ACCESS AND UTILIZATION OF VIRTUAL LIBRARY IN DISTANCE LEARNING EDUCATION PROGRAMME OF THE NATIONAL TEACHERS INSTITUTE (NTI) KADUNA

BY

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DECLARATION

I hereby declare that this thesis entitled: Access and Utilization of Virtual Library in Distance Learning Education Programme of the National Teachers Institute Kaduna has been written by me in the Department of Library and Information Science. The information derived from the literature has been duly acknowledged in the text and list of references provided. No part of this work to the best of my knowledge has been previously presented for another higher degree.

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CERTIFICATION

This thesis titled Access and Utilization of Virtual Library in Distance Learning Education Programme of the National Teachers Institute Kaduna by Ogalue Rose Toyin, meets the regulations governing the award of the degree of Masters In Library and Information Science of Ahmadu Bello University, Zaria and was approved for its contribution to knowledge and literary presentation.

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This study is dedicated to God Almighty; who made this study possible may his name alone be glorified.

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ABSTRACT

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The study investigated virtual library access and utilization in distance learning education programme of the National Teachers Institute Kaduna. Stratified random sampling technique was used to select 390 respondents from a population of 10666 students and 187 respondents from a population of 346 academic staffs. Structured questionnaires were used to collect data from respondents. The study had five research questions and five null hypotheses. 522 copies of questionnaire were properly completed and subjected to statistical analysis. Mean and standard deviations were used to answer the stated research questions. Independent sample t-test was used to test null hypotheses one, three and four while Mann-Whitney U-test was used to test hypotheses two and five. All the hypotheses were determined at the 0.05 level of significance. The findings of the study revealed among others that academic staffs were aware of access to NTI virtual library while students' were not aware. Virtual library resources of NTI Kaduna were not easily accessible by both groups. Virtual library were not used every time by academic staffs and students. Academic staffs and students were dissatisfied of virtual library resources, systems and services. Majority of the problems encountered by academic staffs and students were slow internet access, lack of internet access and non availability of e-resources. It was concluded that NTI Kaduna virtual library had not played significant role in facilitating distance learning. In view of the findings, one of the recommendations made was that more awareness to both students and academic staffs on virtual library. NTI Kaduna should improve in their virtual library service quality in areas such as information access that in content/scope and timeliness, personal control that is ease of navigation and convenience, affect of service that is responsiveness and reliability. This will boost satisfaction derivation by its users.

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CHAPTER ONE

INTRODUCTION

1.1   Background to the Study

In the wake of information and knowledge explosion many people aspire to acquire education at all levels but could not afford education through the formal route because of the limited offer in the traditional institution of higher learning, those who joined workforce without completing their studies due to family commitments are unable to combine their work with studies and very few of them who have strong desire for higher studies could not do so, the tradition of childhood, early marriage and religious belief in the country deprives the majority of female population from higher education. Besides, physical disabilities, remoteness of localities, exorbitant tuition fees in most privately owned Institutions these are some of the major issues responsible for why millions of Nigerians are deprived of higher education despite their knee interest and eligibilities.

Education as a basis for change and development is delivered in different ways. One of these ways is distance education. Distance education is now being offered all over the world as an alternative to formal education system. This type of learning system is often referred to as out of class learning, meaning that it is received while the students are outside the learning institution. In other words, distance education is an educational process in which a significant proportion of teaching is conducted by someone removed in space and/ or time from the learner. Distance learning is a formalized learning received while the student is on a location outside the Institution of learning. Both the teacher and student are expected to have minimal physical contact, but much reliance on electronic communication and independent studying (Omoyemi, 2008). In distance learning, the

learner chooses the place of study, time and pace of learning which could be thousand miles away.

Government policy statement has emphasized the determination of the government to make distance learning education a success. According to the revised National policy on Education (2004) one of objectives of distance education is to provide access to quality education and equity in educational opportunities for those who otherwise would have been denied. In order to achieve the above objective, the library plays significant role by providing useful reading resources to support research and learning. This is because, the library is the nerve centre of any educational institution as it promotes the acquisition of reading, inquiry and independent thinking through the provision of information resources to support teaching and learning activities (Mabawonku, 2004).

With the advent of the new communication revolution, the world is witnessing an expansion in distance education. This new information revolution has enabled academic institutions to provide a flexible and more open learning environment for students. The convergence of new information technologies such as telecommunications, computers, satellites, and fiber optic technologies is making it easier for institutions to implement distance education (Harasim, 1993). With this growth in telecommunication technology provision of information resources has, transformed from the traditional physical building where an array of books and journals are arranged on library shelves to be consulted or borrowed by its clientele to a high way technology which enhances collaborative work among scholars resident in different geographical locations. This technology brought virtual library into focus, it has been defined variously by different scholars and/or

organizations, depending on their perception of the concept. Arms (2005) defines virtual library as "managed collection of information, with association, services, where the information is stored in digital formats and accessible over a network." These two definitions recognize the need for the virtual library to function over a network but the crucial part of the latter is that the information is managed. MacCall, Cleveland, and Gibson (1999) define virtual-library as collections of electronic knowledge resources developed and maintained in order to meet the totality of information needs for a given user population. Riccio (2007) simply put it as a collection of machine readable documents made available through an Internet site.

Virtual library facilitates online access to information resources such as databases, electronic journals, alerting services, electronic reference tools, and quality-vetted e-resources. It makes access to digital resources independent of time and distance; it is flexible and personalized to the individual thereby transforming the use of library materials (Gbaje, 2010). The virtual technology was first created by Jones International University in the United State of America in the year 1993 for its distance learning programmes (O'Leary ,2009). It is a library in which the holdings are found in electronic stacks, providing technological way of bringing together the resources of various libraries and information services in one place for users to find what they need quickly and easily. It consists of information resources and services from a variety of separate libraries that are organized in a virtual space using computers and computer networks. It harnesses digital technologies as infrastructure to search, collect, organize, store and distribute cultural, historical and scientific information in text, visual images and sound (Irokwe ,2008). It also facilitates instant search, retrieval, and delivery of information to and from

different sources all over the world. It does not only facilitate immediate and convenient information accessibility, sharing, and retrieval but it also offers its users a rich learning environment (Osofisan, 2010).

The association of College and Research Libraries ACRL (2004) in its guidelines for learning library services, states that, access to adequate library services and resources is for the attainment of superior academic skills in post-secondary education regardless of where students, faculty and programmes are located. By implication, any originating institution offering any form of distance education should integrate a virtual library in the planning, organization and management of the programmes. This is what Fufuri (2008) called 'distance librarianship' which is concerned with planning and developing online library and information services that supports tertiary education progremmes offered off campus or on part-time basis. Libraries serving distance learning institutions provide a variety of online library and information services. Mabawonkun, (2008) citing Kavulya (2004) noted that distance education students need to use reference services, interlibrary loans and access to electronic database. He added that any distance education programme that ignores the services of virtual library provides a narrow experience for the learners.

Virtual Library automates the core library and information services and makes them available globally to an unlimited audience of distance learners at the same time, anytime and anywhere via the Internet. The core library and information services that ought to be provided for distance education students include: Access to variety of information resources such as course materials, textbooks, reference materials, journals and other related materials; Reference assistance; Bibliographic, textual and multimedia

database; Information literacy skills (user education); and Consultation for enquiry through electronic mode of correspondence.

In resource development, technology has given Virtual librarian more choice in resource selection and acquisition. Acquisition librarian buys audio visuals, CD-ROMs, and the right to use professionally maintained databases with many "access without ownership". Virtual library has brought issues involving leased electronic databases, full-text journal articles and other services provided virtually for distance learners to be accessed anywhere and anytime. Reference librarians can support a growing clientele of remote access patrons answering reference questions through the use of electronic mail, chatting etc. Reader's advisory services which is a reference work with a more personal touch has taken a new dimension in virtual library environment as librarians create web pages to advice from afar. Some technical services librarians now work with computer experts to create websites and intranets which they use to organize their library services to the benefit of distance learners irrespective of their locations (Osorio, 2007).

The National Teachers Institute (NTI) was established in 1976 by the Federal Government of Nigeria as a service delivery parastatal of the Federal Ministry of Education to produce qualified teachers that will meet the needs of the Universal Primary Education (UPE). The National Teachers Institute was charged by Law/Act No.7 of 1978 to provide courses of instruction leading to the development, upgrading and certification of teachers as specified in the relevant syllabus using Distance Education Techniques. The National Teachers' Institute (NTI) began by training Grade Two Teachers (TC II). In 1990, the Nigerian Certificate in Education (NCE) programme was introduced when the expectation was that the minimum teaching certificate in Nigeria was expected to be

NCE. The Institute also introduced the PGDE programme in the year 2005 (Modibbo, 2006). The Institute established a traditional library system in 1976 to provide library and information services to the staff and students as well as carry out documentation relevant to the institute distance learning program. The NTI library and collection services provide vital support for student, researchers, staff and course facilitators, complimenting academic activities. The library has more than eighteen thousands collections of books excluding journals, calendars, Almanac, monographs, newspapers, magazine and other periodicals. In order to meet information needs of the library users a Virtual Library was established in 2004 to facilitate online access to information resources. The virtual library subscribed to a number of electronic information resources (Databases) such as the National Library database, Journal storage, National University Commission (NUC), Canadian Archeology Library, and the Scottish Library (Aminu, 2012).

The rationale behind running of Distance learning programmes is that, students could learn from their chosen locations which could be thousands of miles away. And that the system should be accessible to the vast majority of users regardless of disability, language or cultural difference. It is therefore expected that distance learning would demand much access and use of information and communication technology. The place of Virtual Library in supporting distance learning education programme is important because, distance learners should have full access and utilization to library resources and services.

1.2   Statement of the problem

Education has become very critical in the development of society as such the demand for tertiary education is on the increase. In Nigeria today, several students are

produced from the post primary schools year after year, without corresponding space for admission into higher institutions. According to data from the National University Commission (2013), candidate applying for admission placement in conventional universities far supersedes the available slots.

Consequent on the aforementioned, there is notable increase in interest in distance learning education. In addition, distance education has so far proved to be cost effective and convenient to students as they can study in their own localities regardless of geographical location. Perraton and Rumble in Chifwepa mention that, distance education is a major alternative mode particularly appropriate and less costly for a lot of people who cannot attend the conventional school mode due one reason or the other (Chifwepa, 2006).

The marriage of computer and communication technology, which is referred to as information technology, has revolutionized teaching and learning system (Akinola and Iyokoh, 2005). In fact, many institutions now offer different programmes in undergraduate and graduate levels relying almost exclusively on computer-based resources for instruction. Virtual system provides collaborative learning environments by linking students with the instructors and co-learners in other geographical locations to journals, publications, text materials, reference materials and many others.

Scholars have, however, argued that in-spite of the tremendous benefits of virtual library systems to distance learners and other categories of users, there are problems. Herring (2001) asserted that some of the problems among others are; technical issues and maintenance culture deter effective and efficient virtual library system. Other factors that could hinder effective virtual library systems include: fragile institutional environment, proliferation/ waste of information, and massive computer illiteracy (Sofoluwe, 2003).

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Ajibero (2003) also observed that one of the major problems confronting the proposed virtual library system for federal university libraries in Nigeria is poor funding of capital projects generally. Other challenges confronting distance learning include the non-easy access to tutors and educational resources by students (Adeyemi, 2011).

The National Teachers Institute was charged by Law/Act No.7 of 1978 to provide courses of instruction leading to the development, upgrading and certification of teachers as specified in the relevant syllabus using Distance Education Techniques. Information obtained from the study area revealed that despite the existence of virtual library since 2005 up to the time the research is conducted, virtual library in NTI, Kaduna had not been efficiently enough in meeting effective access and utilization among teachers and students for distance learning (Zakari, 2014). The researcher also observed that student in the NTI programme do not have access to the complete course materials in their field of studies which can and affect their learning and research. The underutilization of library webpage as a tool of information dissemination by the Library, not only for distance education students but also for other users is also a source of concern.

Over the years, the investigations of the factors that disrupt distance education have attracted the interest of researchers. For example Nwachukwu, Ubogu and Ossai (n.d) asserted that distance education in Nigeria need to be better designed in the area of educational curricular and infrastructure as well organization of programms so that management and students can better plan for unanticipated and unintended results that confront them as they operate. ICT play a key role as enabler to help us better manage the complex information flow and to integrate such information towards effective policy formulation and planning towards the utmost maximization of human capital and. Thus, it involves the development of effective and integrated tools as well as training modules to

enable their application through effective distance education agendas (Mac-Ikemenjima, 2005).

Based on the aforementioned problem, prompted the researcher to carry out a research on access and utilization of virtual library in distance learning education programme of the National Teachers Institute Kaduna.

1.3 Objectives of the Study

The major objective is to investigate the level of usage of the Virtual Library resources by distance learners of NTI. The specific objectives of this study are to:-

- Examine the extent of accessibility of the virtual library resources to the academic staff and distance learners of NTI Kaduna State.

- Identify the type of information resources available for use in NTI virtual library Kaduna State.

- Determine the frequency at which the distance learners and the academic staff of NTI use the virtual library of NTI Kaduna State.

- Examine the extent to which academic staff and student of NTI are satisfied with the use of virtual library's resources, systems, facilities and services of NTI Kaduna.

- Identify the challenges academic staff and student of NTI encounter in accessing and utilizing the virtual library's information resources, systems, facilities and services of NTI Kaduna State.

1.4 Research Questions

The research work is expected to provide answers to the following specific research questions:-

- To what extent are the virtual library accessible to academic staff and students of NTI Kaduna?

- What types of virtual library information resources are available to academics staff and student of NTI Kaduna?

- How often do the academic staff and distance learners of NTI use the virtual library information resources of NTI Kaduna?

- To what extent are the academic staff and distance learners of NTI satisfied with the use of virtual library's resources, systems, facilities and services of NTI Kaduna?

- What challenges do the academic staff and distance learners of NTI encounter in accessing and utilizing the virtual library's information resources, systems, facilities and services of NTI Kaduna?

1.5 Research Hypotheses

In line with each of the research question, the following null hypotheses were formulated and tested at the significant level of 0.05%

H_{01}. There is no significant difference in the accessibility of virtual library resources between students and academic staffs of NTI Kaduna.

H_{02}. There is no significant difference in the types of virtual library resources available to students and academic staff of NTI Kaduna.

H_{03}. There is no significant difference on the utilization of virtual library resources between students and academic staff of NTI Kaduna.

