DETERMINANTS OF THE USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES BY LIBRARY AND INFORMATION SCIENCE STUDENTS IN UNIVERSITIES IN SOUTHERN NIGERIA

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NOVEMBER, 2019

DECLARATION

I, Toyo Oghenevwogaga David, declare that this is an original research work carried out by me in the Department of Library and Information Science, Faculty of Education, Delta State University, Abraka.

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CERTIFICATION

We the undersigned certify that this thesis was carried out by Toyo Oghenevwogaga David in the Department of Library and Information Science, Delta State University, Abraka.

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PROF. S. O. UWAIFO **DATE**
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DR. M. O. OGBOMO **DATE**
(Supervisor)

DEDICATION

This research work is primarily dedicated to Almighty God for His mercy and protection towards me.

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ABSTRACT

The study examined the determinants of the use of Information and Communication Technology by Library and Information Science students in Universities in Southern Nigeria. The specific objectives of the study were aimed at examining the level of accessibility of LIS students to ICT facilities in universities in Southern Nigeria;the extent to which the students are skilled on the use of ICTs;the extent of use of ICT by the students as well as determine the perceived ease of use of ICT among the students in the universities. The study was also aimed at finding the relationship among accessibility, skills, perceived ease of use and ICT usage by LIS students in the universities. Six research questions were asked and six hypotheses were tested in this study. The study adopted the descriptive survey design. The population of the study was 6,249 regular undergraduates students drawn from the 12 Southern universities that have LIS Department. The sample size for this study was 624 students and simple random sampling technique was used in selecting from the sample. The instrument used was the questionnaire. The data collected were analysed using descriptive and inferential statistics. The findings from the study indicated that: LIS students in universities in Southern Nigeria have high access to ICT facilities. The extent to which these students are skilled on the use of ICTs is low. The extent of use of ICTs by these students is low; The perceived ease of use of ICT among students is high; There is no significant relationship between accessibility and use of ICTs among students; There is a significant relationship between the students' ICT skills and their use of ICTs; There is no significant difference in the extent of use of ICTs among male and female students; There is a significant difference between institutions of the students and their use of ICTs; There is a significant relationship between the perceived ease of use of ICT among students; and There is a significant relationship among accessibility, skills, perceived ease of use of ICT among the students. The study therefore concluded that there is a significant positive relationship among the determinants: accessibility, skilfulness, perceived ease of use and ICT usage by LIS students. Based on the findings, the researcher recommended among other things that, the authorities of the universities should provide workable enabling environment to sensitize and stimulate the students to commit them for the need to optimally use the available ICT facilities.

CHAPTER ONE

INTRODUCTION

Background to the Study

During the past decade, there has been a rapid growth in the use of Information and Communication Technology (ICT), which has made universal impacts both on the society. There has been a growing interest in the use of ICT, especially in education which raises concern of how best ICT facilities can be integrated to support educational processes (Kyalo & Nzuki, 2014). Balanskat, Blamire and Kefala (2006) stated that new technologies could enhance education across the entire curriculum and provide prospects for effective communication among students in ways that have not been possible before. Although educators seem to recognise the importance of ICT in schools, there seems to be some difficulties during the processes of adopting these technologies.

Supporters of educational technology continue to believe that technology will make a difference in the academic achievements of students in tertiary institutions (Foltos, 2012). As noted by Ali, Haolader and Muhammad (2013), ICT covers the electronic means of capturing, processing, storing and communicating information. The use of ICT in education is essential for it provides prospects for teachers and students to use data, inspire independent and active learning. According to Ali, Haolader and Muhammad (2013), this versatile instrument is capable of engaging students in learning as well as in helping them to solve complex challenges to enhance their cognitive skills.

According to Bandele (2006), ICT is an advancement that encompasses the use of computers and other telecommunication technologies in various aspects of human endeavour. Reddi (2012) categorised ICT in education into synchronous and

asynchronous media. According to the author, synchronous media require all users to be together at the same time irrespective of their location. Examples of synchronous media are audio, broadcast radio and television conferencing. Asynchronous ICT allows for participants in the learning process to be at different times and different places. Examples of asynchronous ICT include audio and videotapes, compact discs, electronic mail, computer files transfers, virtual conferences, multimedia products, offline, web-based learning formats, and so on.

ICTs signify a collection of tools and resources used for generating, storing, handling and communicating information, and to support teaching and research (Vajargah, Jahani & Azadmanesh, 2010). There are four elements in the definition of ICT; ICT as an object that refers to learning about ICT, an assisting tool, a medium for teaching and learning (Mahmood & Bokhari, 2012).

Papastergiou and Solomonidou (2005) opined that computer is capable of enhancing the performance of undergraduates. Constant use of computers by students is an essential part of the instructional process. Available literature showed that students are encouraged in the universities to use computers for assignments (Comber, Watling, Lawson, Cavendish, McEune & Paterson, 2012); although students gained more ICT skills from home (Van Braak & Kavadias, 2015) and greater use of ICT at home diminishes students' level of anxiety (Basile & D'Aquila, 2012).

Various studies have shown that the use of new technologies in tertiary institutions is essential for helping students to learn to operate in an information age. It is evident, as Keengwe and Onchwari (2008) argued that traditional educational environments do not appear to be appropriate for preparing students to be productive.

Keengwe and Onchwari claimed that organisations that do not integrate the use of new technologies in tertiary institutions could not seriously claim to prepare their students for life. This argument is maintained by Grimus (2011), who opined that by teaching ICT skills in tertiary institutions, students are equipped to face future growths based on proper understanding. Similarly, Bransford, Brown and Cocking (2011) reported that learning provides essential procedures for uses of technology that can aid students and teachers advance the competencies required for the 21st century.

Furthermore, the availability of ICT entails the ability of an individual to see, use and communicated with ICT facilities. Hence, increasing the availability of ICTs is a positive step in eliminating the barriers that hinder students' effective use of ICT facilities in Nigerian higher institutions. Blurton (2009) argues that as access to ICT infrastructure continues to grow globally, the use odf ICTe in teaching and learning can be expected to expand drastically. Hence, the integration and application of ICT in institutions will help address assertion by World Education Report (United Nations Educational, Scientific and Cultural Organization, 1998) that, education globally is facing momentous difficulty in preparing students and teachers for the future. Oriogu, Ogbuiyi and Ogbuiyi (2014) maintained that availability of ICT facilities in tertiary institutions does not essentially suggest their accessibility since the source may be accessible nevertheless, access to them, is prevented for various reasons.

The definitions of access to ICT encompass three factors: quality of services, accessibility and affordability (Verhoest & Cammaerts, 2011). Warschauer (2014) defined access to ICT in terms of physical access to ICT device. Different countries embrace the various concepts of what ICT is necessary to provide. As an essential

priority, when the government should intervene to decide about the content, value-addition, infrastructure and justification of services to access ICT (Greene, 2013). Kirkman (2009: 238) explains “when we speak about access, what we mean is access to information, knowledge, and communications opportunities, not access to one specific service or technology”.

According to Oriogu, Ogbuiyi and Ogbuiyi (2014), availability of ICT facilities does not necessarily imply their accessibility, due to various reasons. Oriogu, Ogbuiyi and Ogbuiyi maintained that tertiary institutions in Nigeria should endeavour to make ICT facilities available and accessible to their users.

Empirical researches on the use of ICT by students of tertiary institutions are numerous. Bazer, Pardillo and Ruales (2012), in their study on the availability and use of ICTs in Mindanao State University, Iligan Institute of Technology, Philippines, stated that the most commonly used ICT tools used by students are word processors, web browsers and search engines, and email facilities. The students usually use those tools since they are the ones virtually available and are the tools that they use in doing paper works, researches, reports, and other assignments. These findings are similar to the outcomes of the study conducted by the Organization for Economic Cooperation and Development (OECD). Their survey found out that one-half of the respondents reported frequent use of internet and word processing because both of which have educational potentials (OECD, 2005). On the other hand, the least used ICT tools are desktop publishing, video editing software and social bookmarking. The reason might be because the students do not always require these tools in doing assignments, are challenging to use or manage, or require sophisticated skills.

The usage of ICT can be affected by availability of its facilities. Gauci (2011); Nwuke (2011) highlighted that the reason for the widening gap between the advanced and developing economies is the cruel cyclic association between lack of ICT skills and a critical shortage of prospects for skilled graduates in ICT disciplines. The 21st century requires ICT skills in all fields, especially in education, employment and everyday life. Today, employees demand assurance and competence in ICT use; because ICT skills are vital in the work setting. Thus, this presents an enormous challenge to educators, since they are expected to arm students with appropriate, up-to-date and high-quality ICT skill before students transit into the employment world (Gibson, O'Reilly & Hughes, 2012).

To successfully take advantage of ICT, Abubakar (as cited in Ugboma, 2006) noted that information professionals must improve knowledge in a recognized programme of education, cultivate the technical competence and subject expertise. According to Abubakar (2010), some of the requirements for skill acquisitions include the fundamental areas of the knowledge of ICTs and their functions. It also entails the capability to carry out searches on the internet. Other skills considered very appropriate for graduates or students of Library and Information Science, according to Morgan (2008), including skills in web languages, communication, database creation and the basic knowledge of how to send mails.

Research has shown that the perceptions of students will play an essential role in the success of any new venture, as it is the students who will be using the technology in their learning (Lu & Viehland, 2008). Babalola and Babalola (2014) defined perceived usefulness as being the degree to which an individuals believe that the use of a computer

will advance his or her performance while perceived ease of use denotes the level to which an individual believes that the use of a computer will be effortless.

However, results from studies have shown positive perception towards the perceived ease of use and perceived usefulness of ICTs by students of tertiary institutions. Makura (2014) report showed that students recognised 'technology for learning' to mean a computer. Makura asserted that students appreciate its use and functionality since commencing their studies. Students also stated that most lecturers do not utilise ICT during teaching. Students perceived ICT as positively affecting their academic performance. Rambe and Nel (2013) opined that majority of students in tertiary institutions claimed that modern technologies are easy to operate thereby increasing their desire to use them in their studies while others blamed the complexity of the new technologies in education as the reasons for their inability to use them.

By categorising perceived reasons for users' interaction with ICTs and by identifying common patterns, we can gain a more accurate understanding of those connections. Certainly, a better understanding of the determining factors that influence the use of ICTs by tertiary students is a prerequisite for successful ICT usage. Hence, this study examined the determinants of the use of ICTs by Library and Information Science students in universities in Southern Nigeria.

Statement of the Problem

ICT in education has been connected to higher effectiveness, higher efficiency, and higher pewrformacne, including quality of cognitive, creative and advanced thinking (Adeosun, 2010). The field of education has therefore been affected by ICTs, which have

undoubtedly affected teaching, learning and research (Orie, Godspower & Legg-Jack, 2011).

In the present information age, the issue of students' use of ICT is of vital importance because the use of ICT by students would enhance competence and confidence in them. However, interactions with some students in higher institutions revealed that many of them still use traditional print materials to obtain information. Observation and interaction with students, showed that ICT usage for academic activities by students in universities seems inadequate, probably due to a variety of factors, such as accessibility, level of skilfulness, perception of the ease of ICT usage amongst others. Also, very few undergraduates believe that much benefits can be derived from the use of ICT facilities for learning and research activities, thereby giving preferences for the traditional academic processes.

Though some studies have revealed that students of tertiary institutions reported having a strong preference for ICT facilities to supplement teaching and that they would prefer to use ICT during their studies, it is still not clear whether students adequately use these facilities. There is a need to investigate whether non-usage is simply out of ignorance or some other fundamental concern and to provide a way out. Without investigation, it is difficult for universities to discover the real reasons for the under-utilisation of ICT by students in tertiary institutions (Organisation for Economic Co-operation and Development, 2005). It is against this background; therefore, this research intends to investigate the determinants of the use of ICT by Library and Information Science students in universities in Southern Nigeria.

Research Questions

The following questions were asked to guide this study:

(i) What is the level of accessibility of Library and Information Science students to ICT facilities in universities in Southern Nigeria?

(ii) What are the ICT skills possessed by Library and Information Science students in universities?

(iii) To what extent are Library and Information Science students in the universities skilled on the use of ICTs?

(iv) What is the use of ICTs to Library and Information Science students in the universities?

(v) What is the extent of use of ICTs by students of Library and Information Science in the universities?

(vi) What is the perceived ease of use of ICTs among Library and Information Science students in the universities?

Hypotheses

The following null hypotheses were formulated and tested in this study at 0.05 alpha level:

(i) There is no significant relationship between accessibility and use of ICTs among Library and Information Science students in universities in Southern Nigeria.

(ii) There is no significant relationship between skills and use of ICTs among Library and Information Science students in universities in Southern Nigeria.

(iii) There is no significant difference between gender and use of ICTs among Library and Information Science students in universities in Southern Nigeria.

(iv) There is no significant difference between the institution of students and the use of ICTs among Library and Information Science students in universities in Southern Nigeria.

(v) There is no significant relationship between perceived ease of use and ICT usage among Library and Information Science students in universities in Southern Nigeria.

(vi) There is no significant relationship among accessibility, skills, perceived ease of use and ICT usage among Library and Information Science students in the universities in Southern Nigeria.

Purpose of the Study

The primary purpose of this study was to investigate the determinants of the use of ICT by Library and Information Science students in universities in Southern Nigeria. However, the specific objectives are to:

(i) ascertain the level of accessibility of Library and Information Science students to ICT facilities in universities in Southern Nigeria;

(ii) identify the ICT skills possessed by Library and Information Science students in universities;

(iii) determine the extent to which Library and Information Science students are skilled on the use of ICTs in the universities;

(iv) establish the use of ICTs to Library and Information Science students in the universities;

(v) determine the extent of use of ICT by Library and Information Science students in the universities;

(vi) know the perceived ease of use of ICTs among Library and Information Science students in the universities;

(vii) establish if there is no significant relationship between accessibility and the use of ICTs among Library and Information Science students in universities;

(viii) find out if there is no significant relationship between skills and the use of ICTs among Library and Information Science students in universities;

(ix) find out if there is no significant difference between gender and the use of ICTs among Library and Information Science students in universities in Southern Nigeria;

(x) ascertain if there is no significant difference between the institution of students and the use of ICTs among Library and Information Science students in universities in Southern Nigeria;

(xi) examine if there is no significant relationship between perceived ease of use and the use of ICTs among Library and Information Science students in the universities; and to

(xii) determine if there is no significant relationship among accessibility, skills, perceived ease of use and ICT usage among Library and Information Science students in the universities.

Significance of the Study

The outcome of this study will be beneficial to library schools, students, academics, researchers and the management of higher institutions; By identifying the determinants and how they influence the students' decisions to use ICTs, the study will help illuminate issues that encourage or discourage its use or improve their perceptions of using ICTs. This study will be beneficial to library schools, students, academics and

researchers who are interested in ICT usage by students as it will serve as a reference point for the current situation on issues (accessibility, skills, the extent of use and perception) relating to the use of ICT in academic institutions. More so, the study will be of importance to the management of higher institutions by way of highlighting the need for the provision and application of ICTs as well as providing an insight to the problems associated with the use of ICTs in tertiary institutions, thus leading to the implementation of policies towards appropriate use of ICTs.

