly grant him/her all necessary assistance to make the exercise a success.

Your competence and expertise was considered as factor that will serve to improve the quality of his/her research instrument. We therefore crave your assistance to validate his/her instrument. The completion of the form serves as evidence that the student actually validates his/her instrument.

Thanks for your anticipated assistance.

Dr K.A Saka 30/10/2016

(Head of Department) (Signature, Date, and Official Stamp)

Students' Surname: NDAGI ..... Other Name: SAIDU SONFADA

Registration Number: PhD/SSTE/2015/700 Programme: PhD

Title of the Instrument: QUESTIONNAIRE

ATTESTATION SECTION:

Summary of the Remark on the instrument .....

I hereby attest that the above named student brought his/her instrument for validation.

Name of Attester: Dr. A.M. Bitagi

Designation: D H L ....., Name & Address of Institution: F.U.T, Minna

..... Phone No: 08036810242 E-Mail: a.bitagi@futminna.edu.ng

Signature & Date: 3/11/2016

Please comment on the following:

1. Appropriate of the instrument for the purpose of it's designed for.....
   Very good
2. Clarify and simplicity of the language used.....
   Satisfactory
3. Suitability for the level of the targeted audience.....
   Suitable
4. The extent in which the items cover the topic it meant to cover.....The items cover a larger percentage of the topics it is designed to cover.
5. The structuring of the questionnaire.....Well structured
6. Others (grammatical errors, spelling errors and others).....Minimal
7. General overview of the instrument.....Very good

Suggestions for improving the quality of the instrument

1. To effect all corrections pointed out so as to improve
2. on the quality of the instrument.
3. .....
4. .....
5. .....

Name of validator.....Dr. A. M. Britzh

Areas of specialization.....Library and Information Science

Name of institution.....F.U.T., Minna.....Department.....University Library

Signature.....AZ.....date.....3/11/2016

Thank You

APPENDIX: B

QUESTIONNAIRE

Table 3. 1: Response from Observation Checklist on E- Library Resources Available

S/NO	ELECTRONIC LIBRARY RESOURCES	AV	NA	QTY	F	NF
1	e-books					
2	e-journals					
3	CD-ROMS					
4	e-zines					
5	e-newspapers					
	e-reports					
7	bibliographic databases					
8	Opac					
9	E-Theses and E-Dissertation					
10	E-mail					
	TOTAL					

A= Available, NA = Not available, F=Functional and NF= Not Functional

SECTION B: Information Literacy Skills and Factors on Electronic Library Uses Inventory

RQ2: Part 1: The level of information literacy skills of lecturers

Please indicate by ticking your level of information literacy skills

	LEVELS OF LECTURERS INFORMATION LITERACY SKILLS				
S/No	**Statements**	**VH 4**	**H 3**	**L 2**	**VL 1**
1.	Identification of needed information resources				
2	Evaluation of relevant information resources				
3.	Access to information resources online data base				
4.	Working or exploiting information results				
5.	Following the ethics and responsibility of use				
6.	Communication and sharing of findings				
7.	Managing search findings				
	Weighted Mean				

Key = Very Highly (VH) Highly (H) Low (L) and Very Low (VL).

RQ3: Part 2: The electronic information search skills of lecturers

Please indicate your electronic information search skills

S/No	**Electronic information search skills**	**VH**	**H**	**L**	**VL**
1.	Definition of keywords to be used for electronic information				
2.	Searching broadly and gradually narrowing down				
3.	Search building techniques like synonyms and refining				
4.	Reading of search results				
5.	Noting of clue like signs, profile authors and exclusion terms search results				
6.	Finding relevant information				
7.	Rephrasing or repeating search				

Key = Very Highly (VH) Highly (H) Low (L) and Very Low (VL).

Q4: Part 3: Perceived Effect of information literacy on the utilisation of electronic resources

Please indicate by ticking: The Effect of information literacy on your ability to utilise electronic resources

S/N	STATEMENTS	SA	A	D	SD
1	Information literacy skill has enabled me access needed electronic resources with ease recognizing the nature of information needed				
2	Information literacy skill has improved my potentials of identifying relevant electronic sources critically and efficiently				
3	Information literacy skill has assisted me in developing effective search Strategies				
4	An information literacy skill has facilitated my access to electronic sources of Information.				
5	Information literacy skill has enable me to evaluate electronic information sources critically				
6	Information literacy skill has enable me to organize electronic information for practical application				
7	Information literacy skill has enable me to integrate new information from electronic sources into an existing body of knowledge				
8	Using electronic information sources in Critical thinking and problem solving				

Key: Strongly Agree [SA] Agree [A] Disagree [D] Strongly Disagree [SD]

RQ5: Part 4: The extent of use of e-resources by lecturers in university libraries

Please indicate by ticking the extent of use of e-resources by lecturers in university libraries

S/N	**STATEMENT**	**VH**	**H**	**L**	**VL**
1.	Journals				
2.	Books				
3.	E-handbooks				
4.	E-technical reports				
5.	E-conference proceedings				
6.	E-chapters-in-books				
7.	E-directories				
8.	E-encyclopedias				
9.	E-dictionaries				
10.	E-databases				
11.	E-manuals				
12.	E-patents				
13.	E-guides				
14.	E-Resources				

Key = Very Highly (VH) Highly (H) Low (L) and Very Low (VL).