H$_{04}$.   There is no significant difference on the satisfaction derived after utilizing virtual library between students and academic staff in NTI Kaduna.

H$_{05}$.   There is in significant difference on the challenge encounter in accessing and utilizing virtual library between students and academic staffs of NTI Kaduna.

1.6   Significance of the Study

The result of this study would be of benefit to students, librarianship, and researchers. The results of this study will be of benefit to distance education because it will co-opt the Library in the designing of the curriculum for distance learners. The study will also help to motivate the library management to carry out ambitious reforms especially in its reference services which must be key service charged with full responsibility of liaison and outreach to users. Results from the study would assist library administrators addressing students' use of virtual library services and resources in the academic environment. Since students prefer to access information online.

Academic librarians may study the results when examining strategies for the development or improvement of online library services and resources for students. Gaining a better understanding of the virtual patron experience may help librarians make informed decisions about how to integrate online library tools, inform strategic planning, and determine if the academic library is meeting the needs of virtual patrons.

It is hoped that the study will also provide an insight for the NTI Library, the Directorate of Distance Education and the library management to find ways of strengthening the existing modes of library information services currently being offered. It is also hoped that suggestions by this study will assist the library to further improve library information accessibility of distance students. The study will also offer options for the NTI management, the DDE and the library management to see whether it is necessary

for such courses as information literacy, internet and other similar information literacy courses meant to improve the student's information searching skills to be included in the curriculum.

This study may form a basis for further studies in the area of academic libraries' support to distance learners not only at NTI but also in other learning institutions.

1.7   Scope and limitation of the study

This study is delimited to the Virtual Library of the National Teachers Institute. It covers the Academic Staff and Student of the Institute and the most obvious limitation of this study is the cost implication in carrying out the task.

1.8   Operational definition of terms

For better understanding, it is necessary to define the following terms and concept in the context of the study.

Access: Able to reach confidential information

Distance Education: Distance learning is a home study, external and independent study with the provision of useful learning materials at the convenient place and time of the learners.

National Teachers Institute: An institution for training and re-training of primary and junior secondary school teachers for high quality education

Utilization: To use something especially for a practical purpose

Virtual Library: The concept of virtual library is one that has developed with the growth in telecommunication networks especially the Internet. It facilitates remote access to information resources.

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CHAPTER TWO

REVIEW OF RELATED LITERATURE

This chapter reviewed literature related to the study. The review was done under the following subheadings:-

2.1   Theoretical Framework

The theory adapted for this study was derived from the System's theory input-output model developed by Ludwig Von Bertalanffy in 1956. The theory, according to Koontz and Weihrich, (1988) postulates that an organized enterprise does not exist in a vacuum it is dependent on its environment in which it is established. They added that the

inputs from the environment are received by the organization, which then transforms them into outputs. As adapted in this study, the educational resources (virtual library as Input) implemented as part of the educational programms in the Institution, these programmes is managed by the Distance Learning System of the Institution and the output is seen from the objective attainment of these programmes.

Robbins (1980) argued that organizations were increasingly described as absorbers, processors and generators and that the organizational system could be envisioned as made up of several interdependent factors. System advocates, according to Robbins (1980) have recognized that a change in any factor within the organization has an impact on all other organizational or subsystem components. Thus the inputs, the processors and the generators should function well in order to achieve the desired outcome.

It is arrived at basing on the System's theory Input-Output model advanced by Ludwig Von Bertalanffy in 1956. The selection of the model is based on the belief that, the quality of input invariably affects quality of output. Invariably, the quality and quantity of inputs into a programme contribute significantly to bridge the gap that led to the initiation of such programmes, therefore determine the success of such educational programme initiative (Asodike & Ebong, 2012). If the inputs are inadequate, poor, or unavailable, the implementation process will be as defective as the output. However, if inputs are available, relevant, and reasonably adequate, there is probability that the output will be of high standard.

Fig 1 Conceptual framework of the factors affecting academic performance

Independent variable(s)	Dependent variable(s)
Virtual library • Type of information available • Accessibility • User's satisfaction	**Distance learning**

Extraneous variables
- Institution facilities
- Management of Institution
- Quality of staff
- Technical no how
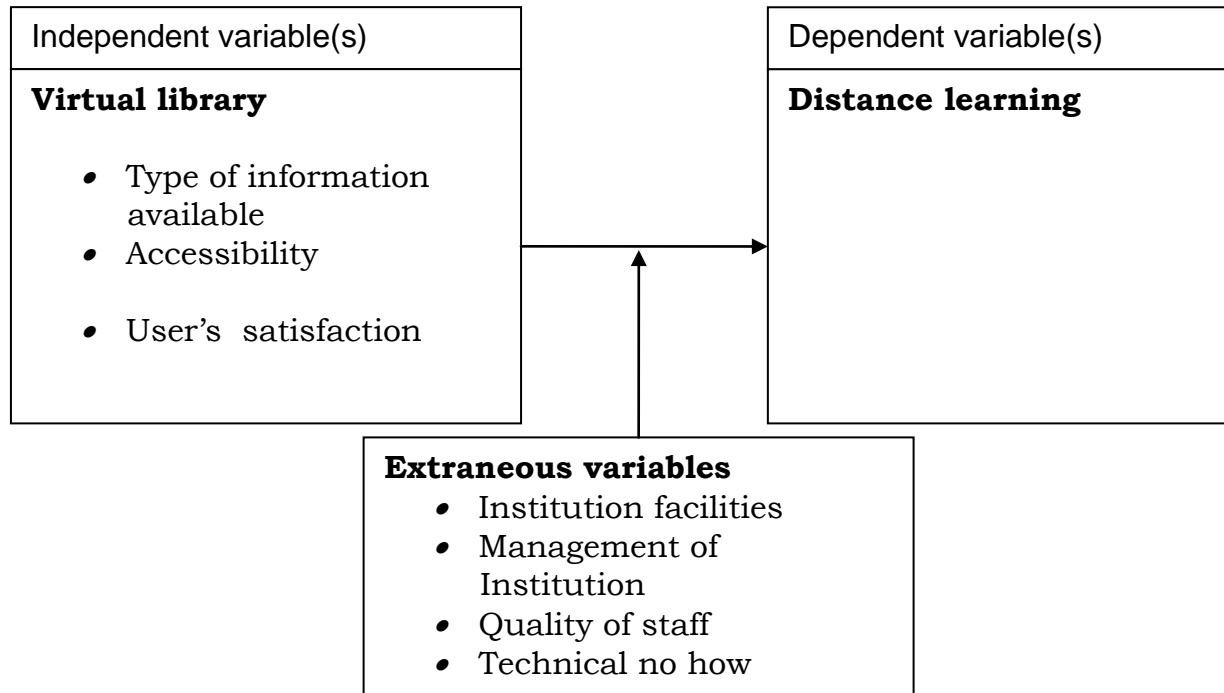
Source: Adopted from Koontz and Weihrich (1988: 12).

Fig.1 Conceptual framework model

Fig 1 shows the linkage between different factors distance learnning. It shows that distance learning as a dependent variable is related to the independent variables, which are types of information available in virtual library, accessibility to the information, quality of service by the virtual library.

In this case, the virtual library being a subsystem of a learning Institution must make its useful contribution towards the mandate of the larger system (NTI) that is to provide lifelong education through distance learning as contained in was charged by Law/Act No.7 of 1978. The Directorate of Distance Education, the Library and

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Departments/lecturers as subsystems of a lager system in the name of NTI, must actively collaborate in order to effectively achieve the goal of providing distance education.

2.2   Concept of Virtual Library

The Internet, a computer-based worldwide information network, has had an enormous impact on libraries. Librarians use Internets and its multimedia component, the World Wide Web, to answer reference questions and to provide access to materials not previously available to their patrons. On university campuses, investments in personal computers and high-speed local area networks (LANs) provided students and faculty with the ability to access vast new sources of information via the Internets. As a result, libraries are now extending their traditional roles of facilitating self-education and individual enrichment by providing low-cost or free computer access to online resources. The potential of what can be achieved in information generation, acquisition, collection, processing, display and dissemination, was very exciting and intoxicating, and resulted in futuristic dreams. The advances in the fields of telecommunications, computer technology, and satellite communications have revolutionized information delivery services in advanced countries. As asserted by Akpan (2001), information can be delivered across countries in to houses and offices instantly. Such sharing of information has given rise to the concept virtual library.

The expression 'virtual library' is relatively new, being a little above a decade. One of the writers who coined it is Nancy Schiller who defined it in 1992, simply as "libraries in which computer and telecommunication technologies make access to a wide range of information resources possible". It is often referred to as 'digital library' or 'electronic library', 'community network' or simply, 'library without wall'. It is called

'virtual' because in a good electronic wide area networked library, the user enjoys the euphoria of being able to access collections in distant libraries, and yet he has not physically moved. It is an experience of virtual reality. One of the features is that it emphasizes access and ownership of collections believing that the whole global information super high way is a human resource and heritage which all who have the necessary infrastructure capabilities, can tap for their own development.

We can then take the virtual library to be a computerized library system which provides multiple accesses to the entire collections of a library by means of electronic media. According to Irokwe (2001), a virtual library is a library that harnesses digital technologies as infrastructure to search, collect, organize, store and distribute cultural, historical and scientific information whether it is text, visual images or sound. Digital libraries make it possible for electronic books and journals to be accessible to an unlimited audience at the same time, anytime and anywhere. A traditional library is simply a place (building or room) where books and related resources are kept and used for promoting learning. The "place" can be "real" (non-virtual) or "virtual". The concept of "real" and "virtual" are used more in a scientific rather than in the literary sense. "Real" means tangible and capable of being self while "virtual" denotes a representation of reality. This has given rise to the concept of virtual reality to which the virtual library idea subscribes. Thus, the real word of the library is perceived in virtual space. Comparatively, as pointed out by Daniel (2002), a purpose-built physical building with library furniture, hard print copies of books, journals and other library resources give the traditional concept of a "real" library. In other words, walking from shelf to shelf in the imposing building of the main library of a standard university library, and picking up books to read gives a sense of being in a "real library".

Fortunately, however, information and communication technology (ICT) today, provides the possibility of the same user walking through aisles of these libraries and picking up the books from his or her desk virtually, using information telecommunication technology as tools. This is the concept of "virtual reality". A virtual library can therefore be defined as a collection of library resources in electronic/digital format at various locations, which can be accessed and used with great ease using computer information technologies for the purpose of teaching, study, research, learning, leisure and decision-making. The emphasis in virtual libraries is on organization and access, not on physical collections (Baldwin & Mitchell, 1996).

Virtual libraries provide immediate access to a range of resources not available in physical collections. Virtual libraries allow unprecedented access to information and ideas (Neuman, 1997). A paradigm shift takes place from libraries as collectors of items to libraries as facilitators of access to all kinds of information, provided by anybody, located anywhere in the world, accessible at any time (Grothkopf, 2000). While physical libraries operate with designated hours, virtual libraries are available anytime and anywhere there is an Internet connection. Virtual libraries especially those with customized collections, facilitate just-in-time learning (Riel,1998), learning when it needed for a particular task or purpose. Just-in-time learning can be independent of time and place Riel (1998); Weinberger (1997). Virtual libraries offer opportunities for learning that are not possible in their physical counterparts. Virtual libraries complement other virtual learning environments, such as those provided in distance education and courses offered online, and like virtual learning environments, they provide flexibility of time and place (Roes (2001).

Virtual libraries often contain more up-to-date information than physical collections. Their sources can be searched more efficiently than those in physical libraries, and the information they contain can be updated more frequently (Neuman, 1997). Well-designed virtual library collections are organized and managed to increase productivity and efficiency of the user Saracevic (2000); Schamber (1990). Virtual libraries break down the physical barriers between users and information sources (Marchinoini, 1995). Through the use of audio and video, virtual libraries can also make resources available to users that are visually and hearing impaired, and they make these resources available in their homes. Technology exists to make virtual libraries more accessible for the disabled: refreshable Braille displays, screen readers with a synthesized voice output, closed captioning, and large buttons Kautzman (1998). Virtual libraries of the future may integrate voice, video, and text for users involved in distance education in remote locations Chute, Sayers, & Gardner (2000).

2.2.1 Concept of Distance Learning

Distance education (DE) and distance learning (DL) are often used interchangeably, although the two terms reflect different points of view. Distance Education takes the view of the educator and educational institution providing the learning opportunity, whereas Distance Learning takes the view of the student and refers to a learners studying in a non-classroom setting (Askov, et al., 2003). The most straightforward definition of DE is an instructional mode in which the teacher is not in the same place at the same time as the student (Casey, 2008).

McIsaac and Gunawardena (1996) summarise the characteristics of distance education from their own review of the literature as: education imparted where the learner is physically separated from the teacher (Rumble, 1986); as a planned and guided learning

experience (Holmberg, 1986, 1989); and consists of a two-way structure distinct from traditional classroom instruction (Keegan, 1988). Many writers have looked at the higher level of independence or "learner control" (Holmberg, 1995) which is a feature of distance education. Baynton (1992) developed a model to examine this concept in terms of independence, competence and support. She notes that "control" is more than "independence". It was also affected by competence (ability and skill), and support (both human and material).

Another concept, that of "transactional distance", was advanced by Michael Moore (1990). Here, "distance" is determined by the amount of communication or interaction which occurs between learner and instructor, and the amount of structure which exists in the design of the course. Greater transactional distance occurs when a course has more structure and less communication (or interaction). A continuum of transactions might exist in this model, from less distant, where there is greater interaction and less structure, to more distant where there may be less interaction and more structure. There is, these days, the problem of conflating of distance learning with e-learning. It could be argued that e-learning provides such a high level of interaction that the "distance" is necessarily smaller.

The distinguishing characteristic of distance education from other forms of education is the physical separation that exists between the students, their tutors and the institution of instruction. This separation has been termed the "tyranny of distance" within the literature of distance education (Watson n.d).