Scope and Delimitation of the Study

The study looked at the determinants of the use of ICTs by Library and Information Science students in universities in Southern Nigeria. It focused on level of accessibility of Library and Information Science students to ICT facilities in universities in Southern Nigeria; the ICT skills possessed by Library and Information Science students in Universities, the extent to which these students are skilled on the use of ICTs; the use of ICTs to Library and Information Science students in Universities, the degree of use of ICT by these students and their perceptions on the ease of use of ICTs.

The study was delimited to all the Departments of Library and Information Science in the twelve (12) universities in Southern Nigeria that offer a Bachelor's degree in Library and Information Science. The universities are: the University of Ibadan (UI), Ibadan; Abia State University (ABSU), Uturu; University of Nigeria (UNN), Nsukka; Imo State University (IMSU), Owerri; University of Uyo (UNIUYO), Uyo; Ambrose Alli University (AAU), Ekpoma; Delta State University (DELSU), Abraka; Madonna University (MU), Okija; Enugu State University of Technology (ESUT), Enugu; Babcock University (BU), Remo; Osun State University (OSU), Ire, Osun State and University of Calabar (UNICAL), Calabar, Cross River State. Thus, the study focused on

regular undergraduates only since including other categories of students might alter the findings.

Operational Definition of Terms

The following terms were defined as they were used in this study:

Determinant*:* An element that identified the nature of something or that fixes or conditions an outcome.

Information and Communication Technologies (ICTs)*:* This is the collective term for the entire spectrum of technologies for information processing, including software, hardware, communications technologies and related services.

Library and Information Science Schools*:* This is an institution of higher learning specialised in the professional training of librarians and information professionals.

Southern Nigeria*:* It is a combination of the south-east, south-west and south-south geopolitical zones of Nigeria.

Use*:* To put into service or apply for a purpose.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

This chapter dealt extensively on the review of literature that was related to this study. It contains various scholarly works, ideas, empirical studies and findings of different researchers, scholars and writers on determinants of the use of ICT in tertiary institutions. However, the review of related literature was discussed under the following sub-headings:

Theoretical Framework

Level of Accessibility to ICT Facilities by Students in Universities

ICT Skills Possessed by Students in Universities

Extent of Skills in the Use of ICTs by Students in Universities

Use of ICTs to Students in Universities

Extent of Use of ICTs by Students in Universities

Perceived Ease of Use of ICTs by Students in Universities

Empirical Studies on Determinants of the Use of ICTs by Students in Universities

Appraisal of the Reviewed Literature

Theoretical Framework

Several models have been proposed for understanding and explaining individual attitudes, behaviour and other factors towards the acceptance and use of technology. Accessibility and ease of use are some of the main acknowledged determinants that play critical roles in shaping an individual's acceptance and usage of technology (Schaper & Pervan, 2007).

Several models have x-rayed the determinants of intention, acceptance or use of technology such as the Theory of Reasoned Action (TRA), Technology Acceptance Model (TAM), Motivational Model (MM), Theory of Planned Behaviour (TPB), Model of PC Utilization (MPCU), Innovation Diffusion Theory (IDT), Social Cognitive Theory (SCT), etc.

However, Venkatesh, Morris, Davis and Davis (2003) upon defining, testing and identifying the similarities of the variables present in these models, theorised that several constructs common to these theories play a significant role as direct determinants of user acceptance and usage behaviour amongst which includes accessibility, ease of use and. These form the bedrock upon which the Unified Theory of Acceptance and Use of Technology (UTAUT) was formulated. Although, the effects of these significant factors are moderated by demographic factors such as gender, age and experience.

Consequently, this study is hinged on the Unified Theory of Acceptance and Use of Technology (UTAUT) since it is a unified model that cuts across every information science model that applies to acceptance and use of innovation (Venkatesh *et al.,* 2003). More so, the UTAUT model was adapted for this research due to its empirical effectiveness; the comprehensive, rigour applied in its development and its high explanatory power. Venkatesh *et al.,* (2003) formulated the Unified Theory of Acceptance and Use of Technology (UTAUT), which posits direct determinants of intention to use such as accessibility, the extent of use, skilfulness and perceived ease of use.The adapted UTAUT model for this study is as illustrated in figure 1.

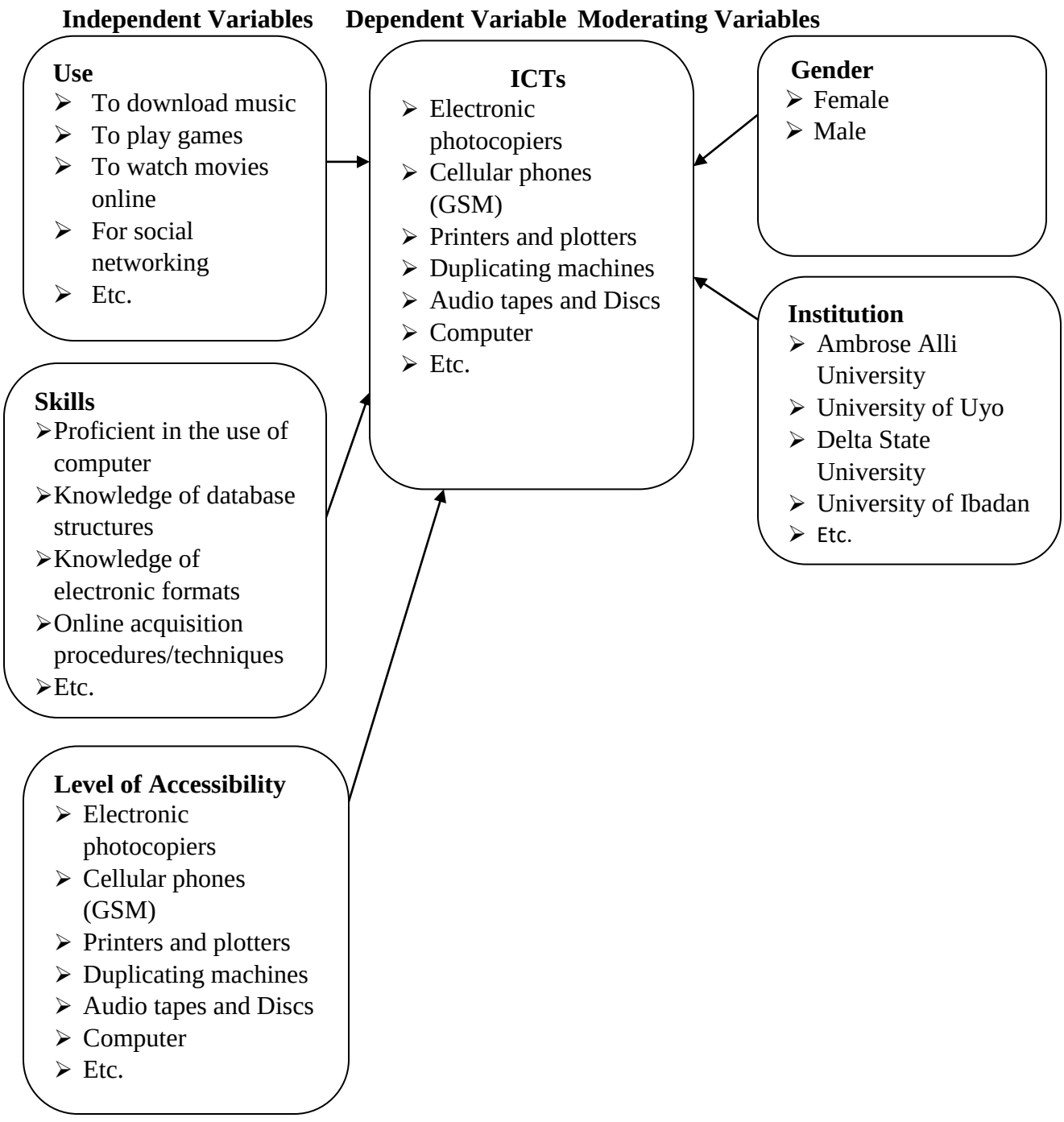

Fig. 1: Conceptual Model adapted from the Unified Theory of Acceptance and Use of Technology (UTAUT) Model

Source*: Adapted from Venkatesh et al. (2003)*

Level of Access to ICT Facilities by Students in Universities

ICTs have the possibility to hasten, enrich, and extend skills, to inspire and absorb students, to help relate school experience to work performance, create economic feasibility for tomorrow's employees, in addition to strengthening teaching and assisting schools to change from the traditional chalk and talk method to a renew innovations using the numerous access of modern technology (Jebba, 2012). It has, therefore, become a priceless tool for learning, teaching and research in Nigeria. As crucial as ICT is in the field of education, the impact can only be exerted if and only if the target beneficiaries (students) have access and use the ICT facilities for the purpose for which it is meant.

The discourse on accessibility to recorded human knowledge has risen beyond local, national to a global phenomenon in librarianship because making provision for information in electronic format in university libraries has little meaning if users cannot access it. The channel through which students have access to information materials refer to the systems through which patrons materially get hold of the materials from the collection (hard or soft copy), be it an open stack system or web-based access to resources (Agyen-Gyasi, Lamptey and Frempong as cited in Abubakar, Gupiyem & Banwar, 2017). Accessibility to ICT is the degree to which computer and other computer-related gadgets are used freely by as many people as possible to retrieve and satisfy their information needs.

According to Aguolu and Aguolu (2002), libraries may acquire information resources and make them available in the library and even go extra mile to identify the information resources bibliographically as relevant to students' academic studies; but the students may still find it difficult if not impossible to access or locate or lay their hands

on the resources or put them to use. Aguolu and Aguolu (2002) went further to buttressed that there is an apparent cut difference between the availability of information resources and having access to them. They also concluded that availability does not essentially imply its availability since the sources may be available, but access to it is prevented in the library various reasons. Students may recognize citations in indexes, but may not have access to the sources comprising the appropriate articles. Ugah (2008) informed that the more available information sources are, the more probable they are to be used. He added that students tend to use information sources that require the least effort to access.

A survey that was carried out by Rotman and McQuivey (2009) indicated that some university libraries provide access to e-resources through e-book readers, such as the Amazon Kindle and the tablet computers. They further asserted that Such university libraries that provide access to e-resources through the use of e-book readers include the Turku City Library in Finland (Turku City Library, 2010), the West Vancouver Library in Canada (Hui, 2010) and the University Libraries of the American University in Washington, DC (American University, 2010). The University of California, Irvine School of Medicine, made provision for Apple iPad tablet computers which have already been loaded with the course materials for the first year, to ensure that university students have access and use e-resources to 100 level medical students, (Vasich, 2010). In the same vein, in providing access to e-resources to students, the Cushing Academic library Boston, USA has taken advanced step by getting rid of all printed materials, with all the library resources to be in electronic format with adequate provision for internet connectivity and other technicalities that will foster easy access to the information resources electronically within and outside the library.

ICT accessibility, according to Ismail and Zainab (2011), refers to the 'how' and 'where' information seekers (students) retrieve information resources online. They further buttressed that the 'how' refers to the channel or medium through which students have access to information resources online and the 'where' refers to the location irrespective of the distance where the service could be used. In the 21st Century, libraries of all types and university libraries, in particular, are increasingly becoming puzzled by the variety of electronic information resources that are communicated in divergent ways. Some of the channels through which these electronic information resources are being transmitted include computers, the Internet, videos, radio, telephone and printers. The provision of ICT access points in university libraries will allow students of all categories to make fair use of electronic information resources in their academics. This further implies that some of the students that have access to computers and computer networks may have some level of leverage in doing their research and other academic activities while those students without access to ICT will not have such advantage, hence, they are constraint or restricted in the course of their study. Furthermore, Nfila (2008) stated that access to ICT for students of all categories would simplify their word processing activities, making their editing work easy and improving the presentation of their assignment and research reports. Some of the students that lack ICT access in their libraries may miss information through the subject gateways, and this will result in confusion and frustration.

In order to maximally utilize the benefits of associated with the use of electronic information resources among students; it becomes imperative for students of all categories in Nigeria to be knowledgeable on how to use the library and the electronic

information resources in the library as well as have full or secure access to different ICTs in their libraries. Mutula (2004); Ozoemelem (2009) believe that students in higher institutions of learning are yet to fully avail themselves of all potentials and benefits for the provision of electronic information resources for students in university libraries.

The definitions of access to ICT are based on three factors: quality of services, accessibility and affordability (Verhoest & Cammaerts, 2011). Warschauer (2014) defined access to ICT in terms of physical access to ICT device. Different countries embrace the various concepts of what ICT is necessary to provide. As an essential priority, when the government should intervene to decide about the content, value-addition, infrastructure and justification of services to access ICT (Greene, 2013). Kirkman (2009: 238) explained: "When we speak about access, what we mean is access to information, knowledge, and communications opportunities, not access to one specific service or technology".

According to Oriogu, Ogbuiyi and Ogbuiyi (2014), availability of ICT facilities does not essentially imply their accessibility since the source may be available but access to them, is prevented for several reasons. They maintained that tertiary institutions in Nigeria should endeavour to make ICT facilities available and accessible to their users. More so, accessibility of ICT is the capability of a person to see, use, circumnavigate, communicate and interact with the ICT facilities. Meanwhile, growing the availability of available ICTs is considered a positive step in eliminating barriers that limit students to active use of ICT facilities in the universities in Nigeria.

However, it is useful to note that the ICT facilities that provide access to digital information can enable students in tertiary institutions to analyse and digest them, as well

as create reports and papers that combine text, graphics, and images. With a link to the internet, the universe of reference sources explodes, and it becomes possible for students to engage in collaborative research with students in other institutions of higher learning both locally and internationally (Kyalo & Nzuki, 2014).

Very few empirical studies have been conducted purely on the level of accessibility of ICT facilities and resources by students in tertiary institutions in Nigeria. However, in a survey carried out by Oriogu, Ogbuiyi and Ogbuiyi (2014) on the availability and accessibility of ICTs in the provision of information resources to undergraduates in Babcock University revealed that majority of the respondents were of the opinion that the ICT facilities were highly accessible; ranging from computers (87.9%),internet (87.9%), photocopier machines (86.8%),e-mail (78.0%), network (74.7%), printer(69.9%) and UPS (59.3%). It was also reported in their study that CD-ROMs, scanners and projectors were not accessible by students of the university because of their unavailability.

In another survey conducted by Wilson, Tete-Mensah and Boateng (2014) on the ability of tertiary students in a university in Ghana to use a wide range of ICT devices to support their learning, revealed that students had access to a variety of technologies. The results showed that it was only mobile phones that more than half of the respondents indicated they could access. Thus, access to most of the technologies was deficient among the students. The findings also showed that majority of the respondents (79.9%) had access to PC or laptop, 4.3%of them did not have any access to technologies in the University while 13.9% had access to digital cameras.

Furthermore, Dorup (2014) found that most students have access to computers in their dormitories inside the campus as well as using the internet regularly, which is an essential requirement for supporting networking for students and lecturers, as well as for collaborative learning. Dorup further concluded that students who did not have access to computers and the Internet technology were likely to get also behind their peers who did have such access.