RQ6: Part 5: Determine the means by which lecturers acquire information literacy skills

Please indicate by ticking the means by which lecturers acquire information literacy skills

S/N	STATEMENTS	SA	A	D	SD
1.	Through librarians guide				
2.	Through consultant from my colleagues				
3.	Through existing user's guide				
4.	Through seminars organized by my faculty or department				
5.	Through external conferences, workshops or seminars				
6.	Through trial and error				
7.	Through Attending IT program				

Key: Strongly Agree [SA] Agree [A] Disagree [D] Strongly Disagree [SD]

Please indicate by ticking factors militating against the acquisition of information literacy skills in universities

S/N	STATEMENTS	SA	A	D	SD
1.	Lack of proactivity in spearheading or pushing Information Literacy initiatives by librarians				
2.	Lack of computers and other teaching resources				
3.	Lack of Information Literacy standard				
4.	Lack of University commitment to the project				
5.	Poor awareness among librarians on their roles as Information Literacy instructor in the University system				
6.	Lack of Faculty unwillingness to incorporate information literacy into the curriculum				

Key: Strongly Agree [SA] Agree [A] Disagree [D] Strongly Disagree [S

APPENDIX: C

RESULT

Use of e-Lib	information literacy skills	XRa	XRa - Mx	YRa	YRa - My	Sum Diffs
1091	1101	2	-5	6	-1	5
1191	1201	13	6	13	6	36
1133	1139	7	0	10	3	0
1128	1138	6	-1	8.5	1.5	-1.5
1116	1127	4	-3	7	0	0
1180	1188	12	5	12	5	25
1173	1179	10	3	11	4	12
1156	1138	9	2	8.5	1.5	3
1134	0	8	1	3	-4	-4
1075	0	1	-6	3	-4	24
1175	0	11	4	3	-4	-16
1102	0	3	-4	3	-4	16
1117	0	5	-2	3	-4	8

Calculation

R = CoVariance / (X_{Ra} St. Dev. * Y_{Ra} St. Dev.)

Key

X_{Ra} = Ranks of X Values; Y_{Ra} = Ranks of Y Values
X_{Ra} - M_x = X rank minus mean of X ranks
Y_{Ra} - M_y = Y rank minus mean of Y ranks
Sum Diffs = (X_{Ra} - M_x) * (Y_{Ra} - M_y)

Result Details

X Ranks
Mean: 7
Standard Dev: 3.89

Y Ranks
Mean: 7
Standard Dev: 3.78

Combined
Covariance = 107.5 / 12 = 8.96
R = 8.96 / (3.89 * 3.78) = 0.608

r_s = 0.60847, *p* (2-tailed) = 0.02733.

By normal standards, the association between the two variables would be considered statistically significant.

Search Skills	Use of e-Lib	XRa	XRa - Mx	YRa	YRa - My	Sum Diffs
952	1091	5	1	1	-3	-3
932	1191	3	-1	7	3	-3
629	1133	2	-2	4	0	0
1020	1128	7	3	3	-1	-3
1009	1116	6	2	2	-2	-4
619	1180	1	-3	6	2	-6
940	1173	4	0	5	1	0

Calculation

R = CoVariance / (X_{Ra} St. Dev. * Y_{Ra} St. Dev.)

Key

X_{Ra} = Ranks of X Values; Y_{Ra} = Ranks of Y Values
X_{Ra} - M_x = X rank minus mean of X ranks
Y_{Ra} - M_y = Y rank minus mean of Y ranks
Sum Diffs = (X_{Ra} - M_x) * (Y_{Ra} - M_y)

Result Details

X Ranks
Mean: 4
Standard Dev: 2.16

Y Ranks
Mean: 4
Standard Dev: 2.16

Combined
Covariance = -19 / 6 = -3.17
R = -3.17 / (2.16 * 2.16) = -0.679

r_s = -0.67857, *p* (2-tailed) = 0.09375.

By normal standards, the association between the two variables would not be considered s

APPENDIX: D

PUBLICATIONS

Ndagi, Saidu Sonfada & Musa, Baba Adamu (2019) Assessment of information and communication Technology (ICT) literacy level of undergraduate students in university libraries in North Central Nigeria. Lagos Journal of Library and Information Science, 8(1/2), 11-23

Ndagi, Saidu Sonfada & Madu, E. C. (2018). Effect of Information Literacy Skills on Use of Electronic Library Resources By Lecturers In Universities In North Central Nigeria. International Journal of Applied Technologies in Library and Information Management, 4 (3) 02 - 13 -22.

Ndagi, S. S., Akor, P. U., Saka, K. A. & Babalola, G. A. (2021). Acquisition of information literacy skills and use of electronic library resources by lecturers in university in North-Central, Nigeria. Proceedings of Nigeria Library Association, Kaduna State Chapter, 34-49