Distance education provides Nigerian education system multi-made approach (a combination of face-to-face, print, audio/video broadcasts, teleconferencing etc.) to

teach students. Distance education can therefore be conceptualized as any form of organized educational experience in which teaching and learning take place, with the teachers at a distance from the learners most of the time. It is a form of education that enables a limited number of teachers to reach a very large number of learners which pave ways to cost reduction and economics of scale (Dodds, 19991; Fagbamiye, 1999, Oguntimehin and Adeyemi, 1999; 2000). In addition, Oguntimehin and Adeyemi (1999:2000) Fagbamiye (1999) and Chandler (1991) define distance education and open learning as follows:

"… distance education is used as a generic term to comprise all patterns of student-centered learning process in which the teacher has only a limited role. The old forms of correspondence education, external or extra-mural studies and home-based study come under this description. All of them have certain common characteristics that keep them separate from the traditional pattern of face-to-face learning. The most outstanding characteristics is the physical distance between the students and the teacher… Distance education (as well as, open learning) is a self-paced learning process wherein the student can frame his own time-table according to the time at his disposal. This makes it possible for the people employed in full-time jobs, house wives with numerous household chores and youths waiting for employment to carry on education at their leisure available to them…" Therefore, distance education can be defined as the teaching-learning process in which students are separated from the teachers by a physical distance which is often bridged by modern communication media".

In all, it can be safely said, that distance learning is mainly structured as an intentional and systematic educational enterprise outside of traditional schooling. The hallmarks of distance learning is the separation of teacher and learner in space and/or time (Perraton, 1988), the volitional control of learning by the student rather than the distant instructor (Jonassen, 1992), and non-contiguous communication between student and teacher, mediated by print or some form of technology (Keegan, 1986; Garrison & Shale, 1987).

2.2.2   Virtual Library Services in Distance Learning Education.

The provision of quality library services to those who learn at a distance is undoubtedly one of the most exciting and challenging developments that have occurred in contemporary librarianship. Distance education has led to the development of specialised library and information services that can appropriately be called distance librarianship. In traditional library services students go to the library to access the range of information services that they need to satisfy their learning needs. In distance education a cocktail of modalities have to be used to take library services to distance learners (Watson, n.d). Thus, the tyranny of distance applies not only to education but also to the ability of those who study at distance to access library services.

The emergence of new technology and communication methods marked a new era in distance education as they made it easier to reach out to adult learners and provide increased access and support (Garrison, 1989). The shift in emphasis in the literature from "distance education" to "education at a distance" (Garrison, 1989) is significant because it implies that the newly available technologies of communication rendered distance support for learners. Infact, a review of studies comparing of online and class-

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room based courses education almost identical to traditional education in terms of access and indicated that, by and large, there are few differences in satisfaction and quality of the learning experience, as measured by test scores, course grades, and student ratings (Askov, et al., 2003).

Twenty years of technological innovation may have fundamentally changed the ways distance education programs are planned and delivered to learners; however the same "contentious issues" (Garrison, 1989) still exist, including the level of participant control and voice in distance education programs and rates of participation by those who have not been served by face to face adult education programes. With a more critical perspective regarding the contribution of technological advances to the quality of distance education programs, Gibson (2000) defined distance education as education or training offered by an agency or organization with an educational mission to serve learners at remote locations via print, audio, video, computer or a combination of these technologies. In distance education courses, "students may complete all or part of an educational program in a geographical location apart from the institution hosting the program" (United States Distance Learning Association, 2008) via the aforementioned media. As discussed below, adult education programs utilize various media to implement distance education.

Most researchers on distance learning are in agreement that virtual library support is a key element for effectiveness (Caspers, Fritts & Gover, 2001). The unique functions of libraries are to acquire, organise, offer for use and preserve publicly available material irrespective of the form in which it is packaged (print, cassette, CD-ROM, network form) in such a way that, when it is needed, it can be found and put to use. Libraries are moving beyond the traditional roles of collection maintenance and custodial duties to newer

functions of translating, accessing and marketing resources beyond the walls of the physical library collection.

To Lynch and Garcia-Molina (2005) The services of virtual library in distance learning education programme include the following:-

- **Evaluating available sources of information**: there is an increasing diversity of information resources from which to choose the most appropriate from a pool of e-resources/database. Due to the dynamic nature of distance learning education, librarians have to widen their selection processes and select the right medium for each situation and develop information systems providing access to a coherent collection of online resources, which would enable them provide the best information resources that meet the needs and aspiration of distance learners.

- **Organising and structuring information**: Information space is large and rapidly growing. Librarian makes access easier through a single interface, usually the library's catalogue. This provides what Lynch and Garcia-Molina (2005) described as a 'superficial uniformity' for ease of navigation and access. Consequent open this, Librarians who are privileged to work in distance learning environment must endeavor to acquire more professional skills in new organizational tool such as metadata to be able to organise and structure online information Resources to facilitate ease of access.

- **Providing intellectual access to information**: Librarians in Distance Learning Environment use virtual library as the most appropriate channel to provide Electronic reserves of information resources by digitising printed course books and document, converting the Institute video and audio programmes, uploading them into the virtual

library webpage so that many students can access it simultaneously without limitation to physically going to the library building within opening hours.

- **Online registration services**: In order to support the mandate of distance learning education, the library must provide justification for services rendered. The most appropriate way is to ensure that the entire students are registered. This is done through the creation of library account and distribution of password which enable customers to access the virtual library electronic resources. This will help track the number of hits on the library website.

- **Online Reference Services**: Distance Learning Education provides a unique platform for Librarians to provide value added services by offering instruction and assistance to distance learners in identifying and interpreting online resources. "Ask a Librarian Services" is a unique link provided to allow users ask online reference question via e-mail and other social network like face book, twitter, wiki etc. where trained online reference librarian can provide the needed assistance.

- **Maintenance Services**: Since Distance Learners are usually far from there study centers, the virtual library plays a critical role in their education process. As such, it is pertinent maintaining and updating website and preserving both the medium and the information contained therein.

2.2.3 Virtual Library Facilities

Creation, maintenance and provision of services using digital library collections require several resources. According to Rajashekar (2005) two major resources required for setting up and operating virtual library collections are: technology infrastructure and

Personnel. Technology infrastructure includes computing and other equipment, software and network connectivity. Personnel will be required for handling various tasks associated with the creation and maintenance of the collection. To him, a Virtual library project would typically require the following facilities:- Server Computer; Desktop computers; Digitization Equipment; and Network Connectivity.

Server computer: The server computer holds the virtual l library collection, runs the virtual library software which provides the searching and processing applications. The server also handles the communication with the user over the network. The server needs to be reasonably powerful (typically measured in terms of processor speed, for example mega or giga hertz), has adequate main memory (RAM), has large amounts of hard disk storage and has good communication capability (network card and bandwidth).

Desktop Computers: desktop is a graphical computer representation of an office desk; a display on a computer screen comprising background and icons representing equipment, programs and files. The computer itself has all the peripheral devices needed to operate it such as central processing unit; a mother board or main board; a graphics card; a sound card; variety of disk ports to serve hard drives including USB ports; a monitor, a set of speakers to hear sound, a keyboard; a mouse typically a three button mouse with scroll wheel. Other peripherals can be added to the system to augment its functionality. Common ones include: A Wi-Fi adapter to connect to wireless networks, a blue-tooth adapter to connect to wireless peripherals, a modem for a direct connection to an internet service provider, a printer to produce (paper) hardcopy, a scanner to input data from hardcopy. All these pieces, pulled together comprise a personal computer system.

Digitization equipment: these are equipment needed for converting source material in physical/ analogue format to digital format. Digitization equipment include scanners for scanning print publications, video and audio capture cards for capture/conversion of digital video and audio files, and digital cameras for capture/production of video clips/still images.

Networking infrastructure: Network infrastructure enables online access to the virtual library. Network infrastructure can be gotten from a reputable Internet Service Provider (ISP) for connectivity. Storage space can also be hired on the Internet Service Provider Server to run or host the Virtual library; this will reduce the burden of power problem, security problem, and maintenance.

In-house software development: This is probably the most important and central aspect of the technology infrastructure for the Virtual library. These are software developed by programmer to meet the need and requirement of the Institution and there will be ease of maintenance with dedicated software team. The software can be developed by using Open source database such as Joomla, MySQL and programming tools such as PHP, and Java. Advantage of this approach is customization of the application to suit your requirement. Disadvantage is the cost of development as software projects are known to overrun schedules. Maintenance may also be difficult if the Institute have no dedicated software team.

Personnel: it is important to assign personnel with right skills and attitude to handle various tasks associated with the virtual library. Actual personnel required for a virtual library depend on the type and volume of tasks carried out. Broadly, personnel in virtual library should have professional skill in librarianship; both hard (technical and IT

skills) and soft (communication skills); capacity to learn constantly and quickly; ability to work under pressure and independently; presentation, negotiation, teaching/ training skills. However, it may not be possible always to find personnel with right background. Staff training becomes critical. Training should be appropriate to the skill requirements of the concerned operations. In-house training options include - special training programmes and on-the-job training. Staff may also be deputed to relevant training programmes. It will be useful to prepare a training manual which will be very useful for new staff. There also large number of online resources, including tutorials, available from authoritative sources related to Virtual library. The rapid change in technology and practices in virtual library technologies requires constant re-training and re-positioning of staff, for up-to-date information and developments in the field.

2.3   Virtual Library Resources

Virtual library resources are collection of full text e-books, journals and databases from various publishers and sources which can be accessed by the virtual library registered customers at any time from any internet connected computer, laptop or other portable device. According to Garcia-Molina (2005), Virtual Library Resources are contents that are born digital and those that have been digitized. To Garcia Virtual Library Resources include the following:

Electronic books: An eBook is an electronic version of a traditional print book that can be read by using a personal computer or by using an eBook reader. **Electronic serials:** Electronic serials may be defined very broadly as any journal, magazine, newsletter in electronic format made available over the Internet and **Databases:** A

database is a set of data that has a regular structure and that is organized in such a way that a computer can easily find the desired information.

2.4   Accessibility of Information Resources

McCray and Gallagher (2001) give an overview of issues concerning Usability and Accessibility of digital libraries. The system must be accessible to the vast majority of users regardless of disability, language or cultural differences. The information should be easy to find using keyword searching. The interface should be intuitive with the keyword search easy to find as well as the ability to browse topics. Information should be optimised so that the retrieval of information is quick. Good indexing is vital so that the search terms can be well matched in results and results found quickly. Further research areas exists within the usability area for accessing digital library collections on small screen hand held devices, in measuring the users experience when interacting with a digital library which is linked to research into emotive design, and in cross-cultural usability.

Accessibility of information sources is an important recurring theme in the literature. According to Aguolu and Aguolu (2002), resources may be available in the library and even identified bibliographically as relevant to one's subject of interest, but the user may not be able to have access on them. One may identify citations in indexes, but may not have access to the sources containing the relevant articles. The more accessible information sources are, the more likely they are to be used. Readers tend to use information sources that require the least effort to access. Osundina (1994) studies the relationship between accessibility and library use by undergraduates in Nigeria and notes that the problem of Nigerian students is not the question of wanting to use the college

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library, but whether or not the university library can provide for their needs, and whether there is access to what is provided.

Olowu (2004) identifies natural and artificial barriers to free access to information. The library's poor reputation was attributed to lack of accessibility of information sources. Iyoro (2004) examines the impact of serial publications in the promotion of educational excellence among information professionals receiving further training at the University of Ibadan . The study looks at the perception of how serial accessibility has contributed to students' learning process. Serials were found to play a significant role in the acquisition of knowledge, because the serial collection was easily and conveniently accessible.

In a similar study by Oyediran-Tidings (2004) at Yaba College of Technology, Lagos , low use of the library by students was observed. This was attributed to expressed accessibility problems. Neelamegham (1981) has identifies accessibility as one of the prerequisites of information use while Kuhlthau (1991) argues that the action of information seeking depends on the needs, the perceived accessibility, sources, and information seeking habits. Aguolu and Aguolu (2002) reveal that efforts are being made worldwide to promote remote access to information. They lament the attendant features of underdevelopment such as power failure, machine breakdowns, and lack of spare parts and technicians, which intermittently stall the performance of the modern gadgets of information storage and transfer in developing countries.

2.5   Use of Virtual Library in Distance Education Programme

In the era of networked information, virtual library is a powerful tool in the provision of organised online access to information. The use of virtual library in distance learning education program allows a wide range of information resources to be accessed globally Hicks (2008). Distance learning has to be all-embracing and comprehensive

acquiring learning experience through independent inquiry of electronic resources materials is an integral part of the programme. This is because, as the teacher and learner are separated in time or place, the use of computer and Internet resources are unavoidable. This explains why institutions running distance learning programmes must have well equipped virtual library and provides adequate coaching on how to use the virtual library resources. In a study on use of virtual library by distance learning students in University of Wisconsin, USA, Koohang (2001) found that the students had positive perception towards the use of virtual library. Kavulya (2004) in his study of distance education in four universities in Kenya opined that some of the students have little or no exposure to library use and this affects their access to library resources. Tenopir (2003) in a major survey analyzed the findings of over 200 studies on the use of electronic resources in libraries that were published between 1995 and 2003. The results revealed that, electronic resources have been rapidly adopted in academic spheres; however behavior varies according to the discipline. According to Bar-Ilan, Peritz, and Wolman (2003) the most active users of electronic journals are the younger members of the teaching and research staff. In a related study, Bush (2004) showed that age was not an influential factor in whether the respondents read articles on paper or in electronic format. Mabawonku (2008) carried out a study on library use in distance learning in Nigeria, by surveying undergraduates in three Nigerian Universities. Her findings revealed that 62.3% of her respondents had never used the Internet. 6.8% always use the Internet resources while 2.9% always used CD-ROM her finding also reveals that most distance learning students in Nigeria may not use the library probably because the incentives are not there as the libraries lack fast Internet access, lack of library use instructions and time to use the library due to their tight schedules. Brennan et al (2002) in studies that centered on how

the adoption of electronic information resources has affected academics' information behaviour revealed that faculty make fewer visits to the library and read more than in the print era across a broader number of journals.

Dilek-Kayaoglu (2008) in a research on use of electronic journals by faculty at Istanbul University, also revealed that majority of respondents supported the transition from print to electronic resources. In another recent survey of users of electronic resources carried out so far and summarized by Bar- Ilan and Fink (2005) showed that: Use of electronic journals increases with time, Age and/or academic position are inversely related to the use of electronic media and journals. There is a gradual reduction in the use of printed journals as users prefer and use the electronic format more. With increased use, users access the electronic format more frequently. The use of a journal is not necessarily an indication of the preference of users. There may be an increase in the acceptance and frequency of use of the electronic format merely because the traditional print format is no longer easily available. When respondents were asked about the advantages of electronic journals, accessibility and desktop access, home access, ease of retrieval and hyperlinks to outside content were the arguments cited most often.