However, a survey by Afari-Krumah and Tanye (2009) on students' views of ICTs usage at the University of Cape Coast using questionnaires revealed that out of the 100 respondents, 52 do not have a place to access the computer and 48 respondents had an area of access. Out of the 48 who had an area of access 17 had access to computers in Cybercafé, one had computer access at the workplace, six at the University, eight had access to their roommates' computers, five had computer access at the University's ICT centre, three had access to a computer either in cybercafé, or at workplace, and the University, and finally eight had access to computers at home.

Akinfolarin and Rufai (2017) conducted a study on the extent of ICT (ICT) utilisation for students' learning in tertiary institutions in Ondo State, Nigeria. The study used the descriptive survey design with the stratified and simple random sampling techniques used to draw the respondents. The questionnaire was used to gather relevant information from the respondents. Data collected was analysed using both the descriptive and inferential statistics. The study found out that students had regular access to email account and internet facility for search of information while students hardly have access to computer systems, Public Address System (P.A.S), E-Library facility, printers to prints learning materials, social media platforms for learning and stored lectures notes on CD-

ROMs for students additional education. However, the study further revealed that computer training classes and projectors for academic activities are not accessed by students' on campus.

More so, Siddiquah and Salim (2017) surveyed the ICT facilities, skills, usage, and the difficulties faced by the students of tertiary education. The research employed the survey research of descriptive research design method and the questionnaire with open and close-ended questions was used to elicit responses from the students. The data were analysed using descriptive statistics including frequencies, percentage, mean score, and standard deviation. The findings from the study revealed that the majority of participants (86.4%) had access to computers and the Internet. However, there was no access to printers and scanners at the schools.

ICT Skills Possessed by Students in Universities

Students currently enrolled in higher institution of studies have grown up as part of the Net Generation. For most, their computer knowledges began in kindergarten or even earlier. Members of this group typically embrace technology in various forms, including cell phones, mp3 players, digital cameras, video games, iPods, electronic readers, and personal computers. The education sector generally recognised a critical need for graduates to possess ICT skills. Some states require students to pass a computer proficiency test as part of their 82 kindergartens through twelfth-grade preparation (Grant, Malloy & Murphy, 2009), and most require a technology applications course as part of graduation requirements. In a surprising departure from the national trend, the state of Texas recently dropped the requirement of a technology applications course as a high school graduation requirement (Tydings, 2009). While the result could be

safeguarded from the viewpoint that current students commonly possess informally learnt computer skills, others may contend that students' technology skills may not comprise those commonly required in the workplace. Despite the extent of formal and informal computer experience, today's students differ in their insight of their computer abilities. Students' CSE characteristically is influenced by both prior coursework and individual experiences. Thatcher, Zimmer, Gundlach and McKnight (2008) found that CSE has two dimensions, external and internal. The external dimension emphases on how people perceive their capability to use computers with human aid and other forms of external assistance. The internal dimension emphases on how people perceive their ability to use computers self-sufficiently. Studies even in more recent years, however, reveal that many students continue to report huge computer phobia and low CSE (McIlroy, Sadler & Boojawon, 2007). Keengwe (2007) found that despite the prevalent availability of computers on university campuses, students lack many computer skills needed to sustain and improve their learning skills. Hasan (2003) showed that certain 83 computer skills had various levels of influence on an person's CSE. For instance, skill with computer programming and graphic applications was shown to have a strong and significant effect on CSE, while skills with spreadsheet and database applications proved weak effects. While most current students can send email messages, download music, and chat online, employers are concerned with whether students can use a computer as a technology tool to address recurring business needs (Young, 2004). Work-related computer skills are characteristically considered as comprising expertise in word processing, presentation programs, and spreadsheet applications, with other skills occasionally comprised such as file management and web mastering. Computing experiences before college may be

helpful to various degrees in providing students with basic technology skills; nevertheless, they are only a start in guaranteeing that students are skillful in work-related computer skills when they leave school for the workplace. Some schools require incoming students to establish a prescribed level of computer skill (Wallace & Clariana, 2005). Others need several computer applications courses as part of their curriculum requirements. Students with significant computer backgrounds may not feel that further computer courses would be beneficial. However, research shows that those who have experienced success with computers may be more inclined to take extra computer coursework. CSE is a powerful effect on future intents toward technology (Agarwal, Sambamurthy & Stair, 2000). Grant, Malloy, & Murphy (2009) equated students' CSE scores with their real performance on an author-developed computer skills test. The study established a difference between what students perceived as their computing skills and their actual evaluated skills, representing a need for most students to receive further training in computing applications. 84 Various measures of technology proficiency have been developed that could be useful in the assessment of students' computer skills. For some years, Educational Testing Service (ETS) presented the skills test which was developed with the contribution of business and industry representatives to measure the mastery of technical skills needed for workplace achievement. Cengage Learning offers the Skills Assessment Manager (SAM), development in association with Microsoft Corporation to examine knowledge of Microsoft Office computer software applications. It is used by several schools to test students' technology skills (Course Technology, 2011). While some educators embrace the belief that students are becoming increasingly more computer literate, some researchers have found a significant difference between the

awareness of computer skill levels and the certainty of lower competence. If students are becoming increasingly more computer proficient, the content and complexity of college-level computer applications courses should be adjusted properly (Wallace & Clariana, 2005). Effectively preparing graduates for the technology opportunities of the workplace stresses that the content of basic computer applications courses be unceasingly scrutinized in light of students' preparation for such classes and workplace needs. Content must be suitable to the level of student needs and reflective of industry requirements. Research indicates that behavioural and psychological factors can impact CSE (Moos & Azevedo, 2009).

The extent of Skills in the Use of ICTs by Students in Universities

Skill is thought of as a quality of performances which does not depend solely upon a person's fundamental, innate capacities but must be developed through training, practice and experience, although skill depends primarily on learning (Amoda & Odunaike, 2014). Modern concepts of expertise stress the flexibility with which a skilled operator reaches a given end on different occasions according to a precise circumstance. It must be reiterated that essential human capacities are not sufficient to produce skills, they form the fundamental basis of their development, and they represent a particular way of using capabilities concerning environmental demands with human being and external situation together building a functional system through skill competency. ICT skill competency means the measure of the effectiveness of a user's performance. An individual can perform to the standards and level required to use an ICT facility to optimum satisfaction (Osuala, 2005).

However, ICT (ICT) knowledge and skills are now seen as a critical resource and crucial tools for the development of any society. It is in this regard that students of Library and Information Science are expected to be prepared towards acquiring this knowledge and skills. In recent years, many scholars have written on the need for ICT knowledge and skills among librarians and information scientists. Ugwuanyi and Ejikeme (2011: 7) observed that "librarians need some skills, knowledge and attitudes to survive and flourish in the new era of librarianship… the information landscape is changing and is requiring some skills different from the traditional skills of librarianship of acquisition, organisation, dissemination and preservation of library material".

To successfully exploit ICT for full benefits, Abubakar (as cited in Ugboma, 2006) observed that information professionals must develop knowledge or expertise in an established programme of learning, cultivate the technical capability and subject expertise. According to Abubakar (2010), skills acquisitions requirements are in the essential areas of computers; how it functions, imputing and recovery of information from it, ability to choose suitable software, ability to capture and use ICT based resources. It also includes the capability to carry out searches on CD-ROMS. Other skills regarded very pertinent for graduates or students of Library and Information Science can be captured in the words of Morgan (2008), who highlighted these skills to include elementary programming in one or two web languages, communication skills, database creation and the basic knowledge of how to use Fax, e-mail equipment as well as downloading of mails from the internet.

Because of a lot of prospects available to new age librarians in the ICT world, Abubakar (2010) stated that in the digital setting, librarians are desired more than ever

before to obtain knowledge and skills in providing services that are expected of them by the clientele of the new setting. Also, Gbaje and Ukachi (2011) stated that information technology has basically affected the operations of library and information services and this has also had significant influence on the skills and training needed by students in universities offering Library and Information Science.

However, it has been noted by Amoda and Odunaike (2014) that students have existing skills from exposure to a range of software applications in tertiary schools. Abubakar (2010) observed that some students entering tertiary studies lack even a necessary ICT (ICT) skill, manifesting in fear of the technology. Abubakar refers to a 'tension' between the common belief that youths of today are IT literate and academic staff views querying this assumption. In a crowded curriculum, there is particular attractiveness in assuming a certain level of IT literacy as there is seldom sufficient time to cover all topics and applications adequately.

Ugwaunyi and Ejikeme (2011) aver that some students entering tertiary institutions still lack necessary ICT skills and displays computer phobias to a varying degree. Gbaje and Ukachi (2011) reporting the results of a survey of ICT faculty covering what ICT skills were expected of students showed that low-end skills such as email, word processing and web searching were expected. Students were not supposed to use high-end skills such as a database or creating macros. Further, Gbaje and Ukaji reported that faculty was mostly unfamiliar with higher-end applications themselves.

Few studies have explicitly investigated the ICT skills of commencing tertiary students. Danner and Pessu (2013) have looked at the integration of ICT skills into tertiary courses, and they have examined the ICT skills of beginning students in a

Nigerian university. In Nigeria, Ojedokun and Okafor (2011: 12) in a study involving first-year science students, noted that government policy is being articulated on the postulation that students are computer literate and that universities are also evolving and executing policy based on the postulation that students are computer literate. They observed a general increase in general ICT skills over the last few years to 2011, but these skills were not uniformly high even with word processing.

Lee (2007) found that a significant number of students in teacher preparation programmes were not equipped with necessary computer operational skills. Ozoemelem's (2010) study discovered that there is a low level of skilfulness in the use of ICT among Nigerian students. Similarly, Amoda and Odunaike (2014) reported that students in Nigerian tertiary institutions are not competent in basic computer operations and the use of generic software. If students are expected to assimilate ICT into their school activities, they must have ICT skills for their use, in supplementing their lecture notes, for research activities; the need to enable the direct use of ICT in students' learning activities and the need for students to develop in themselves a critical consciousness of ICT applications and the social consequences (Robbins cited in Abubakar, 2010).

The degree of skilfulness of tertiary students can also be seen in a study carried out by Abubakar (2010) revealed that 8(40%) of 200 level respondents do have computer skills, 11 (55%) of 300 level, 13 (65%) of 400 level and 15(75%) of spillover respondents respectively. On the other hand, 12 (60%) of 200 level respondents of the same department indicated that they do not have computer skills, 9 (45%) of 300 level, 7 (35%)of 400 level and 5 (25%) of spillover respondents respectively. The result, therefore, shows that 47(58.75%) of the respondents do have computer skills while

33(41.25%) do have such ability. Abubakar further concluded that a significant proportion of the students of the tertiary institution have knowledge and skills on ICT but with no considerable familiarity with search engines, computer applications such as (desktop publishing, PowerPoint and word processing), using and cataloguing e-resources as well as media resources.

Furthermore, the findings from a research conducted by Wilson, Tete-Mensah and Boateng (2014) on the ability of tertiary students to make use of ICT facilities in their learning and research activities showed that the students have basic knowledge and skills in the use of a range of technologies, software and applications such as sending emails, chatting, Internet search and word processing. Wilson, Tete-Mensah and Boateng further concluded that tertiary students' ability in using ICT is one crucial factor which can help determine the success of ICT integration and use in higher institutions of learning in Africa.

Use of ICTs by Students in Universities

Computer versatility transformed our education from traditional face-to-face instruction into interactive classrooms. Since the 1960s, microcomputers have incorporated human beings in almost every way conceivable. Individuals moved from the physically driven industrial age into a computer-based civilization, the Information Age (Beekman, 2005). Computer technology has been incorporated into school curriculums, and its widespread use had led to significant school improvement and restructuring. In this Information Age, computer technology became a vital part of every classroom. Since technology has been commonly used in education for many years, it is active and proficient. Many persons, therefore, presumed that the efficiency of computer use in the

classroom would improve teaching and learning (Capron & Johnson, 2004). With the rising needs of our society, more individuals were using computer technology.

Computers and networks were changing our society rapidly and irrevocably. Jobs that are existing currently were eliminated by computerisation while new occupations were introduced by technology (Beekman, 2005). A technology revolution has led to a technological transformation; consequently, we can assume increasing changes will continue. Computer literacy is the capability to use computers and its technology. Because machines were adaptable, there was no single set of skills that allowed people to become computer literate. The growth of computer technology use in instruction has increased. Although many application programs use the software tools that allowed students to use a computer for specific purposes, many applications were too specialised and technical to be used except in a particular field (i.e., in science, government, business, and art) (Beekman, 2005).

The benefits that the students gained from utilising the computer and related technology are numerous. Typically, students could reach out to the information stored in a format that could be quickly reviewed and analysed. A well-designed computer-based system for data collection offered a unique capacity to provide essential information. Computers and related technology help motivate students to learn, to enjoy learning, and to want to learn more. Also, the use of computers by students included word processing, using a spreadsheet for data analysis, using a database for organising research data, using hypermedia for publishing works on the Internet, and using both the Internet and CD-ROMs for searching for information (UNESCO, 2003).

The Extent of Use of ICTs by Students in Universities

ICT use in education has become the standard across higher institutions where students have been recognized as stakeholders in its expansion and implementation. Universities and other higher institutions have showed that ICT has a commonly positive effect on the quality of instruction, though a few have been able to suggest detailed evidence (Fabunmi, 2012).

Today, a substantial number of skills with educational technology in tertiary institutions exist globally, particularly in advanced nations, which has led to in new prospects in the incorporation of pedagogical and technological resources, which has inflamed flexibility across the learning process. It has also improved the communication between teachers and students as well as the interaction between different educational resources. Oliver (2012) states that the use of ICT in tertiary institutions improves student-centred learning.

Chong, Sharaf and Daniel (2005) found out that most students in higher learning institutions use ICT regularly for standard computer packages such as word processing, spreadsheet, databases and internet services such as search engine. This is supported by Amanortsu, Dzandu and Asabere (2013), who found that students used computer slides presentation and reading materials from web sites. Interestingly, Chong, Sharaf and Daniel (2005) only discovered fewer students using higher-level skills activities such as evaluative (for instance, assignments, portfolio, testing), instructional (e.g. drill practice, tutorials, remediation), organizational (for example, database, spreadsheets, record keeping, lesson plans) and creative (for example, Desktop publishing, digital video,

digital camera, scanners, and graphics) as these activities required specialized knowledge and training in order to use it.

Computer usage by undergraduates has a great impact on their academic performance (Papastergiou & Solomonidou, 2005). Consistent students' use of computers is an essential part of the instructional process. Existing literature shows that students are increasingly encouraged in to use computers for assignments (Comber, Watling, Lawson, Cavendish, McEune & Paterson, 2012); although they gained ICT skills from home (Van Braak & Kavadias, 2015; Ruthven, Hennessy & Deaney, 2015) and greater use of ICT at home lessens students' level of anxiety (Basile & D'Aquila, 2012).