2.6   Customers Satisfaction with Virtual Library

Satisfaction is generally defined as "fulfillment of one's wishes, expectations, or needs" (Oxford Dictionary). Leclercq (2007) found that the relationship between the Information System function and the users as well as the quality of support and services provided by the Information System function had an impact on user satisfaction. Venkatesh et al. (2003), found a significant relationship between user satisfaction and actual usage. Another study by Leonard-Barton & Sinha (1993) found that the technical performance of the developers (based on their responsiveness to problems) was positively

related to user satisfaction. Wang et al., (2007) also observed that a single measure, such as user satisfaction does not give a comprehensive view of e-learning systems success.

The closest definition of service quality in online library systems is associated with library quality as derived from Parasuraman's study of service effectiveness. Service quality is a research and development project undertaken to define and measure library service quality across institutions. Library service quality comprises information access (content/scope and timeliness), personal control (ease of navigation and convenience), affect of service (responsiveness and reliability) and library as a place (utilitarian space) (Heath, Boykin, & Webster, 2002). Other studies by Parasuraman, et al. (1988) involving the use of quality constructs, including service quality as a measure of user satisfaction while another study by Pitt, et al. (1995) which included service quality in its success model concluded that SERVQUAL is appropriate in measuring IS service quality.

In the late 1990s, Gap theories and LibQual model were widely accepted by research libraries. Since then, library service evaluation and user satisfaction issues have been discussed in a variety of subject literatures. Many researchers have observed that user satisfaction is a central variable in most user-oriented research (Kotler &Andersen, 1996). Researchers have adopted knowledge and models from other disciplines such as marketing, psychology and computer science to discuss the user satisfaction related to libraries. Thereafter, it was found that a series of variables contributing to user satisfaction other than performance alone (Applegate, 1993).

User satisfaction at micro level − concern only one individual service - user satisfaction contributes to the dimensions of service quality (i.e., tangibles, reliability, responsiveness, assurance, and empathy) Cullen (2001). User satisfaction at macro level − concern all the services which users interact - user satisfaction is a global or macro view

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of quality of services and integrates all the above mentioned dimensions of service quality. It contributes to user's overall satisfaction with the organization Cullen (2001). In an early attempt to define user satisfaction as a concept, Tessier et al. (1977) stated that satisfaction is "ultimately a state experienced inside the user's head and therefore it is a response that may be both intellectual and emotional". In the field of library science, researchers usually approach user satisfaction in traditional way, in which researchers emphasize the investigation of user material needs and fulfillment - what users requested and received from libraries Fei Yu (2006). Azzah and Mark (2010) investigated the relationship between user satisfaction and four factors such as system effectiveness, user effectiveness, user effort, and user characteristics. A survey analyzed by Sivathaasan (2013) revealed that 11.1% of user satisfaction is determined by library collections such as reference collections, lending collections, periodicals, archival materials, and electronic resources. Simmonds et al. (2001) stated several factors that can influence users' satisfaction. These factors include responsiveness, competence and assurances, tangibles and resources. The study of Basil and Patience (2012) revealed that information resources, facilities, and services are the factors which influence users' satisfaction. Daisy (2006) found that most respondents were Somewhat or very satisfied with overall library services and staff performance; moderately satisfied with the print collection; and least satisfied with space and ventilation, lack of study areas and the noisy environment. The helpfulness of the staff was rated the best. In a customer satisfaction survey done by Zheng (2004), increasing number of requests showed that users are truly satisfied with inter-library loan services and commented timely usable.

Further, user satisfaction in relation to library facilities and services depends on quality of services offered by the library. Velnampy and Sivesan (2013) assessed the

service quality of university libraries in Srilanka. This study analyzed twenty three variables which measure the service quality of university libraries and finally extracted four factors using factor analysis, namely convenient opening hours, current information, collection comprehensiveness, and convenient access to collection. Indeed, it refers to whether users of libraries get the desired information resources, facilities, and services expected to be provided by the libraries. Hence, in recent times, evaluating users' satisfaction with the information resources, facilities, and services of virtual libraries has become a major concern and an integral part of library and information science practitioners (Ogunsola, 2004).

2.7   Challenges to the use of Virtual Library

Nigeria virtual library initiative is another step by Federal Government of Nigeria to provide higher institutions access to relevant and current information resources (Fabunmi, 2009). Despite these efforts, many institutions of higher learning are yet to harness the opportunities provided by these initiatives, due to inadequate facilities or lack of maintenance culture and even where these facilities are in place the potential users of these new information sources are not making use of the valuable electronic resources owing to lack of awareness or lack of skills required to navigate the modern technology. Corroborating this assertion, Abdullah (2006) noted that most users are unaware of the existence of e-books in library collections and that they are willing to discover and use them more effectively, also unfriendly interfaces or usability problems tend to hinder their further use of electronic resources. The literature of e-resources reports the following user-centered barriers to e-resources use: a lack of skills in how to use information sources, a lack of appropriate reward for electronic scholarly communication, a lack of

consistent technical support and provision and a lack of time to be spent on searching for information (Tompsett & Alsop,1997; Macias-Chapula,1995; Ray & Day, 1998).

Watts and Ibegbulam (2006) examined some of the barriers to the usage of electronic information resources available at the medical library of College of Medicine, University of Nigeria, Nsukka their findings revealed that lack of an adequate ICT (information and communication technology) infrastructure and affordable online access, absence of in- depth ICT skills and information searching skills are barriers to the use of electronic resources. This corroborated Oduwole (2003) findings on use of electronic information resources at the University of Agriculture Library in Abeokuta, Nigeria, his study also identified lack of ICT and power supply outage as constraints to use of electronic resources.

Ogunsola, (2004) believes that majority of higher institutions in Nigeria, even those with good Internet connectivity, are still at a low level of integration of ICT in teaching, learning, research, library, information and managerial services. Ekong (2005) noted though that in some of the first generation university libraries such as University of Benin Library, Kashim Ibrahim Library Ahmadu Bello University, Zaria, University of Nigeria Nsukka Library and a few others, digitalization is taking place in many of their libraries and library information networks are established with connectivity through the university campus network to the Internet. Rosenberg (2005, cited in Kabamba, 2008, p.11) investigated the status of university libraries, focusing on digitalization. He found that library automation started early in the 1990s but majority of institutions were unable to complete the process. Rosenberg observes that in many libraries, many computers were found to be in working order but connectivity to the Internet was very low. "Only 35% of libraries have 75% or over of their computers connected to the Internet, whilst 15% are

not connected at all". Rosenberg observed that connectivity was poor, and server speed was very low. He also noted that a wide range of e-resources was accessible in many libraries, but, generally libraries had little capacity to maintain subscriptions. Chisenga (2004, p.v) did a study for The International Network for Availability of Scientific Publications (INASP) and found that apart from South Africa, automation of libraries was very rare. The study noted that outside South Africa computerized public libraries were virtually limited to e-mail communication as the only internet related activity. "Almost none are providing web based library information services to users; ICT facilities are therefore not being used directly to benefit user communities" (Chisenga, 2004, pV).

Aduwa-Ogiegbaen and Iyamu, (2005) analysed the problems and prospects of using information and communication technology in secondary schools in Nigeria. They concluded that to integrate computer into teaching and learning in Nigeria, there must be proper and adequate funding and financing of education by government with international bodies. Okonedo (2004) observes that over 60% of the universities have web presence and facilities for staff and students for Internet transactions. He notes that 50 percent of the Federal budget on education in 2004 was allocated to federal universities, which has helped in the development of ICT in Nigeria universities.

2.8   Empirical Studies

Studies on virtual library access and utilization in distance learning education programme have received a major focus in terms of research work in recent years by researchers. Researchers that contributed to the study among others includes:-

Madu and Pam (2011) conducted a study on "Learning Electronically in Nigeria Universities: The Example of Federal University of Technology Minna". The objectives of the study was to; Determine the adequacy of e-learning facilities available in the

university understudy; Ascertain the level of accessibility of e-learning facilities in the university; Ascertain the actual use of e-learning facilities in teaching and learning; Identify some of the problems that militate against the use of e-learning resources in teaching, learning and research.

The researchers used survey for the study, since a large number of students were involved. The population of the study comprised of all the students in the university. A total of 120 students from across the levels were involved as sample for the study. The sample was composed through a multi-stage sampling technique using proportional random sampling. First the university was grouped into strata based on schools/faculties. This gave a total of six schools/faculties, secondly random sampling was used to select one department across from each of the strata. This gave a total of six departments used for this study. Questionnaire was used as instrument for data collection. Data collected were analysed with the use of descriptive statistics (frequency count, mean score and percentage).

The results of the finding revealed that the facilities available in the university are not adequate. Majority of the students do not have access to the available e-learning facilities, and revealed some inhibitors to the use of e-learning facilities. These include, power outages, obsolete e-learning facilities, lack of skilled manpower and poor infrastructure.

This present study is related to the past study since electronic means of learning was the center of focus and also related in terms of research design and in the subjects used for investigation. However, the past study lacked null hypothesis and standard tools for answering research questions which will be addressed by this study.

Ukonu, Wogu, and Ekwueme, (2013) on "Undergraduate Students' Awareness and Use of the Multi-media Facilities in the University of Nigeria Nsukka Virtual Library". Three hypotheses were formulated for the study which were (i) What is the awareness level of students about the multi-media facilities in the UNN virtual library? (ii)What is the extent to which UNN undergraduate students are exposed to the multi-media facilities of the UNN virtual library? (iii) How do UNN students use the virtual library in their university?

The researcher adopted the survey research method for the study. The survey covered the undergraduate students, and staff of the digital section of the library of the University of Nigeria, Nsukka. The population of the study involved the entire undergraduate students of the University of Nigeria, Nsukka. The University of Nigeria, Nsukka is a first generation university with a virtual library, which has hardly been studied in terms of use of the MTN-sponsored virtual library therein. Undergraduate students were used because the pilot study done revealed an almost exclusive use of the digital library by undergraduate students. The population of this study is therefore 15,382. Source: Academic Planning Unit, University of Nigeria, Nsukka. The Taro Yamane (1967) formula was used to select the sample size of 390. Total sampling of the seven staff in the digital section of the UNN library was done because of the small number of samples. The sampling technique used was the stratified random and simple random sampling techniques. The University was first stratified into nine faculties as noted above. Then each of the faculties was stratified into departments and two departments were chosen from each faculty. The departments were selected using the ballot system of random sampling. The research adopted the questionnaire and interview schedule as its

instruments of data generation from the respondents. Data were presented using simple percentages and frequency tables.

The results of the findings indicated that awareness of the existence of the digital library is high, but exposure is low. The respondents did not know the precise meaning of multi-media. Use of the multi-media facilities in the library is limited to browsing for assignments. The library is being run as an internet café as against the real purpose of a digital/virtual library which should offer virtual access to other libraries, among other crucial services.

This present study is related to the past study since electronic means of learning was the center of focus and also related in terms of research design and in the subjects used for investigation. However, the past study raised three research questions and lacked null hypothesis and standard tools for answering research questions which will be addressed by this study.

Chimah and Nwokocha (2013) carried out an "Empirical study of motivation, challenges and strategies in the use of electronic information resources by postgraduate library users in South- east Nigerian Federal Universities" The objectives of the study was to: (i) determine motivating factors in students' use of electronic information resources (ii) identify challenges faced in the use of electronic information resources. (iii) Investigate recommendable strategies on how to improve availability and use of electronic information sources. Three research questions were raised for the study which are: (i) What factors motivate use of electronic information resources by postgraduate students in the university library? (ii) What challenges are encountered in the utilization of electronic

information resources? (iii) What strategies should be adopted for provision and effective utilization of electronic information resources in the university?

The research design adopted for the study is a descriptive survey. The simple random sampling method was used to select five (5%) of the total population for the study. The sample size for the study is one hundred and twenty (120) respondents. Two complementary instruments were used for collecting primary data; questionnaire and unstructured interview of Heads of ICT Unit of the university libraries. The questionnaire for heads of ICT units was open-ended because they were required to indicate electronic information resources available in their libraries. It was entitled: Questionnaire for Digital Librarians and Heads of ICT Units (QDLHIU). The second questionnaire entitled: Postgraduate Library Users Questionnaire (PLUQ) was designed by the researcher in order to obtain answers directed to postgraduate students.

The results of the findings revealed that at varying percentages, the study reveals that PG students are motivated to use the EIRs in their university libraries because they found e-resources to be: More Informative; Easy access and use; Save time; more useful or Less expensive. The study also reveal that the challenges to use as: Insufficient computers with Internet facilities; Incessant power outage; Slow Internet connectivity; Lack of ICT skills; Difficulty in finding relevant information and inadequate IT Infrastructure. Strategies to improve motivation to use of EIRs, among others include: Increase ICT infrastructure/facilities; Have stable electrical backup Information Literacy Training for users.

This study contributed immensely to the present study in the area of literature review. The past study is related to the present study in the area of research design used. However, the present study differs with past study in the sense that five research questions

and five hypotheses were raised for this study which is not the case in the past study. Also, the present study used standard statistical tools for answering research questions. So the researcher intends to bridge the gap in these areas.

Ibinaiye (2012) conducted a study on "The Management and Utilization of E-Resources of MTN Connect Library of Ahmadu Bello University, Zaria" The objectives of the study are to: (i) ascertain how Ahmadu Bello University, Zaria MTN Connect library is organized and managed,(ii) find out the level of usage of resources of MTN Connect library,(iii) investigate what categories of users patronizes the MTN Connect library, (iv) determine the level of satisfaction of users on the available resources of MTN Connect, Ahmadu Bello University, Zaria.

The researcher adopted the survey research method for conducting the study. Simple random sampling technique was also used to select 10 percent population of registered users of Ahmadu Bello University MTN Library, Zaria, and 100 percent members of staff in the library were studied. The instruments used for data collection were questionnaire, oral interview and observation. The data collected were subjected to descriptive statistics using Statistical Package for Social Science.

The findings of the study revealed that 60(54.5%) were satisfied with the organization of resources in the MTN Connect library; 58(52.7%) agreed that staff of the virtual library were partially trained, while 106(96.4%) users of virtual library experiences low connectivity in the network services.

The past study contributed to the present study in the area of formulation of objectives, and is related with the present study in the area of research design used. However, the current study formulated five hypotheses which the past study lacks.

Standard statistical tools for testing for hypotheses will be employed in the present study. So the researcher intends to bridge the gap in these areas.

Inije, Utoware, and Kren-Ikidi (2013) conducted a study on "Utilization of e-learning technologies in business education instructional delivery in colleges of education in Delta State of Nigeria". Two research questions and hypotheses were formulated. The research questions raised for the study were: (i) To what extent are e-learning technologies utilized in business education instructional delivery in Colleges of Education in Delta State? (ii) What are the constraints to effective utilization of e-learning technologies in business education instructional delivery in Colleges of Education in Delta State? The null hypotheses formulated for the study were: (i) There is no significant difference in the mean responses of business education lecturers in federal and state Colleges of Education in Delta State on the extent to which e-learning technologies are utilized in business education instructional delivery. (ii) There is no significant difference in the mean responses of business education lecturers in federal and state Colleges of Education in Delta State on the constraints to effective utilization of e-learning technologies in business education instructional delivery.

The researchers employed a descriptive survey research design for the study. The population was all the lecturers in the (4) four colleges of education in Delta State, Nigeria, namely, Federal College of Education (Technical) Asaba, College of Education, Agbor, College of Education, Warri and College of Education, Mosogar . The sample for the study comprised 45 lecturers, that is, fifty percent (50%) of the lecturers in each of the institutions studied, who were randomly selected from the total population of 90 lecturers. The instrument for data collection was a self-developed 30-item questionnaire. It was structured on a five-point scale and has two sections (A-B) which sought information on

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the two research questions. Section A dealt with the extent of utilization of the e-learning technologies with the response categories as "Very High Extent", "High Extent", "Moderate Extent", "Low Extent" and "Very Low Extent". Section B of the questionnaire dealt with the constraints to effective utilization of e-learning technologies in business education instructional delivery. The response options in section B were "Strongly Agree", "Agree", "Undecided", "Disagree" and "Strongly Disagree". The data collected were analyzed using mean and standard deviation while the null hypotheses were tested using t-test statistics at 0.05 level of significance. Since the items were structured on a five-point rating scale, the decision rule was based on the mid-point of the scale, 3.0. Therefore, items with mean scores of 3.0 and above were regarded as high extent or agreed while items below 3.0 were regarded as low extent or disagreed.

Findings revealed that e-learning technology resources were not extensively utilized in teaching business education in the colleges of education due to many challenges which include shortage of qualified staff with e-learning application, lack of e-learning facilities and infrastructure in the colleges of education. Training and retraining of lecturers to acquaint them with the development of new technologies, among others, were recommended.

The past study contributed to the present study in the area of literature review and in the formulation of hypotheses. The past study is related with the present study in the area of research design used and the statistical tools used in testing hypotheses, the present study formulated four research questions and four hypotheses which the research intend to bridge the gap.

Tsokura and Agwu (2013) conducted a study on the "Assessment of online resources usage by agricultural science lectures of tertiary institutions in Benue State, Nigeria". Two hypotheses were formulated for the study. Which were: (i) Differences in the frequency of use of online resources in tertiary institutions in Benue state are not significant, (ii) Differences in the perceived usefulness of online resources among the tertiary institutions in Benue State are not significant. The researchers employed survey method for the study. The population for the study comprised all agricultural science lecturers of the appropriate tertiary institutions in Benue State. The institutions included federal, state and privately owned tertiary institutions of learning. Thirty percent (30%) of the agricultural science lecturers, of the selected tertiary institutions were randomly sampled for the administration of the questionnaire. Data collected were analyzed using percentages, mean scores, regression analysis and analysis of variance (ANOVA)

The study revealed the types of online resources frequently used by respondents included electronic journals, electronic books, search engines abstracts, video/picture or graphic files and encyclopedia. Socio-economic and institutional factors that significantly influenced the use of online resources included age ($t= -2.287$; $p = 0.05$) and number of years spent on formal education ($t = 2.022$; $P = 0.05$). The post-hoc comparison using Tukey HSD test shows that there is a significant difference in the level of online resources usage among staff of different tertiary institutions as the mean score for University ($M = 1.77$, $SD = 0.69$) was significantly different from that of College of Agriculture ($M = 0.79$, $SD = 0.64$) and College of Education ($M = 1.11$, $SD = 0.59$). However, the mean score of College of Agriculture did not differ significantly from College of Education. Major constraints experienced by the lecturers in the use of online resources include high

cost of access to online resources, non - subscription for relevant online resources by institutions and connectivity problems. This study points to the need for institutional subscription to such online resources as AGORA, OARE and HINARI by management of these institutions to enhance academic teaching and learning in Nigerian tertiary institutions.

The study contributed immensely on the current study in the area of literature review and formulation of hypothesis. The present study is related with the past study since digital means of was the center of focus.

2.9   Summary of Literature Review

The chapter reviewed literatures that are related to the area of the study. The reviewed covered the concept of virtual library; virtual library facilities; virtual library Services; virtual library Access; virtual library resources; virtual library use; customers' satisfaction with virtual library resources and challenges in the use of virtual library. Thus books, journal articles, internet materials and other information sources were reviewed to cover the area of research.

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CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

This chapter presents the research design and methodology employed in this study. The chapter is discussed under the following sub-headings:-

3.1   Research Design

3.2   Population for the Study

3.3   Sample Size and Sampling Procedure

3.4   Instrument for Data Collection

3.4.1   Validity of the Instrument

3.4.2   Pilot Study

3.4.3   Reliability of the Instrument

3.5   Procedure of Data Collection

3.6   Procedure for Data Analysis

3.1   Research Design

Descriptive survey design was used in conducting the study. The design involved collecting and analyzing data gathered. The choice of the design was based on the opinion of Kerlinger (2005) that emphasized that this design should be employed when a research work involves the use of questionnaire to seek the opinions of respondents. The design was considered suitable because it enables the researcher to understand the social phenomenon from the participants' perspective. It constitute the most convenient way to obtain real facts and figures needed, in which the results of the analyses were used for decision taking and generalizations.

3.2   Population of the Study

The population for this study comprised of 10,666 students and 346 Academic Staff of NTI in Kaduna State. The total population of the two groups for the study was 11,012. Table 3.1 showed a breakdown according to zones. Records obtained from the Field Operation and Student Services Department of the National Teachers Institute Kaduna (2014).

Table 3.1   Population for the Study

Zones	No of Students	No of Academic Staff	Total
Kaduna North	3569	108	3677
Kaduna Central	4028	127	4155
Kaduna South	3069	111	3180
Total	10666	346	11012

Sources: Records obtained from the Field Operation and Student Services Department of the National Teachers Institute Kaduna (2014).

3.3   Sample size and Sampling Procedure

A stratified random sampling technique was used for this study in order to make proportional and meaningful representation of the population. Stratified sampling ensures that every sub-group is represented in the same proportion based on their population (Abiola, 2007). The sample of three hundred and ninety (390) students of NTI were randomly selected form the population of ten thousand, six hundred and sixty six students' of NTI. Also one hundred and eighty seven Academic Staffs of NTI were randomly selected form the population of three hundred and forty six Academic Staff of NTI. The sample sizes were selected based on Glenn (2009) sample size determination. Each zone was regarded as a stratum from which specific number of sample were selected proportionately. The Table 3.2 showed a breakdown of sample of sample size of the household heads by stratified random selection from the three zones of Kaduna State.

Table 3.2: Sample Size for the Study

Status	Zones	Population	Sample Size	Percentage
Students	Kaduna North	3569	129	33
	Kaduna South	4028	148	38
	Kaduna Central	3069	113	29
	Total	10666	390	100
Staffs	Kaduna North	108	58	31
	Kaduna South	127	69	37
	Kaduna Central	111	60	32
	Total	346	187	100

3.4 Instrument for Data Collection

For the data collection, structured questionnaire was used for the data collection and also oral interview. The questionnaire was in two sections 'A', 'B', 'C' 'D', 'E' and 'F'. Section 'A' was made up of questions to collect demographic (personal) data. Section 'B' to 'F' was made up of items based on the research questions and null hypothesis of the study to solicit the respondents' responses. Items of the questionnaire are made up of multiples response options complimented with rated scales items. Respondents were then instructed to respond in accordance with agreement to the statements contained in the instrument.

3.4.1 Validation of Instrument

To carry out validation exercise of the instrument, copies of the questionnaire along with the objective of the study were scrutinized by Major and minor supervisor, senior lecturers in Research and Statistics from the Faculty of Education, Ahmadu Bello University, Zaria. The experts examined the test items for:

- Content validity

- Appropriateness of items

- Clarity of statement in the instrument

- Whether or not the test items are related to reasoning ability of the respondents

- Suggestions and criticisms that was helpful in improving the test quality of test items

A summary of the experts' correction were applied to the items in the instruments for clarity, appropriateness and relatedness to the reasoning abilities of the respondents. Uzosike (2008) earlier stated that, validity of a survey instrument should be considered adequate for its validity if designed instrument is subjected to face validity.

3.4.2 Pilot Test

To test the reliability of the instrument, the researcher distributed 30copies of questionnaire to academic staffs and 50 to students of National Open University of Nigeria (NOUN). All copies of questionnaire were filled and returned. This was done in order to determine:

- the feasibility of the study before administration

- how the respondents would react to the items of the questionnaire;

- whether the items would be clear enough and easily understood;

- whether there would be need to include more items in certain areas;

- whether there would be some personal items which they did would not like to respond to;

- the workability of the proposed methods of data analysis; and

- the approximate time duration which the subjects would need to fill the items.

Following the pilot test, the areas of difficulties, spellings and ambiguities in instrument would be further refined and made easier for respondents' comprehension.

3.4.3   Reliability of Research Instrument

Reliability deals with the degree of consistency with which the instrument measures what it purports to measure. The materials designed for the pilot testing covers the students' parental educational profile and environment. The instruments sought factual information, the stability of opinions were sought by test and retest method. The responses of the respondents were used for the computation of the coefficient of reliability. The questionnaires were administered at first and second occasion within an interval under the same conditions as the first one. The data obtained were subjected to Pearson Product Moment Correlation Coefficient (PPMCC). The result gave reliability co-efficient of 0.534. Tracy (2006) testified that, for a scale to be considered reliable, it should have an alpha value of 0.50 to 1. With this level of reliability index, the instrument was considered capable data for the study.

3.5   Procedure for Data Collection

Letters of introduction was obtained from the Acting Dean School of Education NTI Kaduna for permission to administer the questionnaire to students in their study centers and to Academic Staffs in their offices respectively. The researcher with the help of three assistants administered and retrieves the instrument within two weeks. Responses were treated confidentially.

3.6   Procedure for Data Analysis

The data collected was analyzed in three stages. In the first stage, frequencies tables and percentages was employed to analyze the bio-data of the respondents, in the second stage, mean and standard deviation was employed in answering the research questions, while t-test and Mann-Whitney test was used to test for the stated hypothesis.

In the process of analyzing the data used to answer the research questions, data obtained from the questionnaires was coded and classified according to the variables under investigation. Therefore, mean and standard deviation of the students was computed in accordance to the coded value derived from the questionnaire.

In testing of the Null hypothesis, the data generated from the respondents was coded, entered and analyzed using the Statistical Package for Social Science (SPSS). T-test was used to determine the null hypotheses one, three, and four while Mann-Whitney test was used to test null hypotheses one and five. This method was based on the decision supported by Huck (2004), he endorsed that t-test can be used to gain an insight into how group of means differ.

In the analysis, if calculated value is greater than table value or ($P \geq \alpha$,) the null hypothesis is rejected but if the calculated value of any of the null hypothesis is less than the table or the (P,) the null hypothesis is retained. And all the null hypotheses were tested at significance level of 0.05

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CHAPTER FOUR

PRESENTAION AND DATA ANALYSIS

This chapter contained the results and interpretation of the analysis of data collected from the study under the following sub headings:-

4.1 Bio-data of Respondents

4.2 Answering Research Questions

4.3 Hypotheses Testing

4.4 Summary of major Findings

4.5 Discussion of Findings

The first sets of data were presented in Tables of frequencies and percentages with respect to bio-data of the respondents. The second set of data were used to answer the research questions, each of the research questions was presented in Tables of frequencies and mean with the relevant items and the last set of data were tested

4.1 Analysis of Bio-Data of the Respondents

Analysis of bio-data of respondents was conducted under the following sub-headings in Table 4.1.1 to 4.1.4.

Table 4.1.1: Status of Respondents

Status	Frequency	Percentage (%)
Academic Staffs	162	31
Students	360	69
Total	522	100

STATUS OF
RESPONDENTS
■ STUDENT
■ STAFF

Pie Slices show Count

31.0%
STAFF

69.0%
STUDENT
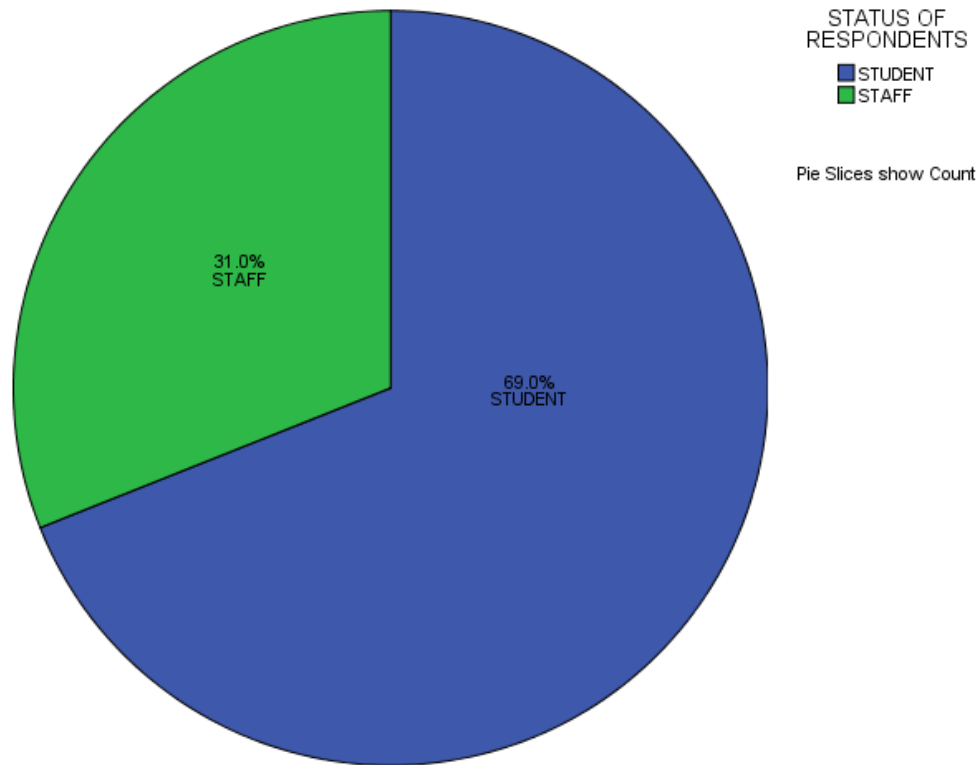
Table 4.1.1 showed the status of the respondents, the distribution of respondents based on status in the table showed that 360 representing 69% were students, while 162 representing 31% were students. This indicated that majority of the respondents were students.