Empirical researches on the use of ICT by students of tertiary institutions can be noted. It can be gleaned from an investigation conducted by Bazer, Pardillo and Ruales (2012) on the availability and use of ICTs in Mindanao State University, Iligan Institute of Technology, Philippines that the most commonly used ICT tools used by students are word processors, web browsers and search engines, and email facilities. The students regularly use those tools since they are the ones virtually available and are the tools that are usually used for doing paper works, researches, reports, and other assignments. These findings are similar to the results of the study conducted by the OECD. Their survey found out that one-half of the respondents reported frequent use of internet and word processing because both of which have educational potentials (OECD, 2005). On the other hand, the least used ICT tools are desktop publishing, video editing software and social bookmarking. The reason might be because the teachers do not always require these tools in doing assignments, are challenging to use or manage, or require sophisticated skills.

Ibegwam's (2004) study showed that majority of students used internet to search for academic materials and visit other university websites. Ajuwon (2003) also found that students used these facilities to search for relevant information for their studies. In a survey conducted by Ojeniyi and Adetimirin (2013), they found that undergraduates used ICT for supporting their course work (93.1% in LCU and 97.2% in UI), independent learning (93.1% in LCU and 94.2% in UI) and project report (95.1% in LCU and 95.7% in UI). Others included examination, assignment, leisure and entertainment purposes. This result is expected because undergraduates have to search for information to complete homework, project report and study to have excellent academic result achievement. Ibegwam (2004) agreed that University of Lagos Medical students used ICTs for meeting their various educational needs. Raji and Godsy (2010) also found that students used the internet mostly for gathering information for assignments, to know exam results or notifications by a university, for sending and receiving emails, downloading music and for chatting. Rodríguez (2006) ascertained that a related academic activity was the primary purposes of using ICT in his conducted studies in Venezuelan university. Mahmood (2009) agreed that 85% per cent of students in a survey admitted that they use ICT for a related educational purpose which includes conducting researches, class assignment and others.

However, studies have been conducted on undergraduates in emerging and advanced countries to survey factors that affect ICT use and have found that gender, age, accessibility, academic discipline, ICT skill and income affect ICT usage (Salako & Tiamiyu, 2007; Corbett & Williams, 2012). Other studies found that Nigerian undergraduates are aware of the importance of ICT to attain their academic goals and

consequently use them (Emwanta & Nwalo, 2013; Adetimirin, 2009; Fabunmi, 2012; Nwezeh, 2010).

Again, Zakaria, Watson and Edwards (2010) researched the use of Web 2.0 technology by Malaysian students. The general viewpoint obtained about the integration of Web 2.0 tools into learning was positive. The result showed that students favoured the use of e-mail to send message. Similarly, it was found that students prefer to use search enginese to find information rather than asking friends or teachers. Maharana, Biswal and Sahu (2009) found that 77% of the students believed that ICT should be included in their syllabus. Almost all respondents voiced their desire to have a computer laboratotry in their college. Seventy-eight per cent opined that medical education is not adequate without ICT based resources and services.

Omiunu (2014) while reporting from a survey carried out on the utilization of ICT among human resource capitals in tertiary institutions, revealed that the reasons for the use of ICTs by staff and students were for academic research and research purpose which had the highest frequency of 100%, to enhance knowledge and self-development (81.0%), while 63% use ICT for personal use and shopping and social networking respectively. Also, very few of them (25.0%) used ICT for a social network. However, in the case of students, a higher percentage (72.3%) used ICT for personal tasks, which was higher than that of staff, 69.8% used ICT for a social network, which was also higher than that of a team. However, 65.8% used ICT to enhance their knowledge and self-development which is lower than that of the group, 55.3% used ICT for shopping, and only 37.8% used it for research purpose while only 36.5% used ICT for academic purpose. This supported the findings of Owolabi and Agboola (2010) which stated that

ICT has progressively become a priceless asset in education, as this findings revealed that, teachers and students used ICT for instruction and research, self-development, although, with lecturers having the highest.

The issue of the gender gap in ICT (ICT) usage is gaining ground and attracting the attention of academic researchers both internationally and locally. Mckenzie (cited in Ojeniyi & Adetimirin, 2013) succinctly noted that a gender difference towards ICT affects an individual's interest, attitude towards ICT and its use. If sex is related to computer and other ICT anxiety, then the issue of sex is so germane in this age when considering students' ability level in ICT usage.

Gender consideration continues to feature in research finding for quite a long time. Each time it comes up in research; the result has always been inconclusive, which is why questions like "is there any gender gap in ICT use?" will continue to re-echo as it was raised by Luchetta (2014). Ordinarily, the females will be portrayed as more likely than males to be plagued with computer anxiety. Some literature review by Luchetta showed that the gender gap is closing up and that significant difference exists where gender is considered alongside other variables like age, experience, exposure and so on. For example, no gender differences were found in an introductory computer course in a university setting, despite the author's expectation to the contrary (Barrier & Margivio, 2013).

Afolabi, Adedayo and Adeyanju (as cited in Fabunmi, 2012) analysed gender as a variable associated with the use of and attitudes about asynchronous learning networks (ALN) in a university setting. The authors found that both males and females made similar use of ALN, had identical (positive) attitudes about their computer experience,

and shared a common desire to take more courses using computers.

Recent studies have posited that there remains a gender imbalance on ICT use in tertiary institutions despite the significant growth of ICT in the education sector in past years (Hashim & Mustapha, 2014). This gender disparity has been partially blamed for both the scarcity of qualified ICT professionals, and the under-representation of some parts of the populace, particularly females (Trauth & Howcroft, 2014). Previous studies have stated that there is an pressing need to get women involved in the use of ICTs both as literate users and as professionals. This difficulties apply to institutions and nations as well as to students and individuals (Ojeniyi & Adetimirin, 2013).

Some studies have maintained that males are guided mainly by controlling propensities and stress self-assertion, self-efficacy, mastery, and evasion of uncertainty and vagueness (Chiu, Lin & Tang, 2005). According to Bandura (2004), self-efficacy is connected to perceived capability and may be defined as the belief that one has about ability to perform a specific behaviour. The trend that gender can control one's act suggests that the impact of self-efficacy and ICT usage intentions may be moderated by gender and such an impact is hypothesised to be stronger for male students than for females (Chiu, Lin & Tang, 2005).

As early as the 1980s, studies had reported that females displayed more negative views and perceptions towards the use of computers than males (Dambrot, Watkins-Malek, Silling, Marshall & Garver, 1985; Koohang, 1987). Studies reported in the literature over 20 years ago suggested that gender has had a mediating effect on attitudes and perceptions towards ICT, but it is imperative to note that ICT was an adequate term than when computers were mostly used for mathematical and word processing tasks but

today, machines are being used in various facets of life (Mahmood & Bokhari, 2012). The integration of computers and ICT into the education system has dramatically influenced the mindset towards technology. Though the literature demonstrates that extensive studies related to gender and attitudes towards ICT have been carried out over the years; such results may be irrelevant today due to the ever-expanding nature of the technology.

The argument over gender disparity that started since the 1980s continues in the new millennium. Though there is a general belief that computers and the Internet are male-dominated technologies. Many researchers have revisited this issue, and many are continuing to do so. For example, the study by Houtzand Gupta (2001) found significant gender disparity in the way females and males rated themselves in their ability to master technical skills. Although both genders were positive about their technological expertise, males rated themselves higher than females. Shashaani and Khalili (2001) also reported that female undergraduates had significantly lower self-confidence than males when it came to their capability to use computers. Females also reported feeling helpless, anxious and uncomfortable around computers.

Other studies have recognized that females tend to be less interested in computers than males and use them less often in their spare time (Schaumburg, 2011). Also, studies have established that girls are less confident than boys in their computer skills and that boys scored better than girls in computer-related knowledge and skills. Also, the three computer-related occupations are the top career choices for boys (Derbyshire, 2003). Bebetsos and Antoniou's (2008) and Kadel's (2005) studies also found that females have negative attitudes towards computers; as a result, they are often less computer literate

than males. Sefyrin (2005) stated that skills in ICT is related to interest in ICT, where men are more concerned about ICT then women.

Several studies demonstrate the existence of substantial gender differences in ICT abilities among students. For instance, Rajagopal and Bojin (2003) found gender disparity among male and female students. Their study revealed that 12 per cent of male students and 3 per cent of female students declared their skills in creating and editing web page as excellent whereas 35% of male students and 68% of female students reported that they do not have any knowledge in this area. However, in word processing, 59% and 46% of female students declared their skill as excellent, while 2% of the males and 6% of female students had no skill at all. This result would be at variance with the typical stereotype of women as typist if we were to equate word processing with word processing, a field where women have dominated.

Dorup (2014) in his study of Danish medical undergraduates, expounded that males had more favourable attitudes toward computers than female students. Male students manifested their desire to change traditional learning methods with better ICT. Dorup also found that females showed negative attitudes towards computers. Females had less experience in computer usage than males. There were also significant differences in computer literacy among males and females.

A research carried out by Meelissen (2005) showed that girls appear to have a lower self-efficacy than boys, particularly in more complex computer tasks. Meelissen's (2005) study revealed that irrespective of their gender, students could complete most of the everyday computing tasks. For less traditional and more advanced computer skills, such as sending an attachment via an e-mail, forwarding an e-mail, and downloading

programs or documents from the Internet, boys showed more self-efficacy than girls. TengkuFaekah (2005) found that male students have higher perceived ICT capability than females. Although, tasks such as handling computer hardware and carrying out computer maintenance are dominated by males (Atan, Azli, Rahman & Idrus, 2012).

Gender and ICT interact in complex ways, but on the average, males are more likely participate in ICT courses than their female counterparts (Withers, 2010). Fenwick (2014) also stated that gender disparity exists both in access to and skill of learning prospects with ICT. It is, yet, notable that gender disapirity are dependent on access and training. Schools can diminish gender parity by giving girls an opportunity to use technology in combination with learning (Krapp & Lewalter, 2011). When girls are given opportunity to work with computers and are trained at school as boys do, the gender gap will close (Okiki, 2011).

However, the research conducted by Mitra, Lenzmeier, Steffensmeir, Avon, Qu and Hazen (2012) on gender and computer use in an academic institution found that women had negative attitude towards computers are less likely to use computers than their male counterparts. This change is a throwback to the earlier days of computing when research established that women were less positively willing to use comupters than men.

Shashaani (2013) using a sample of 202 College students, found that male are more interested computers and more confident than females. It was also found that one semester of computer training improved their attitudes towards computers. Bello's (1990) study however, did not find any gender disparity in student's performance; Yusuf and Afolabi (2010) concluded that gender does not influence the academic performance of

male and female students exposed to Computer-Aided Instruction (CAI) either individually or co-operatively.

Remarkably, Agbatogun's (2014) found that with a global technological wave that is affecting every sector, everyone need to struggle passionately to be computer literate. Not only that, Onasanya, Shehu, Oduwaiye and Shehu (2015) stated that the attitude of male students towards the use of ICT in tertiary institutions in Nigeria is higher than female students and that female students were less interested in the use of ICT for learning than male students in the Humanities and Arts.

Perceived Ease of Use of ICTs by Students in Universities

For the past years, the degree of ICT usage globally has improved dramatically. For example, the web is used for several purposes. The accessibility of ICT, its ease of use and the many direct needs it can satisfy, have turned it into a critical actor socially and culturally in the 21st Century (Beno, 2009).

Nwosu and Ekukinam (2008) posited that 'perception' is noted as one of the various characteristics possessed by a man as one of the most vital to his ability to learn. Nwosu and Ekukinam further agreed that what is perceived depends on one's state of awareness, his knowledge of the factors related to the object of study. Davis (cited in Babalola & Babalola, 2014) perceived that ease of use also influences in a significant way people's attitude through two main mechanisms: self-efficacy and instrumentality. Self-efficacy is a concept advanced by Bandura in 1982. The idea explains that the more a system is easy to use, the higher would be the operator's sense of efficacy. Furthermore, a tool that is easy to use will make the user feel that he or she has control over what he or she is doing (Maurice, Charles & Ofori-Darko, 2012).

It can be noted that from 2010-2015, the literature on using ICT mainly focused on usage patterns, gender characteristics and intention of ICT usage and usage difficulties of ICT tools or facilities. In Nigeria, there is a noticeable gap in the literature on perceived ease of use as a variable. The variable of perceived ease of use of users towards the use of ICT has largely not been covered sufficiently by the literature.

In his observation, Akande (2011) posited that in tertary institutions where electronic books (e-books) were being used, students complained about having to scroll to find sections, about how long it took to navigate, and about the problems of reading from a laptop. According to Akande, students have always reported that the smaller screen of an e-book reader, designed for just this application, makes the books more difficult to read. Students did find the search feature of an e-textbook to be more suitable than the index of a paper textbook, but these same students still used the traditional book more than the e-book (Babalola & Babalola, 2014).

Recently, researchers have examined features that can possibly predict the perceived ease of use of the Web. The Graphic, Visualization, and Usability (GVU) Center at the Georgia Institute of Technology has conducted Web user surveys every six months since 2004 (Allen & Seaman, 2008). The results from the most recent study identified some essential ease of use problems. Most commonly cited was the slow speed of viewing Web pages. Other issues included is the inability to complete such tasks as finding a page that users knew existed, organising the pages and information they obtained, seeing a page once visited, and visualising where they had been and could go to find information. Furthermore, Allen and Seaman (2008) reported that respondents also cited slow data access as the problem that they detested most about the Web. They also cited challenges in searching for specific information, information clutter, time

delays due to images, the undependability of sites, and incomplete category searches.

Edmunds, Thorpe and Conole (2012) in their survey, made use of the questionnaire as the research instrument while the ANOVA was used to analyse the data. The results of the study revealed that the students surveyed perceive ICT as both more useful and easier to use during work-related activities, compared to study and social use. According to Edmunds, Thorpe and Conole, elements of enhanced control and a sense of personal ownership are also identified in the work setting. This may reflect a higher degree of consistent functionality in the programs used at work, such as Microsoft Word and Excel. There may also be more peer support at work thus increasing the sense of ease of use.

Also, Yang and Kwok (2017) conducted a study to examine the relationships among perceived ease of use, perceived usefulness and attitudes towards the use of ICT among polytechnic students. A total of 737 first-year students were chosen as the respondents, and the questionnaire was used to elicit responses from them. Data were analysed using qualitative and quantitative methods and the study revealed that there was a significant and positive correlation between perceived ease of use and attitude towards use of ICTs ($r = 0.65$, $p < .01$), and between perceived usefulness and position towards use of ICT ($r = .74$, $p < .01$), which was also shown in other studies (Alharbi & Drew, 2014; Alsamydai, 2014; Koch, Toker, & Brulez, 2011). The strengths of these correlations were considered significant based on Cohen's (1988) suggestion of $r > .50$.