Table 4.1.2: Profile of Academic Staffs

Academic Staff	Frequency	Percentage (%)
Academic department	126	77.8
Course facilitator	36	22.2
Total	162	100

PROFILE OF ACADEMIC STAFF
■ COURSE FACILITATOR
■ ACADEMIC DEPARTMENT

Pie Slices show Count

22.2%
COURSE FACILITATOR

77.8%
ACADEMIC DEPARTMENT
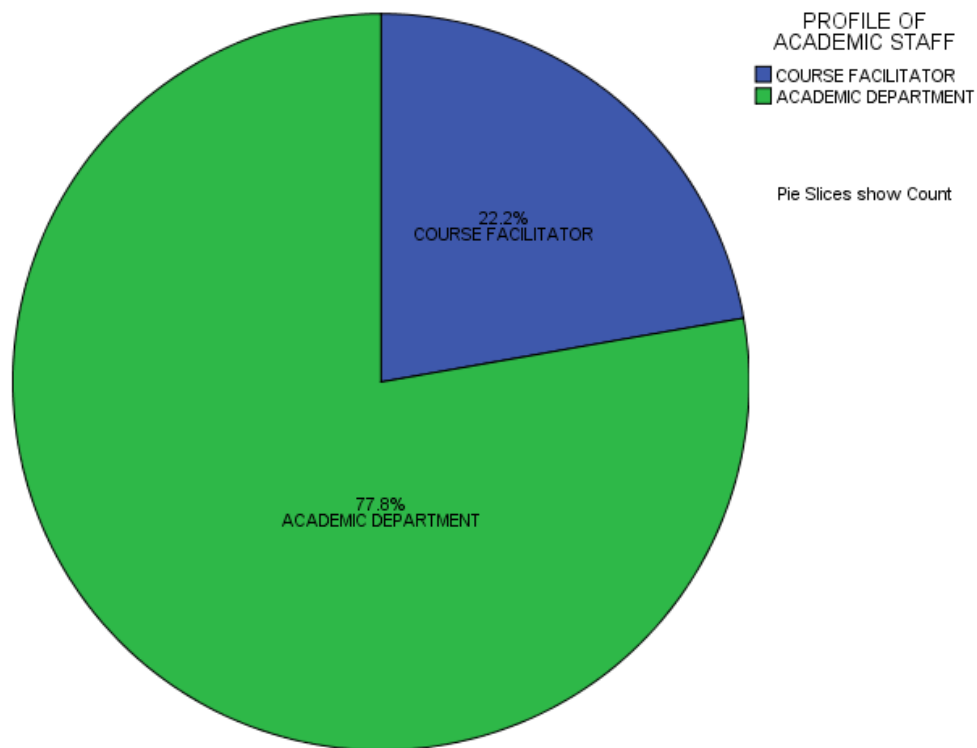
From Table 4.1.2, 126 representing 78% were academic staffs, while 36 representing 22% were course facilitators. This indicated that majority of the staffs were in the academic section.

Table 4.1.3: Profile of Students

Students	Frequency	Percentage (%)
PGDE	187	51.9
NCE	173	48.1
Total	360	100

PROFILE OF
STUDENT
■ NCE
■ PGDE

Pie Slices show Count

51.9%
PGDE

48.1%
NCE
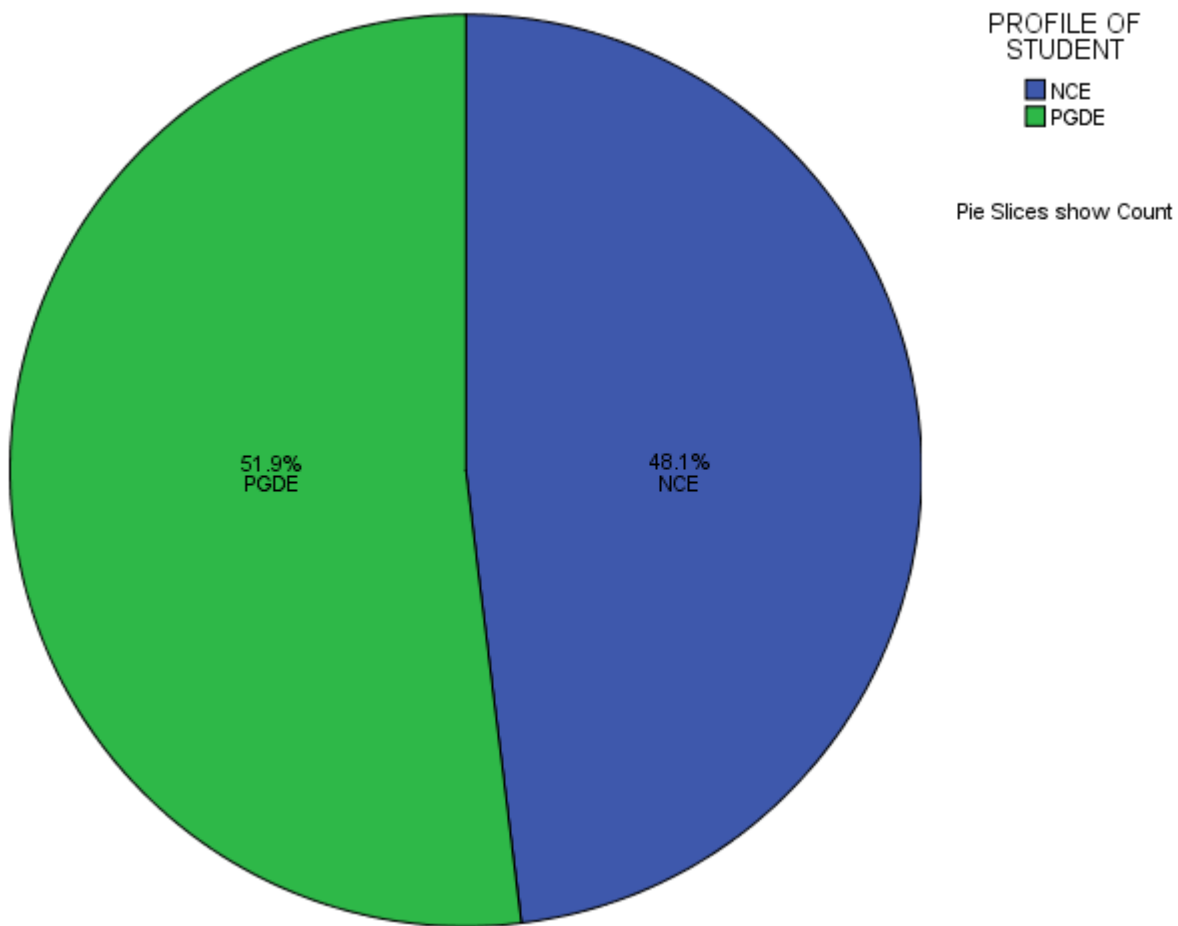
Table 4.1.3 showed the programs the students were into, the distribution of students based on the programs as presented in the table showed that 187 representing 51.9% of the students were PGDE students and 173 representing 48.1 were NCE students.

Table 4.1.4: Gender of Respondents

Gender	Frequency	Percentage (%)
Male	226	57
Female	296	43
Total	522	100

GENDER
- FEMALE
- MALE

Pie Slices show Count

43.3%
MALE

56.7%
FEMALE
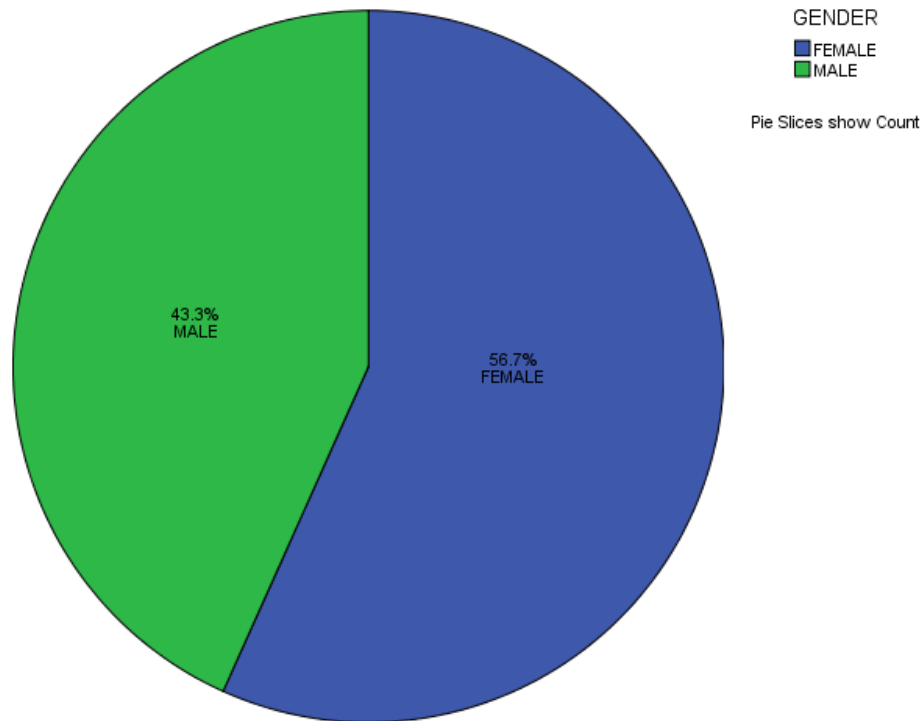
Table 4.1.4 showed the gender of respondents, the distribution of respondents based on gender as presented in the table showed that 296 representing 57% were female, while 226 representing 43% were male. This indicated that majority of the respondents were female.

4.2   Answering Research Questions

Respondents' answers to the five research questions for the study were analyzed in Table 4.2.1 to 4.2.9.

Research Question One

To what extent are the virtual library resources accessible to academic staffs and students of NTI Kaduna?

The analysis of data generated, examine the extent to which virtual library resources were accessible by academic staffs and student is presented in Table 4.2.1 to 4.2.4.

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Table 4.2.1: Mean score of how aware of access to NTI virtual library resources via computer connected to the internet

ACADEMIC STAFF AWARENESS OF NTI VIRTUAL LIBRARY

	Frequency		Valid Percent	
NOT AWARE	12		7.4	
SLIGHTLY AWARE	31		19.1	
SOMEWHAT AWARE	18		11.1	
MODERATELY AWARE	66		40.7	
EXTREMELY AWARE	35		21.6	
Total	162		100.0	

Mean	3.5000
Std. Deviation	1.23233

STUDENT AWARENESS OF NTI VIRTUAL LIBRARY

	Frequency		Valid Percent	
NOT AWARE	201		55.8	
SLIGHTLY AWARE	77		21.4	
SOMEWHAT AWARE	14		3.9	
MODEREATELY AWARE	38		10.6	
EXTREMELY AWARE	30		8.3	
Total	360		100.0	

Mean	1.9417
Std. Deviation	1.33077

Opinion (Academic STAFF)	Total score	Mean score	SD	Decision Rule	Decision
Aware	555				Academic staff were aware of access to NTI virtual library
Not aware	12	3.50		3.50>3.0	
			1.23		
Total	567				
Opinion (STUDENT)	Total score	Mean score	SD	Decision Rule	Decision
Aware	498				Students were not aware of access to NTI virtual library
Not aware	201	1.94		1.94<3.0	
			1.33		
Total	699				

From Table 4.2.1, academic staffs that opined that they were aware of access to NTI virtual library scored 555 points. Those that had divergent views scored 12 points. Their overall views scored 567 points representing 3.50 weighted mean and a standard deviation of 1.23. The Table also showed that students that opined that they were aware of NTI virtual library scored 498 points while those with divergent views scored 201 points. Their overall views scored 699 points representing 1.94 weighted mean and a standard deviation of 1.33. Based on the analysis, calculated value for the views of academic staff was 3.50 greater than benchmark value of 3.00. For the students, the calculated value of views was 1.94 lower than the benchmark value of 3.00. The results therefore revealed that academic staffs were aware of access to NTI virtual library while students' were not aware of access to NTI virtual library.

Table 4.2.2: Locations from which respondents ever tried to access virtual library

Academic staffs			Students		
Locations	Frequency	Percentage (%)	Location	Frequency	Percentage (%)
At home	7	5	At home	22	14
Library	14	9	Library	50	31
Cybercafe	44	29	Cybercafee	30	19
Phone	66	44	Phone	49	31
At work	19	13	At work	8	5
Total	150	100	Total	159	100

Table 4.1.3 showed the various locations academic staffs and students ever tried to access NTI virtual library, the distribution of respondents based on location as presented in the Table showed that 66 representing 44% of the academic staffs accessed NTI virtual library via phone while 50 representing 31% of the students accessed NTI virtual library from library, 44 representing 29% of the academic staffs accessed NTI virtual from cybercafé while 49 representing 31% accessed NTI virtual library via phone, 19 representing 13% of the academic staffs accessed NTI virtual library from work while 30 representing 19% of the students accessed NTI virtual library from cybercafe, 14 representing 9% of the academic staffs accessed NTI virtual library from the library while 22 representing 14% of the students accessed NTI virtual library from home, 7 representing 5% of the respondents accessed NTI virtual library from home while 8 representing 5% of the students accessed NTI virtual library from work. This indicated that phones were media through which respondents tried to access NTI virtual library.

Table 4.2.3: Browsers through which respondents' accessed the virtual library

Academic staffs			Students		
Browser	Frequency	Percentage (%)	Browser	Frequency	Percentage (%)

Explorer	30	20	Explorer	41	26
Mozilla Firefox	50	33	Mozilla Firefox	67	42
Dolphin	43	29	Dolphin	9	6
Opera	27	27	Opera	42	26
Total	150	100	Total	159	100

From Table 4.2.3, 50 representing 33% academic staffs accessed the virtual library with Mozilla firefox like wise students 67(42%), 43 representing 29% academic staffs accessed the virtual library with dolphin while 41 representing 26% accessed the virtual library with opera, 30 representing 20% academic staffs accessed the virtual library with explorer while 41 representing 26% students accessed virtual library with explorer, and 27 representing 27% academic staffs accessed virtual library with opera while 9 representing 6% students accessed virtual library with dolphin. This indicated that Mozilla firefox was the browser that was mostly used to access NTI virtual library by respondents.

Table 4.2.4: How accessible are the virtual library resources

ACADEMIC STAFF

S/N	Resources	Not accessible	Accessible	Easily accessible	Mean	Standard deviation
1	Course book	47	54	49	2.01	.803
2	J-store	103	27	20	1.45	.719
3	Nuc database	59	51	40	1.87	.805
4	National library database	67	48	35	1.79	.799
5	Scottish library database	116	21	13	1.31	.625
6	Canadian library database	109	28	17	1.36	.638
	TOTAL	501	229	170	9.79	4.389

STUDENT

S/N	Resources	Not accessible	Accessible	Easily accessible	Mean	Standard deviation
1	Course book	127	19	13	1.283	.607

2	J-store	150	9	0	1.057	.232
3	Nuc database	108	30	21	1.453	.718
4	National lib. Dbase	104	36	19	1.465	.701
5	Scottish lib. Dbase	148	11	0	1.069	.255
6	Canadian lib. Dbase	138	17	4	1.157	.429
	TOTAL	775	122	57	7.484	2.942

Opinion (A.S)	Total	Mean score	SD	Decision Rule	Decision
Easily Accessible	968 501	1.63	0.73	1.63<2.0	Virtual library resources were not easily accessible by academic staffs.
Not Easily accessible					
Total	1469				
Opinion (S)	**Total**	**Mean score**	**SD**	**Decision Rule**	**Decision**
Accessible	415				Virtual library resources were not easily accessible by students.
Not accessible	775	1.24	0.49	1.24<2.0	
Total	1190				

From Table 4.2.4, academic staffs that opined that virtual library resources were easily accessible scored 998 points while those that opined that virtual library resources were not easily accessible scored 501 points. The overall views had a score of 1469 representing 1.63 weighted mean with mean deviation of 0.73. The Table also showed that students that opined that virtual library resources were easily accessible scored 415 points while those that had divergent views scored 775 points. The overall views had a score of 1190 representing 1.24 weighted mean with mean deviation of 0.49. Based on the analysis, calculated value was 1.63 and 1.24 respectively lower than the benchmark value of 2.0. The results therefore revealed that virtual library were not easily accessible by academic staffs and students.

Research Question Two

What types of virtual library information resources are available to academics staffs and students of NTI Kaduna?

Analysis of respondents' opinions on the types of information resources available to academic staffs and students is as presented in Table 4.2.5.

Table 4.2.5: Types of virtual library information resources available to academic staffs and students

Academic Staffs			Students		
Resources	Frequency	Percentage (%)	Resources	Frequency	Percentage (%)
E-books	48	32	E-books	61	38
E-journals	71	47	E-journals	59	37
Database	31	21	Database	39	25
Total	150	100	Total	159	100

The data analysis used to answer research question one is as presented in Table 4.2.1. From the Table, 71 representing 47% of the academic staffs attested that e-journals were available to them while 61 representing 38% of the students attested that e-books were available to them, 48 representing 32% of the academic staffs attested that e-books were available to them while 59 representing 37% of the students attested that e-journals were available to them and 31 representing 21% of the academic staff attested that database were available to them while 39 representing 25% of the students attested that database were available to them. This indicated that e-books and e-journals were the major types of resources readily available to users of virtual library.

Research Question Three

How often do the academic staff and distance learners of NTI use virtual library information resources of NTI Kaduna?

The analysis of data generated, examine how often virtual library resources were used by

academic staffs and student is presented in Table 4.2.6 to 4.2.7.

Table 4.2.6: How often virtual library was use by respondents

ACADEMIC STAFF

S/N	How often do staff use the virtual library	Frequency	Percentage
1	NEVER	0	0
2	ALMOST NEVER	79	52.7
3	OCCASSIONALLY	41	27.3
4	ALMOST EVERYTIME	20	13.3
5	EVERYTIME	10	6.7
	Total	150	100.0

STUDENT

S/N	How often do student use the virtual library	Frequency	Percentage
1	NEVER	0	0
2	ALMOST NEVER	114	71.7
3	OCCASSIONALLY	30	18.9
4	ALMOST EVERYTIME	10	6.3
5	EVERYTIME	5	3.1
	Total	159	100.0

	Academic staff	Student
Mean	2.7400	2.4088
Std. deviation	.92996	.74811

Opinion (A.S)	Total score	Mean score	SD	Decision Rule	Decision
Every time	411				Virtual library was not often used by academic staffs.
Not everytime	0	2.74	0.93	2.74<3.00	
Total	411				
Opinion (S)	**Total**	**Mean score**	**SD**	**Decision Rule**	**Decision**
Every time	383				Virtual library was not often used by students
Not everytime	0	2.40	0.75	2.40<3.00	
Total	383				

From Table 4.2.6, academic staffs that opined that they used virtual library every time scored 411 points while none of them had divergent view. The overall views had a score of 411 representing 2.74 weighted mean with mean deviation of 0.93. The Table also showed that students that opined they used virtual library every time scored 383 while none of them had divergent view. The overall views had a score of 383 representing 2.40 weighted mean with mean deviation of 0.75. Based on the analysis, calculated value was 2.74 and 2.40 respectively lower than the benchmark value of 3.00. The results therefore revealed that virtual library were not used every time by academic staffs and students.

Table 4.2.7: Purpose for using virtual library by respondents

Academic staffs			Students		
Purpose	Frequency	Percentage (%)	Purpose	Frequency	Percentage (%)
Research and Learning	78	52	Research and Learning	60	38
Communication	40	27	Communication	38	24
Social network	32	21	Social network	61	38
Total	150	100	Total	159	100

Table 4.2.7 showed the purpose for which academic staffs and students use virtual library, the distribution of respondents based on the purpose for which they used virtual library in the table showed that 78 representing 52% academic staffs used virtual library for

research and learning, 40 representing 27% academic staffs used virtual library for communication and 32 representing 21% academic staffs used virtual library for social network. The Table also showed that 61 representing 38% students used virtual library for social networking, 60 representing 38% used virtual library for research and learning and 38 representing 24% used virtual library for communication.

Research Question Four

To what extent are the academic staff and distance learners of NTI satisfied with the use of virtual library's resources, systems, facilities and services?

Analysis of respondents' opinions on the types of information resources available to academic staffs and students is as presented in Table 4.2.8

Table 4.2.8: How satisfied respondents were with virtual library resources, systems and services.

ACADEMIC STAFF

S/N	Resources	Very Dissatisfied	Dissatisfied	Satisfied	Very Dissatisfied	Mean	Standard Deviation
1	E-book	21	41	50	38	2.700	1.002
2	E-Journals	19	44	58	29	2.647	.935
3	Database	61	29	40	20	2.127	1.095
4	NTI online publications	30	40	39	41	2.607	1.092
5	Lib. Staff online help	77	40	21	12	1.787	.966
	Total	208	194	208	140	11.868	5.09

STUDENT

S/N	Resources	Very Dissatisfied	Dissatisfied	Satisfied	Very Dissatisfied	Mean	Standard Deviation
1	E-book	131	15	13	0	1.258	.598
2	E-Journals	64	43	39	13	2.006	.990
3	Database	98	61	0	0	1.384	.488

4	NTI online publications	27	63	38	31	2.459	.992
5	Lib. Staff online help	123	28	8	0	1.277	.550
	Total	443	210	98	44	8.384	3.618

Opinion (A.S)	Total score	Mean score	SD	Decision Rule	Decision
Satisfied	1184				Academic staffs were dissatisfied with the use of virtual library resources, systems and services.
Dissatisfied	596	2.40	1.02	2.40<2.50	
Total	1780				
Opinion (A.S)	**Total score**	**Mean score**	**SD**	**Decision Rule**	**Decision**
Satisfied	470				Students were dissatisfied with the use of virtual library resources, systems and services.
Dissatisfied	863	1.68	0.72	1.68<2.50	
Total	1333				

From Table 4.2.8, academic staffs that opined that they were satisfied with virtual library resources, systems and services scored 1184 and those with divergent views scored 487 points. The overall views had a score of 1780 representing 2.40 weighted mean with mean deviation of 1.02. The Table also showed that students that opined that they were satisfied with virtual library resources, systems and services scored 470 points and those with divergent views scored 863 points. The overall views had a score of 1333 representing 1.68 weighted mean with mean deviation of 0.72. Based on the analysis, calculated value was 2.40 and 1.68 respectively lower than the benchmark value of 2.50. The results therefore revealed that both academic staffs and students were dissatisfied of virtual library resources, systems and services.

Research Questions Five

What challenges do the academic staff and distance learners of NTI encounter in accessing and utilizing the virtual library's information resources, systems, facilities and services of NTI?

Analysis of respondents' opinions on the challenges encounter by academic staffs and students in utilizing virtual library information resources, systems, facilities and services is as presented in Table 4.2.9

Table 4.2.9: Challenges encountered by respondents in utilizing virtual library information resources, systems, facilities and services

Academic staffs			Students		
Challenges	Frequency	Percentage (%)	Challenges	Frequency	Percentage (%)
Not computer lit rate	25	17	Not computer lit rate	10	6
Slow internet ac cess	44	29	Slow internet ac cess	26	16
Lack of internet access	37	25	Lack of internet access	57	36
Non availability of e-resources	30	20	Non availability of e-resources	47	30
Dislike reading f rom screen	12	8	Dislike reading f rom screen	12	8
Lack of power supply	2	1	Lack of power supply	7	4
Total	150	100	Total	159	100

From Table 4.2.9, 44 representing 29% academic staffs encountered slow internet access, while 57 representing 36% students encountered lack of internet access. 37 representing 25% academic staffs encountered lack of internet access while 47 representing 30% students encountered non-availability of e-resources. 30 representing 20% academic staffs encountered non-availability of e-resources while 26 representing 16% students encountered slow internet access. 25 representing 17% academic staffs were not computer

literate while 12 representing 8% students dislike reading from screen. 12 representing 8% academic staffs dislike reading from screen while 10 representing 6% students were not computer literate. 2 representing 1% academic staffs encountered power failure while 7 representing 4% students encountered power failure. From the analysis, majority of the problems encountered by academic staffs and students clustered around slow internet access, lack of internet access and non availability of e-resources.

4.3 Test of Hypotheses

Result of data to test the null hypotheses is as presented in Table 4.3.1 to Table 4.3.

H_{01}: *There is no significant difference in the accessibility of virtual library resources between students and academic staffs of NTI Kaduna*

T-test analysis used to determine difference in accessibility of virtual library between academic staff and student is as presented in Table 4.3.1

Table 4.3.1: Analysis of Respondents opinion on accessibility of virtual library information resources based on academic staffs and students

S/N	Variable	Group	N	Mean	SD	Df	T_{cal}	T_{tab}	P-value
1	NTI course books	Staffs	150	2.01	0.80	307	8.980	1.64	0.000
		Students	159	1.28	0.60				
2	Jstor	Staffs	150	1.45	0.72	307	6.34	1.64	0.000
		Students	159	1.05	0.23				
3	NUC database	Staffs	150	1.87	0.81	307	4.84	1.64	0.000
		Students	159	1.45	0.72				
4	National library database	Staffs	150	1.79	0.79	307	3.75	1.64	0.000
		Students	159	1.46	0.70				
5	Scottish	Staffs	150	1.31	0.63				0.000

80

						307	4.45	1.64	
	library database	Students	159	1.07	0.25				
6	Canadian archeology library	Staffs	150	1.36	0.64	307	3.26	1.64	0.001
		Students	159	1.16	0.43				

The Table showed the mean and standard deviation for academic staffs and students' opinion with a degree of freedom of 307. It could be seen from table that T-Calculated values for variables 1 to 6 were greater than T-tabulated values. P-values for variables 1 to 6 were less than 0.05 significance value. The Analysis therefore revealed that there were statistical significant differences in the mean responses of staffs and students on access of virtual library information resources in NTI Kaduna. Hence the null hypothesis is not retained.

H_{02}: *There is no significant difference in the types of virtual library resources available to students and academic staffs of NTI Kaduna*

Mann-Whitney U test analysis used to determine difference in the opinions between academic staff and students on the type of virtual library information resources available in NTI Kaduna is as presented in Table 4.3.2

Table 4.3.2: Analysis of Respondents opinion on the types of virtual library information resources available based on status (Academic staffs and Students)

Groups	N	Mean Rank	Sum of Ranks	Z	P-value
Staffs	150	156.93	23539.00	-0.395	0.693
Students	159	153.18	24356.00		

The Table showed the mean rank and sum of ranks for academic staffs and students' opinion with a Z-value of -0.395. It could be seen from table that P-value of 0.693 is

greater than 0.05 significance value. The analysis concludes that the data does not provide statistically significant evidence of a difference between opinion of academic staffs and students on types of virtual library information resources available in NTI Kaduna. Therefore, the null hypothesis is retained.

H_{03}: There is no significant difference on the utilization of virtual library resources between students and academic staff of NTI Kaduna

T-test analysis used to determine difference in utilization of virtual library resources between academic staff and student is as presented in Table 4.3.3

Table 4.3.3: Analysis of Respondents opinion on how often they utilized virtual library information resources based on academic staff and students

Variable	Group	N	Mean	SD	Df	T_{cal}	T_{tab}	Sig.
How often virtual library was utilized	Staff	150	2.74	0.93				
	Students	159	2.41	0.75	307	3.44	1.64	0.001

Table 4.3.3 showed the mean and standard deviation for the academic staffs and students opinion with a degree of freedom of 307. It could be seen form table that the T-calculated value 3.44 is greater than the T-tabulated value 1.64. P-value 0.0001 was less than 0.05 significance value. The analysis therefore revealed that there was significant difference in the mean responses of academic staffs and students on how often they utilize virtual library information resources in NTI Kaduna. Therefore, the null hypothesis is not retained.