Empirical Studies on Determinants of the Use of ICTs by Students in Universities

Odede and Enakerakpo (2014) conducted a survey on ICT skills and internet usage among Library and Information Science students in Delta and Edo States, Nigeria. The study used the descriptive survey design, and the systematic sampling technique was

used to get a sample of 238 regular undergraduate students of Library and Information Science in Delta State University, Abraka and Ambrose Alli University, Ekpoma. The questionnaire was used for collection of data. Data collected were analysed using both the descriptive and inferential statistics. The results from the study showed no significant relationship between the ICT skills possessed by the undergraduates of LIS Departments in Delta and Edo States and their internet usage. Thus, they further concluded that undergraduates of Library and Information Science Departments possess ICT skills and they make adequate use of the internet.

Another study was carried out by Usang, Archibong, Aji, Eyong, Edadi and Omeh (2018) on Assessment of influence of student perception,knowledge, and area of specialisation on ICT utilisationfor academic purposes in College of Health Technology, Calabar. The design adopted in the study was the survey design. The sample of the study was 390 students drawn from 6 departments of the College of Health Technology, Calabar. The instrument adopted for the study was a set of structured questionnaires consisting of 23 items. The data collected were analysed using the independent t-test statistical tool. However, the result of the study revealed that there is no significant influence on student perception of Information Communication Technology (ICT) on the use of ICT in the College of Health Technology, Calabar. The study further recommended that computer awareness and education at all levels should be encouraged while the application of ICT in academics, including in teaching and learning, should be emphasised, especially for students in Colleges.

Furthermore, Nilaranjan, Puspanjali and Narayana (2015) conducted a research to assess the information communication technology(ICT) skills of degree science students

of anautonomous college of Odisha. Survey method and questionnaires were used by the investigators to obtain all essential and relevant data from the students. A purposive sampling was used to select 130 science students. The descriptive statistics were used to analyse the collected data. The findings from the survey revealed that students' access internet in Cybercafe and frequently use Chat and Social Networking Services (Web-based services), but not a single student use Discussion Board/Forum. They further disclosed that students use blogs and have the ability to perform simple PC maintenance.

More so, Khan, Bhatti and Khan (2011) carried out a study on the use of ICT by students of the Faculty of Education at the Islamia University ofBahawalpur (IUB). A total of 200 questionnaires were administered on respondents and out of which 164 were retrieved. The study revealed that students access ICT at their departmental computer lab, classrooms, avail it at their university hostel, at net café and their friend's home. Also, the study revealed that a vast number of the students are quite confident in computer use including use of a mouse, keyboard, customising the desktop environment, window Installation, Word Processing, Microsoft Excel, Microsoft Access and Microsoft PowerPoint.

Oulmaati conducted another research, Ezzahri and Samadi(2017)on the use of ICT in the learning process among the students of History and Civilization at Abdelmalek Essaadi University, Morocco. The questionnaire was used as the research instrument for the survey. Two hundred four students in an amphitheatre were sampled for the study. Thus, 187 responses, which represent a return rate of 91.67%, were analysed for the study. To process the data collected, the software Sphinx V5 and Microsoft Office Excel 2010 were used to analyse the results of the investigation. However, the findings revealed

that the students had low access to the majority of the ICT equipment both within and off campuses. The study further concluded that there is an inequality in computers and Internet modems ownership, except that the majority of students have a Smartphone. Nevertheless, all students use Internet services daily at least one hour a day through 3G connection on their phones and the WIFI available in public places.

Appraisal of the Reviewed Literature

The studies on ICT use by students have a relatively short history spanning over three decades. Several aspects of students' interactions with ICTs, such as the extent of their accessibility, skilfulness, usage and ease of use of ICTs were touched in this study. However, there are several unexplored questions providing researchers with fertile grounds for future studies. Even at that, most of the previous studies were done in developed countries; hence, not many of them have been carried out in developing countries like Nigeria. More so, the literature revealed a mixed position on the current situation as it concerns the determinants of the use of ICTs by university students in general and very little research on the use of ICT by LIS students mainly from the Nigerian perspective. From the scarce literature available, many of them were obsolete and did not reveal the present status on the use of ICT by tertiary students. It is therefore imperative for the researcher to embark on this study as no substantial evidence of literature in Nigeria has been recorded concerning the determinants of the use of ICT by LIS students in universities in Southern Nigeria. This is the gap in knowledge that this study hopes to fill.

CHAPTER THREE

RESEARCH METHOD AND PROCEDURE

The methods and procedures used in conducting this research are described in this chapter. This wasdone under the following sub-headings:

Research Design

Population of the Study

Sample and Sampling Technique

Research Instrument

Validity of the Instrument

Reliability of the Instrument

Method of Data Collection

Method of Data Analysis

Research Design

The descriptive survey design was adopted for this study because it aims at collecting data on, and describing systematically, the characteristics, features and facts about the study; namely the determinants of the use of Information and Communication Technologies (ICTs) by Library and Information Science students in Southern Nigeria (Nworgu, 2006). According to Fraenkel and Wallen (2006), descriptive survey tends to describe the state of affair using a survey and it deals with numerical value or rather everything that can be counted and studied. Consequently, descriptive survey was suitable for this study since it involves conducting a survey and analysing numerical data.

Population of the Study

The population for this study was 6,249 regular undergraduates of Library and Information Science from the 12 universities in Southern Nigeria. The population for the study is as illustrated in Table 1.

Table 1:Population for the Study

S/N	Southern Nigerian Universities	Proprietor	Population
1	University of Ibadan (UI), Ibadan, Oyo State.	Federal Government	612
2	Abia State University (ABSU), Uturu, Abia State.	State Government	781
3	University of Nigeria (UNN), Nsukka, Enugu State.	Federal Government	638
4	Imo State University (IMSU) Owerri, Imo State.	State Government	633
5	University of Uyo (UNIUYO), Uyo, Akwa Ibom State.	Federal Government	529
6	Ambrose Alli University (AAU), Ekpoma, Edo State.	State Government	562
7	Delta State University (DELSU), Abraka, Delta State.	State Government	854
8	Madonna University (MU), Okija, Anambra State.	Private Ownership	121
9	Enugu State University of Technology (ESUT), Enugu State.	State Government	510
10	Babcock University (BU) Remo, Ogun State.	Private Ownership	341
11	Osun State University (OSU) Ire, Osun State.	State Government	237
12	University of Calabar (UNICAL) Calabar, Cross Rivers State.	Federal Government	431
Total			**6,249**

Sources: Joint Admissions and Matriculations Board Unified tertiary Matriculation Examination Brochure 2015/2016 Academic Session and Students Records of the 2015/2016 session sourced from the Departments of Library and Information Science in the respective universities.

Sample and Sampling Technique

The sample size for the study was 624 respondents. All the 12 Southern Universities that have Library and Information Science Departments made up the sample for the study. According to Baxter and Babbie (2004), a 10% of the respondents is

considered adequate for analysis and reporting since it is not possible to study the entire population when it is very large. Also, in order to avoid biased characteristics in the sample size and to ensure a higher confidence on the results, a simple proportion of 10% each from the students' population in the respective Library and Information Science Departments were sampled resulting in total sample size of 624 students.

However, the simple random sampling technique was adopted for the study. This was used in order to give the Library and Information Science students of the various tertiary institutions equal chance of being selected for the study. The sample size of this study is as shown in Table 2.

Table 2: Sample for the Study

S/N	Southern Nigerian Universities	Population	Sample (10% of population)
1	University of Ibadan (UI), Ibadan.	612	61
2	Abia State University (ABSU), Uturu.	781	78
3	University of Nigeria (UNN), Nsukka.	638	64
4	Imo State University (IMSU) Owerri.	633	63
5	University of Uyo (UNIUYO), Uyo.	529	53
6	Ambrose Alli University (AAU), Ekpoma.	562	56
7	Delta State University (DELSU), Abraka.	854	85
8	Madonna University (MU), Okija.	121	12
9	Enugu State University of Technology (ESUT), Enugu.	510	51
10	Babcock University (BU) Remo, Ogun State.	341	34
11	Osun State University (OSU) Ire, Osun State.	237	24
12	University of Calabar (UNICAL) Calabar, Cross Rivers State.	431	43
Total		**6,249**	**624**

Research Instrument

The questionnaire titled "Determinants of the Use of ICTs by Library and Information Science Students Questionnaire (DUILlSSQ) (see Appendix A, pg. 104) was used as the research instrument for this study to elicit information from the respondents

within the selected Library and Information Science departments. The questionnaire was divided into five (5) sections A - G. Section A covered the bio-data information of the respondents, Section B: Access to ICT Facilities by LIS students, Section C: the ICT skills possessed by LIS students, Section D: Extent to which LIS students are skilled on the use of ICTs, Section E: the use of ICTs by LIS students, Section F: Extent of use of ICT by LIS students; and Section G: Perception about the ease of use of ICTs by LIS students. The instrument is attached as Appendix A on page 104. The total for each scale was summed up and its mean responses calculated to determine the criterion mean which 2.50.

Validity of the Instrument

The instrument was constructed by the researcher and validated by the supervisors and other experts in the Department of Library and Information Science. All relevant suggestions/corrections such as the test items and matching these items with the research questions and hypotheses were taken into account in the preparation of a final copy of the study to ascertain the validity of the instrument. Thus, the content and construct validity of the instrument (DUILISSQ) were estimated using the factor analysis. The Principal Component Analysis (PCA) was used for processing the data. The Varimax Kaiser Normalization extraction method was utilized in estimating the content and construct validity. The content validity of each of the scales was shown by the total cumulative variance of all items. For instance, Access to ICT Facility Scale has 78.50% content validity while its construct validity was estimated with a rotated factor loading matrix which ranged between .20 and .89;ICT Skills scale has % content validity while its construct validity was estimated with a rotated factor loading matrix which ranged

between .30 and .85; Extent of ICTUsage scale has % content validity while its construct validity was estimated with a rotated factor loading matrix which ranged between .25 and .88.; Ease of ICT Usage scale has .27% content validity while its construct validity was estimated with a rotated factor loading matrix which ranged between .30 and .90.

Reliability of the Instrument

To establish the reliability of this instrument, the test-retest method of reliability was used to determine the consistency of the opinion of the respondents on "Determinants of the use of ICTs by Library and Information Science students Questionnaire (DUILISSQ)". The responses scale were pilot tested on a sample of 40 undergraduate students from the Department of Library and Information Science, Nnamdi Azikiwe University (NAU), Akwa, Anambra State (which was outside the scope of this study). 40 copies of the questionnaire were administered to the LIS students. After two weeks, same instrument were re-administered to the same group and the result was compared using Pearson's Product Moment Correlation Coefficient, *r*, (PPMC). A reliability coefficient of 0.73 was obtained and considered adequate for the study. A detailed copy of the reliability result is presented in Appendix B on page 96.

Method of Data Collection

Copies of the questionnaire were sent out to the target respondents in the 12 Library and Information Science Departments in the selected southern universities. The researcher employed the services of six (6) research assistants to administer the questionnaire one-on-one to the students.The copies of the questionnaire were immediately retrieved. This method was preferred so as to enable the researcher achieve a high response rate and to reduce overhead costs.

Method of Data Analysis

The study involved both research questions and hypotheses. In order to answer the research questions, the mean statistics was used. The standard used for judgment to determine the mean in the research questions was 2.50 (criterion mean) derived from the 4-point-scale. For the hypotheses, Pearson's Product Moment Correlation Coefficient was used to test hypotheses 1, 2 and 5. This is because these hypotheses were tested to find out the relationship between two variables (independent and dependent variables).

Hypothesis 3 was tested using independent sampled z-test. More so, the *z*-test analysis was adopted for testing hypothesis 3 because it is inferential statistical test that determines whether there is a statistically significant difference between the mean scores of two unrelated groups (male and female), which in this case refers to the mean scores of male and female LIS students.

The One Way Analysis of Variance (ANOVA) was used to test hypothesis 4, while Multiple Regression was used to test hypothesis 6.The alpha level of significance was set at $P \leq 0.05$. One Way Analysis of Variance (ANOVA) was employed in testing the hypotheses (I, II, III, IV and V) because according to Baxter and Babbie (2004), Analysis of Variance determines whether the means of the respondents (LIS students) are all equal.

However, the Multiple Regression Analysis was adopted for testing hypothesis VI so as to disclose the relationship existing among all the variables of the study. The rationale for using this analysis can be seen in the words of Pallant (2005) who stated that this method of analysis predicts the value of a variable (ICT usage) based on the value of two or more other variables (accessibility, skill and perceived ease of use).

CHAPTER FOUR

PRESENTATION OF RESULTS AND DISCUSSION

This chapter presents the results and discussion of findings in line with the research questions and hypotheses. It was discussed under five sections, which include: questionnaire response rate, analysis of the respondents' bio-data, answering of the research questions, testing the hypotheses anddiscussion of the findings.

Questionnaire Response Rate

Table 3: Questionnaire Response Rate

Southern Nigerian Universities	Number Administered	Number returned	% returned
University of Ibadan (UI), Ibadan.	61	61	100
Abia State University (ABSU), Uturu.	78	75	96
University of Nigeria (UNN), Nsukka.	64	64	100
Imo State University (IMSU) Owerri.	63	63	100
University of Uyo (UNIUYO), Uyo.	53	53	100
Ambrose Alli University (AAU), Ekpoma.	56	55	98
Delta State University (DELSU), Abraka.	85	85	100
Madonna University (MU), Okija.	12	12	100
Enugu State University of Technology (ESUT), Enugu.	51	51	100
Babcock University (BU) Remo, Ogun State.	34	34	100
Osun State University (OSU) Ire, Osun State.	24	24	100
University of Calabar (UNICAL) Calabar, Cross Rivers State.	43	43	100
Total	624	620	100

The total number of the copies of the questionnaire administered was six hundred and twenty-four (624) and a total number of six hundred and twenty (620) copies werecompleted and returned which constituted 99% as the questionnaire response rate.

The high response rate was due to the fact that the copies of the questionnaire were administered with the assistance of experienced research assistants. This high rate of response was considered adequate for the study.

Analysis of the Bio-data of the Respondents

Table 4: Gender of the Students

Gender	Frequency	Percentage (%)
Male	319	51.5
Female	301	48.5
Total	**620**	**100.0**

FromTable 4, there are more male students319 (51.5%,) than the female students 301 (48.5%,). This means that the male Library and Information Science students in universities in Southern Nigeria participated more in the study than their female counterparts.

Table 5: Institutions of the Respondents.

Institutions	Frequency	Percentage (%)
Ambrose Alli University, Ekpoma, Edo State	56	9.0
University of Uyo, Uyo, Akwa Ibom State	53	8.5
University of Ibadan, Ibadan, Oyo State	61	9.8
University of Nigeria, Nsukka, Enugu State	19	3.0
Madonna University, Okija, Anambra State	12	1.9
Enugu State University of Technology, Enugu State	99	16.0
Osun State University, Ire, Osun State	24	3.9
Delta State University, Abraka, Delta State	77	12.4
Babcock University, Remo, Ogun State	35	5.6
Abia State University, Uturu, Abia State	80	12.1
Imo State University, Owerri, Imo State	63	10.2
University of Calabar, Calabar, Cross Rivers State	43	6.9
Total	**620**	**100.0**

Table 5shows the institutions of the students that participated in the study. It revealed that there are more students 116 (19.7%) from Enugu State University of Technology. This is followed by Abia State University80 (12.1%), Delta State University77 (12.4%) and University of Ibadan (61, 9.8%).