H₀₄: There is no significant difference on the satisfaction derived after utilizing virtual resources between students and academic staff in NTI Kaduna

T-test analysis used to determine difference in satisfaction derived after utilizing virtual library resources between academic staff and student is as presented in Table 4.3.4

Table 4.3.4: Analysis of Respondents opinion on satisfaction derived after utilizing virtual library information resources between academic staff and students

S/N	Variable	Group	N	Mean	SD	Df	T_{cal}	T_{tab}	Sig.
1	E-books	Staffs	150	2.70	1.00				
						307	15.257	1.64	0.000
		Students	159	1.26	0.59				
2	E-journals	Staffs	150	2.65	0.94				
						307	5.846	1.64	0.000
		Students	159	2.00	0.99				
3	Database	Staffs	150	2.13	1.09				
						307	7.598	1.64	0.000
		Students	159	1.39	0.48				
4	NTI online publication	Staffs	150	2.61	1.09				
						307	2.155	1.64	0.010
		Students	159	2.46	0.99				
5	Online helpfulness of library staff	Staffs	150	1.79	0.96				
						307	5.655	1.64	0.000
		Students	159	1.28	0.55				

Table 4.3.4 showed the mean and standard deviation for academic staffs and students' opinion with a degree of freedom of 307. It could be seen from table that T-Calculated values for variables 1 to 5 were greater than T-tabulated values. P-values for variables 1 to were less than 0.05 significance value. The Analysis therefore revealed that there were statistical significant differences in the mean responses of staffs and students the on satisfaction derived after utilizing virtual library information resources in NTI Kaduna. Hence the null hypothesis is not retained.

H₀₅: There is no significant difference on the challenges encountered in accessing and utilizing virtual library between students and academic staff in NTI Kaduna

Mann-Whitney U test analysis used to determine difference in the opinions between academic staff and students on challenges encountered in accessing the type of virtual library information resources available in NTI Kaduna is as presented in Table 4.3.5

Table 4.3.5: Analysis of Respondents opinion on challenges encountered in accessing virtual library information resources between academic staff and students

Groups	N	Mean Rank	Sum of Ranks	Z	P-value
Staffs	150	136.04	20406.50	-3.731	0.000
Students	159	172.88	27488.50		

The Table showed the mean rank and sum of ranks for academic staffs and students' opinion with a Z-value of -3.731. It could be seen from table that P-value of 0.000 is less than 0.05 significance value. The analysis concludes that the data does provide statistically significant evidence of a difference between opinion of academic staffs and students on challenges encountered when accessing virtual library information resources available in NTI Kaduna. Therefore, the null hypothesis is not retained.

4.4 Summary of major Findings

Based on the data analysed, the following findings are presented

- Academic staffs were aware of access to NTI virtual library while students' were not aware of access to NTI virtual library. Virtual library resources were easily accessible by both groups. T-test results which revealed statistical significant differences in the mean indicated that academic staffs had easy access than students.

- E-books and E-journals were the major types of resources readily available to users of virtual library. This fact could also be observed from the U-test result

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which revealed that there was no significant difference between opinion of academic staffs and students on types of virtual library information resources available in NTI Kaduna.

- Virtual library were not used every time by academic staffs and students. But with the significant difference between groups indicated that academic staff (2.74) used virtual library more than students (2.40) as revealed by their mean score.

- Academic staffs and students were dissatisfied of virtual library resources, systems and services. There was a significant difference between the groups indicating that level of dissatisfaction was more among students as revealed by the mean values in Table 4.3.4

- Majority of the problems encountered by academic staffs and students were slow internet access, lack of internet access and non availability of e-resources. There was a significant difference between groups indicating that students encountered more problems than academic staffs as revealed by the mean ranking in Table 4.3.5

4.5   Discussion of Findings

Findings from the study showed that academic staffs were aware of access of virtual library NTI Kaduna, but students were not aware that NTI virtual library can be accessed via internet connections. Abdullah and Gibb (2006) noted that most users are unaware of the existence of e-books in library collections. It can be inferred from the aforementioned that even with the presence of virtual library in NTI Kaduna students were not aware that the system can be accessed. This finding concord with the Ogunsola,

(2004) who opined that majority of higher institutions in Nigeria, even those with good Internet connectivity, are still at a low level of integration of ICT in teaching, learning, research, library, information and managerial services. In addition, virtual library were easily accessed by academic staffs than students as revealed by their mean value in Table 4.3.1

The study showed that among the types of virtual library resources of NTI, E-books and E-journals were the major types of resources readily available to users of virtual library.

The study revealed that virtual library resources were not used every time by academic staffs and students. This finding was supported by the findings of Oyediran-Tidings (2004) at Yaba College of Technology, Lagos , who also observed low use of virtual library by students.

Findings from the study revealed that academic staffs and students were dissatisfied of virtual library resources, systems and services. A significant difference between groups indicating that the mean difference revealed that level of dissatisfaction was more among students as revealed by the mean values in Table 4.3.4. This findings coincide with the findings of Osundina (1994) studies the relationship between accessibility and library use by undergraduates in Nigeria and notes that the problem of Nigerian students is not the question of wanting to use the college library, but whether or not the university library can provide for their needs, and whether there is access to what is provided. Further, user satisfaction in relation to library facilities and services depends on quality of services offered by the library. Velnampy and Sivesan (2013) assessed the

service quality of university libraries in Srilanka. This study analyzed twenty three variables which measure the service quality of university libraries and finally extracted four factors using factor analysis, namely convenient opening hours, current information, collection comprehensiveness, and convenient access to collection. Indeed, it refers to whether users of libraries get the desired information resources, facilities, and services expected to be provided by the libraries. Hence, in recent times, evaluating users' satisfaction with the information resources, facilities, and services of virtual libraries has become a major concern and an integral part of library and information science practitioners (Ogunsola, 2004).

Majority of the problems encountered by academic staffs and students were slow internet access, lack of internet access and non availability of e-resources. There was a significant difference between groups indicating that students encountered more problems than academic staffs as revealed by the mean ranking in Table 4.3.5. This finding coincides with the findings of Watts and Ibegbulam (2006) examined some of the barriers to the usage of electronic information resources available at the medical library of College of Medicine, University of Nigeria, Nsukka their findings revealed that lack of an adequate ICT (information and communication technology) infrastructure and affordable online access, absence of in- depth ICT skills and information searching skills are barriers to the use of electronic resources. This corroborated Oduwole (2002) findings on use of electronic information resources at the University of Agriculture Library in Abeokuta, Nigeria, his study also identified lack of ICT and power supply outage as constraints to use of electronic resources.

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CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

This chapter is presented under the following sub-headings

5.1 Summary

5.2 Conclusion

5.3 Recommendation

5.4 Suggestion for further study

- **Summary**

The study investigated the impact of virtual library access and utilization in distance learning education programme of the National Teachers Institute Kaduna. In order to achieve the objectives of the study, five specific objectives were stated which included; Identify the type of information resources available for use in NTI virtual library Kaduna State, examine the extent of accessibility of the virtual library resources to the academic staff and distance learners of NTI Kaduna State, determine the frequency at which the distance learners and the academic staff of NTI use the virtual library of NTI Kaduna State, examine the extent to which academic staff and student of NTI are satisfied with the use of virtual library's resources, systems, facilities and services of NTI Kaduna, identify the challenges academic staff and student of NTI encounter in accessing and utilizing the virtual library's information resources, systems, facilities and services of NTI Kaduna State. In line with the five research questions were raised which included; what types of virtual library information resources are available to academics staff and student of NTI Kaduna? To what extent are the virtual library resources accessible to academic staff and students of NTI Kaduna? How often do the academic staff and distance learners

of NTI use the virtual library information resources of NTI Kaduna? To what extent are the academic staff and distance learners of NTI satisfied with the use of virtual library's resources, systems, facilities and services of NTI Kaduna? What challenges do the academic staff and distance learners of NTI encounter in accessing and utilizing the virtual library's information resources, systems, facilities and services of NTI Kaduna? Subsequently, five null hypotheses were raised and tested at 0.05% level of significant which included; There is no significant difference in the types of virtual library resources available   to students and academic staff of NTI Kaduna, There is no significant difference in the accessibility of virtual library resources   between students and academic staffs of NTI Kaduna, There is no significant difference on the utilization of virtual library resources between students and academic staff of NTI Kaduna, There is no significant difference on the satisfaction derived after utilizing virtual library between students and academic staff in NTI Kaduna, There is in significant difference on the challenge encounter in accessing and utilizing virtual library between students and academic staffs of NTI Kaduna.

A stratified random sampling technique was used for this study in order to make proportional and meaningful representation of the population. The sample of three hundred and ninety (390) students of NTI were randomly selected form the population of ten thousand, six hundred and sixty six students' of NTI. Also one hundred and eighty seven Academic Staffs of NTI were randomly selected form the population of three hundred and forty six Academic Staff of NTI. The data collected were presented in Tables and analysed using simple percentages and mean. Therefore, null hypotheses were tested with t-test and U-test at 0.05 level of significance.

The findings included among others; Academic staffs were aware of access to NTI virtual library while students' were not aware of access to NTI virtual library. Virtual library resources were easily accessible by both groups. T-test results which revealed statistical significant differences in the mean indicated that academic staffs had easy access than students. E-books and E-journals were the major types of resources readily available to users of virtual library. This fact could also be observed from the U-test result which revealed that there was no significant difference between opinion of academic staffs and students on types of virtual library information resources available in NTI Kaduna.Virtual library were not used every time by academic staffs and students. But with the significant difference between groups indicated that academic staff (2.74) used virtual library more than students (2.41) as revealed by their mean score. Academic staffs and students were dissatisfied of virtual library resources, systems and services. There was a significant difference between the groups indicating that level of dissatisfaction was more among students as revealed by the mean values in Table 4.3.4 Majority of the problems encountered by academic staffs and students were slow internet access, lack of internet access and non availability of e-resources. There was a significant difference between groups indicating that students encountered more problems than academic staffs as revealed by the mean ranking in Table 4.3.5

- **Conclusion**

Based on the findings it was concluded that NTI Virtual library seems to be there but had an insignificant impact in facilitating distance learning. Virtual library resources were not easily accessible its users. Academic staff were had better access to virtual

library because they were aware that virtual library resources can be access via a computer connected to the internet.

Users of virtual library were not satisfied with the whole systems, and as such students and academic staffs did not often utilize virtual library because they still face the challenges of low access, poor internet access and unavailability of virtual library resources.

- **Recommendations**

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

- NTI Kaduna should endeavour to create more awareness to both students and academic staffs on virtual library. This would enable more of its users to be aware of the existence of such a system of learning in the institution. In addition, the management of NTI Kaduna should begin to see how they can integrate the access of virtual library resources via mobile phones for more flexibility of distance learning.

- More resources should be included so that users of virtual library can always meet their needs. This will go a long way of encouraging the use of virtual library.

- NTI Kaduna should improve in their virtual library service quality in areas such as information access that in content/scope and timeliness, personal control that is ease of navigation and convenience, affect of service that is responsiveness and reliability. This will boost satisfaction derivation by its users.

- Government should invest more funds on virtual library so as to increase its scope within and outside Nigeria

- A governing body should be set aside to always come to inspect if the virtual library is meeting the needs of distance learners. This will give room for improvement and efficiency of the systems.

- **Suggestion for further Study**

    Following the literature of the study, the researcher recommends further study in the following areas:-

- Virtual library access and utilization in distance learning in other areas of Nigeria.

- Status of Virtual library in Nigeria

- Level of awareness of virtual library among students of tertiary institutions of in Nigeria

- The impact of virtual library on distance learning in Nigeria higher learning institutions.

APPENDIX 1

QUESTIONNAIRE FOR NTI STUDENTS/ACADEMIC STAFF

13th, August, 2014.

Dear Respondent,

I am a postgraduate student of Ahmadu Bello University Zaria, Department of Library and information Science. I am carrying out a research on Access and Utilisation of Virtual Library in Distance Learning Education Programme of The National Teachers Institute Kaduna. I will highly appreciate if you can take time to complete the questions in the questionnaire. It is meant for research purpose and the information supplied will be treated confidentially for such purpose.

Thank you very much for your time and cooperation.

Yours sincerely

Ogalue Rose Toyin

SECTION A: PERSONAL DATA

Please kindly tick ( )/fill the space provide

(1)   **Status**

Academic Staff:

Academic department   ( )

Course facilitators   ( )

Student:

PGDE   ( )

NCE   ( )

(2)   **Gender**

Male   ( )

Female   ( )

SECTION B: VIRTUAL LIBRARY ACCESS

(3)   **Are you aware of access to the NTI virtual library resources via computer connected to Internet?**

Extremely aware   ( )

Moderately aware   ( )

Somewhat aware   ( )

Slightly aware   ( )

Not aware   ( )

(4)   **From which of these locations do you access/use the virtual library?**

(a) At home   ( )

(b) Library   ( )

(C) Cybercafé   ( )

(d) Phone   ( )

(e) At work   ( )

(5)   **Which browser do you use to access the virtual library resources?**

(a) Explorer ( )

(b) Mozilla Firefox ( )

(c) Dolphin ( )

(d) Opera ( )

(e) Safari ( )

(6) **How accessible are the virtual library resources?**

Types of Resources	Easily Accessible	Accessible	Not Accessible
E-Books			
E- Journals			
Database			

SECTION C: VIRTUAL LIBRARY RESOURCES

(7) **What type of Virtual Library Information Resources are available to academic staff and distance learning student of the NTI?**

E-books ( )

E-journals ( )

Database ( )

SECTION D: USE OF VIRTUAL LIBRARY RESOURCES

(8) **How often do you use the virtual library?**

(a) Every time ( )

(b) Almost every time ( )

(c) Occasionally ( )

(d) Almost never ( )

(e) Never ( )

(9) **What are your purposes for using the virtual library? Tick as many as relevant**

(a) Research and Learning ( )

(b) Communication ( )

(c) Social Networking   ( )

SECTION E: CUSTOMERS SATISFACTION IN USING THE VIRTUAL LIBRARY

(10)   **How satisfied are you with the virtual library resources and services?**

	Resources/System/Services	Very satisfied	Satisfied	Unsure	Dissatisfied	Very dissatisfied
1	E-books					
2	E-journals					
3	Database					
4	Online helpfulness of library staff (Reference Services)					

SECTION F: CHALLENGES IN USING THE VIRTUAL LIBRARY

(11)   **What are the challenges in the use of the virtual library resources?**

- I'm not computer literate   ( )
- Slow internet access   ( )
- Lack of internet access   ( )
- Non availability of e-resources relevant to my information needs   ( )
- Dislike reading from screen   ( )
- Lack of constant power supply   ( )

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