Answering of the Research Questions

This section was on the analysis of data to answer the research questions raised in chapter one.

Research Question One:

What is the level of accessibility of ICT facilities among Library and Information Science students in universities in Southern Nigeria?

Table 6 shows the accessibility to ICT facilities by LIS students in the universities:

Table 6: Level of Accessibility to ICT Facilities by LIS Students in SouthernUniversities

ICT Facilities	N	SD
Electronic photocopiers	3.00	1.095
Cellular phones (GSM)	3.49	.676
Printers and plotters	2.98	1.049
Duplicating machines	3.16	1.115
Audio tapes and Discs	2.66	1.078
Computers	2.97	1.151
Scanners	2.61	1.150
Close circuit television (CCTV)	2.34	1.114
Satellite dish	2.11	1.117
Television sets	3.08	.836
Video conferencing facility	2.17	1.100
Multimedia projectors and slides	3.07	1.036
Telecom facility	2.03	.853
Digital cameras	2.87	1.038
Fax (facsimile) machines	1.95	.847
Overhead projectors and transparencies	2.74	1.107
Internet facilities	2.64	1.211

Aggregate Mean = 2.69

Criterion Mean = 2.50

Table 6shows that with an aggregate mean of 2.69, which is higher than the criterion mean of 2.50, it can be concluded that Library and Information Science students have high access to ICT facilities in universities in Southern Nigeria.

Research Question Two:

What are the ICT skills possessed by Library and Information Science students in universities?

Table 7 Shows the ICT skills possessed by Library and Information Science students.

ICT Skills Possessed	Agree		Disagree	
	Freq.	**%**	**Freq.**	**%**
Proficient in the use of computer	457	73.7	163	26.3
Knowledge of database structures	73	11.8	547	88.2
Knowledge of electronic formats e.g. PDF, JPEG.	303	48.9	317	51.1
Working in an interactive platforms e.g. video conferencing , BBS, LISTSERV, Chat room etc	168	27.1	452	72.9
Online acquisition procedures/techniques	79	12.7	541	87.3
Online navigation techniques	10	1.6	610	98.4
Use of electronic library tools e.g. CD-ROM, OPAC, Subject gateway etc	123	19.8	497	80.2
Working in a network environment	115	18.5	505	81.5
Use of internet telephone	17	2.7	603	97.3
Installation of computer system/ application software e.g. Microsoft windows XP ,Linux, Microsoft office, CorelDraw etc	132	21.3	488	78.7

Information on the ICT skills possessed by Library and Information Science students in the Universities under this study is shown in Table 7. As shown in the Table, majority of the respondents agreed that the only ICT skills they possessed is proficiency in the use of computer457 (73.7%).

Research Question Three:

To what extent are Library and Information Science students in the universities skilled on the use of ICTs?

Table 8: Extent to which LIS Students are Skilled on the Use of ICT Facilities

Students' ICT Skills	N	SD
Proficient in the use of computers	3.02	1.017
Knowledge of database structures	1.79	.632
Knowledge of electronic formats e.g. PDF, JPEG	2.55	1.128
Working in an interactive platforms e.g. video conferencing, BBS, LISTSERV, chat rooms etc	1.99	.817
Online acquisition procedures/techniques	1.77	.659
Online navigation techniques	1.52	.537
Use of electronic library tools e.g. CD-ROM, OPAC, subject gateway etc	1.85	.867
Working in a network environment	1.83	.717
Use of internet telephone	1.49	.644
Installation of computer systems/application software e.g. Microsoft windows XP, Linux, Microsoft Office, CorelDraw etc	1.85	.878

Aggregate Mean = 1.96

Criterion Mean = 2.50

Table 8 shows that with an aggregate mean of 1.96 which is less than the criterion mean of 2.50, it can be concluded that the extent to which Library and Information Science students in Southern universities are skilled on the use of ICTs is low.

Research Question Four:

What is the use of ICTs to Library and Information Science students in the universities?

Table 9: Use of ICTs to Library and Information Science Students

Use of ICTs	Agree		Disagree	
	Freq.	**%**	**Freq.**	**%**
To download	383	61.8	237	38.2
To play games	416	67.1	204	32.9
To watch movies online	345	55.6	275	44.4
For social networking	483	77.9	137	22.1
For academic discussions	70	11.3	550	88.7
For academic work once in a session	36	5.8	584	94.2
For academic work once in a semester	78	12.6	542	87.4
For school registration (cafe's work)	477	76.9	143	23.1
For academic work once in a month	82	13.2	538	86.8
For academic work on daily basis	140	22.6	480	77.4
I don't use it throughout the sessions in the school	351	56.6	269	43.4
For academic work at least once in a week	36	5.8	583	94.0
For assignment	79	12.7	541	87.3

Table 9 reveals the use of ICTs by students of Library and Information Science in Universities under this study. As revealed in the Table, majority of the respondents agreed that they use ICTs: to download 383 (61.8%), to play games 416 (67.1%), to

watch movies online 345 (55.6%), for social networking 483 (77.9%) and for school registration 477 (76.9%),

Research Question Five:

What is the extent of use of ICTs by students of Library and Information Science in the universities?

Table 10: Extent of Use of ICT Facilities byLIS Students in the Universities

Use of ICT Facilities	M	SD
To download music	2.81	1.070
To play games	2.90	1.001
To watch movies online	2.67	1.071
For social networking	3.15	1.026
For academic discussions	1.67	.760
For academics once in a session	1.68	.671
For academic work once in a semester	1.65	.773
For school registration(café's work)	2.96	.964
For academic work once in a month	1.74	.798
For academic work on daily basis	1.81	1.049
I don't use it through the session in the school	2.54	1.164
For academic work at least once in a week	1.52	.608
For assignments	1.50	.711

Aggregate Mean 2.20

Criterion Mean = 2.50

Table 10pinpoints that with an aggregate mean of 2.20, which is lesser than the criterion mean of 2.50, it can be concluded that the extent of use of ICTs by Library and Information Science students in the universities is low.

Research Question Six:

What is the perceived ease of ICT usage among Library and Information Science students in the universities?

Table 11: Perceived Ease of Use of ICTs by Library and Information Science Students in Southern Universities

Perception towards Ease of Use of ICTs	Agree		Disagree	
	Freq.	%	Freq.	%
I feel satisfied using ICTs	297	47.7	320	51.6
ICTs are easy to use to find online information	318	50.9	301	48.2
ICTs are user-friendly	250	40.0	369	59.0
Using ICTs presents a feeling of certainty	309	49.4	311	49.8
It is easy to learn how to use ICTs	284	45.4	333	53.3
I am confident about completing assignments through the use of ICTs	268	42.9	350	56.0
I am comfortable surfing through the web	334	53.4	285	45.6
I am at ease with ICT technicalities	413	66.1	202	32.3
It is easy to connect the web using ICTs	363	58.1	251	40.2
I am disappointed whenever I use ICTs	324	51.8	194	31.0
I feel at ease using ICTs	346	55.4	223	36.0

Table 11 reveals information on the perceived ease of use of ICTs among Library and Information Science Students in universities in Southern Nigeria. It was revealed in the Table that; the feeling that ICTs are easy to use to find online information 318 (50.9%), comfort surfing through the web 334 (53.4%), feeling at ease with ICT technicalities 413 (66.1%), easy to connect the web using ICTs 363 (58.1%) and feeling

at ease using ICTs 346 (55.4%) are the perception of the students toward the use of ICTs in universities in Southern Nigeria.

Testing ofthe Hypotheses

The hypotheses tested were made possible from the data generated from six hundred and twenty (620) respondents.

Hypothesis One:

There is no significant relationship between accessibility and use of ICTs among Library and Information Science students in universities in Southern Nigeria.

In order to test hypothesis one, the Pearson'sProduct Moment Correlation wasadopted. The results of the data analysis are presented in Table 12.

Table 12: Correlation on the Relationship between Accessibility and use of ICTs among Library and Information Science Students

		Accessibility	Use of ICTs
Accessibility	Pearson Correlation	1	-.052
	Sig. (2-tailed)		.192
	N	620	620
Use of ICTs	Pearson Correlation	-.052	1
	Sig. (2-tailed)	.192	
	N	620	620

α =0.05

Data in Table 12 reveals the correlation between accessibility and use of ICTs among Library and Information Science students in universities in Southern Nigeria. The result reveals that the correlation coefficient r is -.052 while the significant level is .192 which is greater than the alpha level of 0.05. Therefore, the null hypothesis stating that there is no significant relationship between accessibility and use of ICTs among Library and Information Science students in universities in Southern Nigeria is accepted. The conclusion is reached that, accessibility does not significantly influence the use of ICTs among students in universities in Southern Nigeria.

Hypothesis Two:

There is no significant relationship between skills and use of ICTs among Library and Information Science students in universities in Southern Nigeria.

In order to test research hypothesis two, the Pearson's Product Moment Correlation was adopted. The results of the data analysis are presented in Table 13.

Table 13: Correlation on the Relationship between Skills and use of ICTs among Library and Information Science Students

		Skills	Use of ICTs
Skills	Pearson Correlation	1	.245**
	Sig. (2-tailed)		.000
	N	620	620
Use of ICTs	Pearson Correlation	.245**	1
	Sig. (2-tailed)	.000	
	N	620	620

α =0.05

Table 13 reveals the relationship between skills and the use of ICTs among Library and Information Science students in universities in Southern Nigeria. The result reveals that the correlation coefficient r is .245 while the significant level is .000 which is lesser than the alpha level of 0.05. Therefore, the null hypothesis stating that there is no significant relationship between skills and use of ICTs among Library and Information Science students in universities in Southern Nigeria is rejected. The conclusion is drawn that the level of ICT skills possessed by students has a significant influence on their use ICTs in universities in Southern Nigeria.

Hypothesis Three:

There is no significant difference between gender and use of ICTs among Library and Information Science students in universities in Southern Nigeria.

In order to test research hypothesis three, the z-test analysis was adopted. The results of the data analysis are presented in Table 14.

Table 14: Z-test on the Relationship between Gender and use of ICTs among Library and Information Science Students

Gender	N	$\overline{X}$	SD	Df	Cal-z value	Sig	MD
Male	301	28.7641	5.49917	620	-0.68	.2483	0.3597
Female	319	28.4044	5.51523				

α =0.05

As shown in Table 14, the computed z-value of -0.68 was found not to be significant at .2483 which is higher than the alpha level of 0.05. Therefore, it was concluded that there is no significant difference between the mean score and standard deviation for male (M=28.7, SD=5.4)and female (M=28.4, SD=5.5) students in the use of ICTs. Therefore, the null hypothesis which states that there is no significant difference between gender and use of ICTs among Library and Information Science students in universities in Southern Nigeria was accepted. The conclusion was drawn that there is no significant difference in the extent of use of ICTs by male and female Library and Information Science students in the universities in Southern Nigeria.

Hypothesis Four:

There is no significant difference between institutions and the use of ICTs among Library and Information Science students in universities in Southern Nigeria.

In order to test research hypothesis four, the Analysis of Variance (ANOVA) was adopted. The results of the data analysis are presented in Table 15 and 16.

Table 15: ANOVA on theInstitutions and the use of ICTs among Library and Information Science Students

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	4450.471	11	404.588	17.184	.000
Within Groups	14314.656	608	23.544		
Total	18765.127	619			

Table 15 shows the ANOVA on the significant difference in the institutions and the use of ICTs among Library and Information Science Students. It was shown that there is a statistically significant difference [F(11, 608) = 17.684, p = 0.000] in institution of studies and the use of ICTs among students in universities in Southern Nigeria. Therefore, the null hypothesis stating that there is no significant difference between institutions and the use of ICTs among Library and Information Science students in universities in Southern Nigeria is rejected. The conclusion was drawn that a statistically significant difference exists in the institutions used for this study and their use of ICTs among Library and Information Science students.

Table 16: Turkey Post Hoc Test on the significant difference among Institution of Studies and the use of ICTs among Students in Universities in Southern Nigeria

(I) Institution	(J) Institution	Mean Difference (I-J)	Sig.	95% Confidence Interval	
				Lower Bound	Lower Bound
Ambrose Alli University	Abia State University	-6.43487*	.000	-9.8960	-2.9738
	Babcock University	-6.43487*	.000	-9.8960	-2.9738
	Imo State University	-3.31349*	.012	-6.2372	-.3898
	University of Nigeria	-5.42582*	.000	-8.2141	-2.6375
Delta State University	Abia State University	-6.66886*	.000	-9.1867	-4.1510
	Babcock University	-7.67791*	.000	-10.9251	-4.4307
	University of Ibadan	-3.48601*	.001	-6.1777	-.7943
	Imo State University	-4.55652*	.000	-7.2236	-1.8895
	University of Nigeria	-7.97294*	.000	-10.6282	-5.3177
	Osun State University	-4.70732*	.002	-8.4019	-1.0127
	University of Calabar	-3.97476*	.001	-6.9721	-.9774
University of Uyo	Babcock University	-6.71587*	.000	-10.2138	-3.2179
	Abia State University	-5.70682*	.000	-8.5407	-2.8730
	University of Nigeria	-7.01091*	.000	-9.9675	-4.0543
	Imo State Univertsity	-3.59449*	.004	-6.5617	-.6273
Babcock University	University of Ibadan	4.19190*	.004	.7848	7.5990
	Madonna University	6.63725*	.003	1.2919	11.9826
	University of Calabar	3.70315*	.044	.0497	7.3566
	Enugu State University of Technology	4.89059*	.000	1.3519	8.4293
University of Ibadan	Abia State University	-3.18285*	.008	-5.9038	-.4619
	University of Nigeria	-4.48694*	.000	-7.3355	-1.6384
Abia State University	Madonna University	5.62821*	.011	.6918	10.5646
	Enugu State University of Technology	3.88154*	.001	.9975	6.7656
University of Nigeria	Imo State University	3.41642*	.005	.5911	6.2418
	Madonna University	6.93229*	.000	1.9244	11.9402
	University of Calabar	3.99818*	.002	.8592	7.1372
	Enugu State University of Technology	5.18563*	.000	2.1809	8.1904
Enugu State University	University of Uyo	4.80563*	.000	2.1356	7.4756

*. **The mean difference is significant at the 0.05 level.**

Data in Table 16 reveals the comparison of the group meanof institution of studies and the use of ICTs among Library and Information Science students using Tukey r post

Hoc test. As revealed in the Table,a significant difference exists in the institution of studies between Abia State University and Madona University. A statistically significant difference also exists between Ambrose Alli University and other institutions such as Abia State University, Babcock University, Imo State University and Enugu State University of Technology. Significant difference also exist between Delta State University and other institutions such as Abia State University, Babcock University, Imo State University, Enugu State University of Technology, University of Ibadan, Osun State University and University of Calabar in the use of ICTs among Library and Information Science Students. It was also revealed from Table 14 that a statistically significant difference exists between University of Uyo and other institution of studies such as Abia State University, Imo State University and Enugu State University of Technology in the use of ICTs among Library and Information Science Students. The use of ICTs among Library and Information Science students in Babcock University also statistically differs from students of University of Ibadan and Madona University. That of University of Ibadan also statistically differs from that of Abia State University in the use of ICTs among Library and Information Science students in Southern Nigeria. It was also revealed from Table 14that a statistically significant difference exists between Enugu State University and University of Uyo in the use of ICTs among students in universities in Southern Nigeria.

Hypothesis Five:

There is no significant relationship between perceived ease of use and ICT usage among Library and Information Science students in universities in Southern Nigeria.

In order to test research hypothesis five, the Pearson's Product Moment Correlation was adopted. The results of the data analysis are presented in Table 17.

Table 17: Correlation on the Relationship between Perceived Ease of Use and use of ICTs among Library and Information Science Students

		Ease of Use	Use of ICTs
Ease of Use	Pearson Correlation	1	.468**
	Sig. (2-tailed)		.000
	N	620	620
Use of ICTs	Pearson Correlation	.468**	1
	Sig. (2-tailed)	.000	
	N	620	620

Table 17 reveals the relationship between perceived ease of use and the use of ICTs among Library and Information Science students in universities in Southern Nigeria. The result reveals that the correlation coefficient r is .468, while the significant level is .000 which is lesser than the alpha level of 0.05. Therefore, the null hypothesis stating that there is no significant relationship between perceived ease of use and use of ICTs among Library and Information Science students in universities in Southern Nigeria is rejected. The conclusion is drawn that perceived ease of use of students have a significant influence on their use of ICTs in universities in Southern Nigeria.

Hypothesis Six:

There is no significant relationship among accessibility, skills, perceived ease of use and ICT usage among Library and Information Science students in the universities in Southern Nigeria.

In order to test research hypothesis six, Multiple Regression Analysis was adopted. The results of the data analysis are presented in Table 18, 19 and 20.

Table 18:Multiple Regression on the Relationship among Accessibility, Skills, Perceived Ease of Useand ICT Usage among Library and Information Science Students.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.474[a]	.224	.220	4.86127

Table 19:ANOVA on the Significant Relationship among Accessibility, Skills, Perceived Ease of Use and ICT Usage among Library and Information Science Students.

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
	Regression	4207.876	3	1402.625	59.353	.000[b]
	Residual	14557.251	616	23.632		
	Total	18765.127	619			

Table 20: Coefficients on the Significant Relationship among Accessibility, Skills, Perceived Ease of Use and ICT Usage among Library and Information Science Students.

Coefficients[a]

Model		Unstandardized Coefficients	Standardized Coefficients	T	Sig.
		B	Std. Error	Beta	
1	(Constant)	17.816	2.057		8.661
	Accessibility	-.030	.038	-.028	-.779
	Extent of ICT Skills	-.101	.053	-.087	-1.892
	Ease of Use	.818	.072	.522	11.346
	(Constant)	17.816	2.057		8.661

Table 18 to 20 reveals the significant relationship among accessibility, skills, perceived ease of use and ICT usage among Library and Information Science students in the universities in Southern Nigeria. Table 18 revealed that the R value which represents the multiple correlation is .474 (.474×100=47.4%) and this indicates a positive correlation between the variables. Also, from Table 18, the R^2 value which represent how much of the total variation of the dependent variable (use of ICTs) can be explained by the independent variables (accessibility, skills and perceived ease of use) is .224 (.224×100= 22.4%) and this can also be explained to be a positive relationship. The conclusion drawn increase or decrease in the independent variables lead to a corresponding increase or decrease in the dependent variable.

Taking a look at the regression row from Table 19 where we have the significant level ($p<0.000$) which is lower than 0.05. This indicates that the regression model statistically/ significantly predicts the outcome variable.

Therefore, the null hypothesis which states that there is no significant relationship among accessibility, skills, perceived ease of use and ICT usage among Library and Information Science students in the universities in Southern Nigeria is rejected, indicating a positive statistically significant relationship amongaccessibility, skills, perceived ease of use and ICT usage among Library and Information Science students in the universities in Southern Nigeria.

Discussion of the Findings

This section is devoted to the discussion of the research findings from the study in line with the research questions answered and hypotheses that were tested in the previous sections.

Accessibility of LIS students to ICT facilities in Southern Nigerian Universities

The findings from this study revealed that Library and Information Science students have high access to ICT facilities in universities in Southern Nigeria. As revealed from the findings of the study, the students of Library and Information Science have access to ICT facilities such as electronic photocopies ($\bar{x}$, 3.00), cellular phones ($\bar{x}$, 3.49), printers and plotters ($\bar{x}$, 2.98), duplicating machines ($\bar{x}$, 3.16), audio tapes and discs ($\bar{x}$, 2.66), computers ($\bar{x}$, 2.97), scanners ($\bar{x}$, 2.61), television sets ($\bar{x}$, 3.08), multimedia projectors and slides ($\bar{x}$, 3.07), digital cameras ($\bar{x}$, 2.87), overhead projectors and transparencies ($\bar{x}$, 2.74) and internet facilities ($\bar{x}$, 2.64). This finding is in agreement with that of Dorup(2014),which found that most students have access to computers in their dormitories inside the campus as well as uses the internet regularly, which is an important requirement for supporting networking for students and lecturers, as well as for collaborative learning. Dorup further concluded that students who did not have access to computers and the Internet technology were likely to get further behind their peers who did have such access.

This finding supports that of Afari-Krumah and Tanye (2009) on students' views of ICTs usage which revealed that, out of the 100 respondents, 52 do not have a place to access the computer and 48 respondent shad a place of access. Out of the 48 who had a place of access, 17 had access to computers in cybercafé, 1 had computer access at the work place, 6 at the University, 8 had access to their roommates' computers, 5 had computer access at the university's ICT centre, 3 had access to a computer either in cybercafé, or at workplace, and the university, and finally 8 had access to computers at home.

The finding also buttressed that of Oriogu, Ogbuiyi and Ogbuiyi (2014) which revealed that majority of the respondents were of the opinion that the highly accessible ICT facilities include computers (87.9%), internet services (87.9%), photocopier machines (86.8%) and printers (69.9%).

ICT skills possessed by Library and Information Science students

The finding revealed that Library and Information Science students possess only one skill out of the numerous ICT skills presented before them. The conclusion drawn that the students do possess lowskilled in the use of ICTs in their educational pursuit. The finding is in support of the assertaion made by Keengwe (2007) that in spite of the widespread availability of computers on college campuses, students lack various computer skills necessary to support and enhance their learning experiences. The finding also corroborates that of McIlroy, Sadler and Boojawon (2007) which revealed that many students continue to report high computer phobia and low use of ICTs.While some educators hold the perception that students are becoming progressively more computer literate, some researchers have found a significant discrepancy between perception of computer skill levels and the reality of lower competence. If students are becoming progressively more computer capable, the content and depth of college-level computer applications courses should be adjusted appropriately (Wallace & Clariana, 2005).

Extent to which LIS Students are Skilled on the Use of ICTs

The finding from this study revealed that the extent to which Library and Information Science students in Southern universities are skilled on the use of ICTs is low. This finding corroborates that of Abubakar(2010) that some students entering tertiary institutions lack even a basic Information and Communication Technology (ICT)

skill, manifesting in a fear of the technology. It also corroborates that of Obuh (2010) which noted that there is a low level of skilfulness in the use of ICT facilities among students of Nigerian universities.Also, the finding is in agreement with the one by Amoda and Odunaike (2014) that students in Nigerian tertiary institutions are not competent in basic computer operations and in the use of generic software.

Use of ICTs by Students in Universities

The finding indicated that Library and Information Science students use ICTs to download, to play games, to watch movies online, for social networking and for school registration. The finding further buttressed the view of Beekman (2005) that computer versatility has transformed the education sector from traditional face-to-face instruction into interactive classrooms. Since the 1960s, microcomputers have encompassed human beings in nearly every way possible. People moved from the physically driven Industrial Age into a computer-based society, the Information Age. He went further to emphasis that computer technology has been integrated into school curriculums and its wide spread use had led to major school reform and restructuring.

The finding is also in support of that of UNESCO (2008) that the benefits the students gained from utilizing the computer and related technology are numerous. Typically, students could reach out to the information stored in a format that could be quickly reviewed and analysed. A well-designed computer based system for data collection offered a unique capacity to provide essential information. Computers and related technology help motivate students to learn, to enjoy learning, and to want to learn more. In addition, the use of computers by students included word processing, using a spreadsheet for data analysis, using a database for organizing research data, using

hypermedia for publishing works on the Internet, and using both the Internet and CD-ROMs for searching for information.

Extent of ICT Usage among LIS Students in Southern Nigerian Universities

The finding from this study revealed that male LIS students used ICT in the universities more than their female counterparts. It was also revealed that the extent of use of ICT by male and female Library and Information Science students in the universities is high. This finding is in line with that of Bazer, Pardillo and Ruales (2012) that the most commonly used ICT tools by students are word processors, web browsers, search engines and email facilities. According to Bazer, Pardillo and Ruales, these tools are commonly used by the students since they are the ones virtually available and are the tools that are usually used for doing paper works, researches, reports, and other assignments hence, their usage is high.

Perceived Ease of ICT Usage among LIS Students in the Southern Nigerian Universities

The finding from this study revealed that the perceived ease of use of ICTs by Library and Information Science students in Southern universities is high. This finding is in line with Beno's (2009) statement that the availability of ICT, its ease of use and the numerous immediate needs it can meet, have turned it into a key player culturally and socially in the 21st Century.The finding is also in agreement with that of Babalola and Babalola (2014) citing Davis (1986) that perceived ease of use influences in a significant way, the attitude of a student through two main mechanisms: self-efficacy and instrumentality.

Relationship between Accessibility and Use of ICT facilities by students in Southern Nigerian Universities

From the result of testing hypothesis I, there is no significant relationship between accessibility and use of ICTs among Library and Information Science students in universities in Southern Nigeria. This finding supports the one by Oriogu, Ogbuiyi and Ogbuiyi (2014) which revealed that majority of the respondents were of the opinion that the ICT facilities were highly accessible; ranging from computers,internet, photocopier machines,e-mail, network, printers and UPS.It was also reported in their study that CD-ROMs, scanners and projectors were not accessible by students of the university because of their unavailability.

In another survey conducted by Wilson, Tete-Mensah and Boateng (2014) on the ability of tertiary students in a university in Ghana to use a wide range of ICT devices to support their personal learning, revealed that students had access to a variety of technologies. The results showed that it was only mobile phones that more than half of the respondents indicated they had access to. Thus, access to most of the technologies was very low among the students. The findings also indicated that majority of the respondents had access to PC or laptop while some of them did not have any access to technologies in the University, although access to digital cameras was limited also.

Relationship betweenSkills and the Use of ICTs among LIS students in Universities

The result of testing hypothesis II revealed that there is a significant relationship in Library and Information Science students' ICT skills and their use of ICTs in universities in Southern Nigeria. This is in support with the findings of Abubakar (2010) which revealed that the students do have computer skills. Thus, Abubakar (2010) stated

that a significant proportion of the students of the tertiary institutions have knowledge and skills on ICT but with no significant familiarity with search engines, computer applications such as (Desktop Publishing, PowerPoint and Word Processing), using and cataloguing e-resource as well as media resources.

Furthermore, it agrees with the findings of Wilson, Tete-Mensah and Boateng (2014) which showed that students have basic knowledge and skills in the use of a range of technologies, software and applications such as sending mails, chatting, Internet search and word processing. Wilson, Tete-Mensah and Boateng further concluded that tertiary students' ability in using ICT is one important factor which can help determine the success of ICT integration and use in higher institutions of learning in Africa.

Difference between Gender and Use of ICTs among LIS Students in Southern Nigerian Universities

The result of testing hypothesis III using the *z*-test statistic revealed that there is no significant difference in the extent of use of ICTs by male and female Library and Information Science students in universities in Southern Nigeria which is in line with the one by Hashim and Mustapha (2014) that, there remains a gender imbalance on ICT use in tertiary institutions despite a significant growth of ICT in the education sector in recent years. This gender imbalance has been partly blamed for both the shortage of qualified ICT professionals, and the under-representation of some segments of the population, mostly females (Trauth & Howcroft, 2014). This challenge applies to institutions and nations as well as to students and individuals (Ojeniyi & Adetimrin, 2013). When genders stick to alternative sex roles, individuals with stronger feminine or masculine identities makes different ICT usage decisions accordingly.

Relationship between the Perceived Ease of Use and ICT Usage among LIS Students in the Southern Nigerian Universities

From the finding arising from testing hypothesis V using ANOVA, which states that there is a significant relationship between the perceived ease of use and ICT usage among Library and Information Science students in universities in Southern Nigeriais not in line with that of Mahmood and Bokahari's (2012) study that gender has had a mediating effect on attitude and perception towards ICT but it is important to note that ICT was an adequate term then when computers were mostly used for mathematical and word processing tasks but today, computers are used in various facets of life. According to Mahmood and Bokahari, the integration of computer and ICT into the education system has greatly influenced the mindset towards technology.

Relationship among Accessibility, Skill, Perceived Ease of Use and ICT Usage among LIS students in Southern Nigerian universities

The result from testing hypothesis VI using multiple regression revealed that there is a significant relationship among accessibility, skills, perceived ease of use and ICT usage among Library and Information Science students in the universities in Southern Nigeria.From this study, it was gathered that although there is a significant relationship among the variables of interactions, the level of significance is low. This may be because other variables can influence ICT usage among LIS students in Southern Nigeria universities. This finding is in agreement with that of Umeagukwu and Etuh (2014) that, although LIS students' skilfulness and perceived ease of use may affect their ICT usage, other factors such as gender can also affect use of ICT among LIS students in the universities.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

This chapter focuses on the summary of the study, conclusion, recommendations and contribution to knowledge.

Summary of the Study

The study was carried out to explore the determinants of the use of Information and Communication Technologies by Library and Information Science students in universities in Southern Nigeria.Four research questions and six hypotheses were raised to guide the research. The theoretical framework of the study hinged on the concept of Technology Acceptance Model (TAM) of Davis (2003) upon defining and identifying the similarities of the variables present in these models as direct determinants of student acceptance and usage behaviour amongst which includes accessibility, skills, ease of use amongst others as correlates of LIS students' use of ICTs in universities in Southern Nigeria. Also, literature on several aspects of students' interactions with ICTs such as accessibility, extent of usage, extent of skilfulness and perceived ease of ICT usage were reviewed exhaustively in this study.

More so, the research was successfully carried out and completed with the aid of a questionnaire (the research instrument) which was administered to 624 Library and Information Science students in 12 universities in Southern Nigeria which were used as the sample for the study. Thus, the research design employed was the descriptive survey design. The study employed the Cronbach Alpha Method of Internal Consistency to determine the reliability of the instrument.

The bio-data of the respondents were analysed using simple percentage and frequency count. Based on the data collected, in order to answer the research questions, the mean statistics was usedwhile Z-test, ANOVA and multiple regression were used to test the hypotheses. Consequently, based on the results from the study, the following findings were summarized:

(1) LIS students in universities in Southern Nigeria have high access to ICT facilities.

(2) Skill possess by students in universities in the use of ICTs is low.

(3) The extent to which LIS students in Southern universities are skilled on the use of ICTs is low.

(4) The students use ICTs to download music, play games, watch movies online, for social networking and for school registration.

(5) The extent of use of ICTs by LIS students in universities in Southern Nigeria is high.

(6) Perceived ease of ICT usage by LIS students in universities in Southern Nigeria is high.

(7) There is no significant relationship between accessibility and use of ICTs among LIS students in universities in Southern Nigeria.

(8) There is a significant relationship betweenLIS students' ICT skills and their use of ICTs in universities in Southern Nigeria.

(9) There is no significant difference in the extent of use of ICTs by male and female LIS students in the universities in Southern Nigeria.

(10) There is a significant difference between institution of students and the use of ICTs among LIS students in universities in Southern Nigeria

(11) There is a significant relationship between the perceived ease of use and ICT usage among Library and Information Science students in universities in Southern Nigeria.

(12) Also, there is a significant relationship among accessibility, skills, perceived ease of use and ICT usage among LIS students in the universities in Southern Nigeria.

Conclusion

Despite the undisputable fact that ICT is regarded the world over as an influential instrument for the development of quality learning and research in educational systems around the world, LIS students in Southern Nigerian universities are still conspicuously notcarried along with this monumental transformation. This is as a result of their low extent of ICT usage and low skilfulness. The revelation of this study is therefore a pointer to the fact that access to ICT facilities and perceived ease of usage are determinants that positively influence use of ICTs by LIS students in the universities. Also, it can be concluded that the impact of ICTs to students can only be exerted, if andonly if, the target beneficiaries (students) increase their level of ICT usage and improve their skilfulness.

Recommendations

From the findings of this research, the researcher recommends that:

(1) The management of universities in Southern Nigeria should, as a matter of fact, create functional and sustainable computer and information literacy programmesso as to enable students to effectively harness and use the available ICT facilities to its optimum extent.

(2) As a matter of encouragement and development, university authorities in Southern Nigeria should set up modern and standard ICT centres to train and re-

train students on the relevant skills to enable them optimally utilize ICTs facilities.

(3) More focus should be placed on the need to create conducive environment for both male and female counterparts to strive equally for the use of ICTs in their academic pursuits.

(4) Adequate attention should be given by the appropriate university authorities in Southern Nigeria in projecting the perceived benefits and usefulness of the effective use of ICTs through current awareness enlightenment of the students.

Contributions to Knowledge

The study has contributed to knowledge in the following aspects:

a) The study has established that level of accessibility and gender has no significant relationship with ICT usage by LIS students.

b) The study has affirmed that a significant relationship exists between the perception of LIS students and their use of ICT as an increase/decrease in their perception may lead to a corresponding increase/decrease in ICT usage..

c) The study ascertained that LIS students are not skilled on the use of ICT for educational and research purposes.

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APPENDIX A

ICT USAGE QUESTIONNAIRE

Department of Library & Information Science,
Faculty of Education,
Delta State University,
Abraka.
15th March 2016

Dear Respondent,

Determinants of the Use of ICTs by Library and Information Science Students Questionnaire (DUILlSSQ)

The researcher is a Postgraduate student of the above-named Department. The questionnaire is to investigate the "Determinants of the Use of ICTs by Library and Information Science Students in Universities in Southern Nigeria". Kindly fill the attached questionnaire. All information supplied by you will be treated confidentially and used for research purposes only.

Thanks for your anticipated cooperation.

Yours faithfully,

Toyo, David Oghenevwogaga

SECTION A: Bio-data of Respondent

Instruction: *Please tick (√) the options you deem appropriate*

Gender**:** Male [ ] Female [ ]

Institution**:** Ambrose Alli University [ ]

Delta State University [ ]

University of Uyo [ ]

Babcock University [ ]

University of Ibadan [ ]

Abia State University [ ]

University of Nigeria [ ]

Imo State University [ ]

Madonna University [ ]

University of Calabar [ ]

Enugu State University of Technology [ ]

Osun State University [ ]

SECTION B: ACCESS TO ICT FACILITY SCALE (AIFS)

INSTRUCTION: For each of the statements below, indicate (√) the option you deem as appropriate: HIGHLY ACCESSIBLE (HA), ACCESSIBLE (A), NOT ACCESSIBLE (NA), HIGHLY NOT ACCESSIBLE (HNA).

Which of the following ICT facilities do you have access to?

S/N	STUDENT'S ACCESS TO ICTs	HA	A	NA	HNA
1	Electronic photocopiers				
2	Cellular phones (GSM)				
3	Printers and plotters				
4	Duplicating machines				
5	Audio tapes and Discs				
6	Computer				
7	Scanners				
8	Close circuit television (CCTV)				
9	Satellite dish				

10	Television sets				
11	Video conferencing facility				
12	Multimedia projectors and slides				
13	Telecom facility				
14	Digital cameras				
15	Fax (facsimile) machines				
16	Overhead projectors and transparencies				
17	Internet facilities				

SECTION C: ICT SKILLS POSSESSED BY STUDENTS

Key: A=Agree, D= Disagree

What are the ICT skills possessed by you

S/N	ICT Skills Possessed	A	D
18	Proficient in the use of computer		
19	Knowledge of database structures		
20	Knowledge of electronic formats e.g. PDF, JPEG.		
21	Working in an interactive platforms e.g. video conferencing , BBS, LISTSERV, Chat room etc		
22	Online acquisition procedures/techniques		
23	Online navigation techniques		
24	Use of electronic library tools e.g. CD-ROM, OPAC, Subject gateway etc		
25	Working in a network environment		
26	Use of internet telephone		
27	Installation of computer system/ application software e.g. Microsoft windows XP ,Linux, Microsoft office, CorelDraw etc		

SECTION D: ICT SKILLS SCALE (ISS)

INSTRUCTION: For each of the statements below, indicate (√) the option you deem as appropriate

KEY: HIGH EXTENT (HE), MODERATE EXTENT (ME), LOW EXTENT (LE), NO EXTENT (NE)

To what extent are you skilled in the use of ICTs?

S/N	EXTENT OF STUDENT'S ICT SKILLS	HE	ME	LE	NE
28	Proficient in the use of computer				
29	Knowledge of database structures				
30	Knowledge of electronic formats e.g. PDF, JPEG.				
31	Working in an interactive platforms e.g. video conferencing , BBS, LISTSERV, Chat room etc				
32	Online acquisition procedures/techniques				
33	Online navigation techniques				
34	Use of electronic library tools e.g. CD-ROM, OPAC, Subject gateway etc				
35	Working in a network environment				
36	Use of internet telephone				
37	Installation of computer system/ application software e.g. Microsoft windows XP ,Linux, Microsoft office, CorelDraw etc				

SECTION E: USE OF ITCs BY STUDENTS

What is the use of ICTs by students?

S/N	USE OF ICTs	Agree	Disagree
38	To download		
39	To play games		
40	To watch movies online		
41	For social networking		

42	For academic discussions		
43	For academic work once in a session		
44	For academic work once in a semester		
45	For school registration (cafe's work)		
46	For academic work once in a month		
47	For academic work on daily basis		
48	I don't use it throughout the sessions in the school		
49	For academic work at least once in a week		
50	For assignment		

SECTION F: EXTENT OF ICT USAGE SCALE (EIUS)

INSTRUCTION: For each of the statements below, indicate (√) the option you deem as appropriate

KEY: HIGH EXTENT (HE), MODERATE EXTENT (ME), LOW EXTENT(LE), NO EXTENT(NE)

To what extent do you use ICT facilities in your university?

S/N	EXTENT OF ICT USAGE SCLAE (EIUS)	HE	ME	LE	NE
51	To download music				
52	To play games				
53	To watch movies online				
54	For social networking				
55	For academic discussions				
56	For academic once in a session				
57	For academic work once in a semester				
58	For school registration (café's work)				
59	For academic work once in a month				
60	For academic work on daily basis				
61	I don't use it throughout the sessions in the school				

62	For academic work at least once in a week				
63	For assignments.				

SECTION G: PERCEIVED EASE OF ICT USAGE SCALE(EIUS)

INSTRUCTION: For each of the statements below, indicate (√) the option you deem as appropriate: AGREE (A), DISAGREE (D)

What are your perceptions towards ease of use of ICTs?

S/N	PERCEPTION TOWARDS EASE OF USE OF ICTs	A	D
62	I feel satisfied using ICTs		
63	ICTs are easy to use to find online information		
64	ICTs are user – friendly		
65	Using ICT presents a feeling of certainty		
66	It is easy to learn how to use ICTs		
67	I am confident about completing assignments through the use of ICTs		
68	I am comfortable surfing through the web		
69	I am At ease with ICT technicalities		
70	It is easy to connect the web using ICTs		
71	I am disappointed whenever I use ICTSs		
72	I feel at ease using ICTs		

APPENDIX B

ANALYSIS OF RELIABILITY TEST

Below are detail workings using Pearson's Product-Moment Correlation Coefficient (r) to calculate the correlation between values obtained in the test-retest reliability test conducted using undergraduates of the Department of Library and Information Science of Nnamdi Azikiwe University (NAU), Awka as respondents.

Table of Values obtained from the pilot study

N	X	Y	XY	X^2	Y^2
1	100	97	9700	10000	9409
2	99	96	9504	9801	9216
3	96	100	9600	9216	10000
4	91	84	7644	8281	7056
5	90	93	8370	8100	8649
6	88	97	8536	7744	9409
7	88	90	7920	7744	8100
8	84	84	7056	7056	7056
9	83	90	7470	6889	8100
10	79	83	6557	6241	6889
N=10	***∑X=898***	**∑Y=914**	**∑XY=82357**	$\sum X^2$ *=81* 072	**$\sum Y^2$=83884**

The Pearson Product-Moment Correlation Coefficient (**r**) is given as:

$$\mathbf{r} = \frac{N\sum XY - \sum X \sum Y}{\sqrt{[N\sum X^2 - (\sum X)^2][N\sum Y^2 - (\sum Y)^2]}}$$

Where:

X and **Y** represent two (2) sets of observation

N the sample size and $-1 < r < 1$

By substituting values into the equation, we have:

$$\mathbf{r} = \frac{(10 \times 82357) - (898)(914)}{\sqrt{[(10 \times 81072) - (898 \times 898)][(10 \times 83884) - (914 \times 914)]}}$$

$$= \frac{2798}{\sqrt{[(810720 - 806404][838840 - 835396]}}$$

$$= \frac{2798}{\sqrt{[(4316][3444]}}$$

$$= \frac{2798}{\sqrt{14864304}}$$

$$= \frac{2798}{3855}$$

r = 0.73

APPENDIX C

DATA ANALYSIS OUTPUT

Frequencies

Statistics

Gender

N	Valid	620
	Missing	5

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	319	51.0	51.5	51.5
	Male	301	48.2	48.5	100.0
	Total	620	99.2	100.0	
Missing	System	5	.8		
Total		625	100.0		

Frequencies

Statistics

Institution

N	Valid	620
	Missing	5

Institution

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Ambrose Alli University	56	9.0	9.0	9.0
	Delta State University	77	12.3	12.4	21.5
	University of Uyo	53	8.5	8.5	30.0
	Bbcock University	35	5.6	5.6	35.6
	University of Ibadan	61	9.8	9.8	45.5
	Abia State University	80	12.8	12.9	58.4
	Imo State Univertsity	63	10.1	10.2	68.5
	Madonna University	12	1.9	1.9	70.5
	University of Calabar	43	6.9	6.9	77.4
	Enugu State University of Technology	116	18.6	18.7	96.1
	Osun State University	24	3.8	3.9	100.0
	Total	620	99.2	100.0	
Missing	System	5	.8		
Total		625	100.0		

Descriptives

Descriptive Statistics

	N	Mean	Std. Deviation
Electronic photocopiers	620	3.00	1.095
Cellular phones (GSM)	620	3.49	.676
Printers and plotters	620	2.98	1.049
Duplicating machines	620	3.16	1.115
Audio tapes and Discs	620	2.66	1.078
Computer	620	2.97	1.151
Scanners	620	2.61	1.150
Close circuit television (CCTV)	620	2.34	1.114
Satellite dish	620	2.11	1.117
Television sets	620	3.08	.836
Video conferencing facility	620	2.17	1.100
Multimedia projectors and slide	620	3.07	1.036
Telecom facility	620	2.03	.853
Digital cameras	620	2.87	1.038
fax (Telefacsimile) machines	620	1.95	.847
Overhead projectors and transparencies	620	2.74	1.107
Internet facilities	620	2.64	1.211
Valid N (listwise)	620		

Frequencies

Frequency Table

Proficient in the use of computer

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	163	13.7	26.3	26.3
	Agree	457	38.4	73.7	100.0
	Total	620	52.1	100.0	
Missing	System	569	47.9		
Total		1189	100.0		

Knowledge of database structures

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	547	46.0	88.2	88.2
	Agree	73	6.1	11.8	100.0
	Total	620	52.1	100.0	
Missing	System	569	47.9		
Total		1189	100.0		

Knowledge of electronic formats e.g. PDF, JPEG.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	317	26.7	51.1	51.1
	Agree	303	25.5	48.9	100.0
	Total	620	52.1	100.0	
Missing	System	569	47.9		
Total		1189	100.0		

Working in an interactive platforms e.g. video conferencing , BBS, LISTSERV, Chat room etc

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	452	38.0	72.9	72.9
	Agree	168	14.1	27.1	100.0
	Total	620	52.1	100.0	
Missing	System	569	47.9		
Total		1189	100.0		

Online acquisition procedures/techniques

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	541	45.5	87.3	87.3
	Agree	79	6.6	12.7	100.0
	Total	620	52.1	100.0	
Missing	System	569	47.9		
Total		1189	100.0		

Online navigation techniques

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	610	51.3	98.4	98.4
	Agree	10	.8	1.6	100.0
	Total	620	52.1	100.0	
Missing	System	569	47.9		
Total		1189	100.0		

Use of electronic library tools e.g. CD-ROM, OPAC, Subject gateway etc

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	497	41.8	80.2	80.2
	Agree	123	10.3	19.8	100.0
	Total	620	52.1	100.0	
Missing	System	569	47.9		
Total		1189	100.0		

Working in a network environment

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	505	42.5	81.5	81.5
	Agree	115	9.7	18.5	100.0
	Total	620	52.1	100.0	
Missing	System	569	47.9		
Total		1189	100.0		

Use of internet telephone

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	603	50.7	97.3	97.3
	Agree	17	1.4	2.7	100.0
	Total	620	52.1	100.0	
Missing	System	569	47.9		
Total		1189	100.0		

Installation of computer system/ application software e.g. Microsoft windows XP ,Linux, Microsoft office, CorelDraw etc

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	488	41.0	78.7	78.7
	Agree	132	11.1	21.3	100.0
	Total	620	52.1	100.0	
Missing	System	569	47.9		
Total		1189	100.0		

Frequencies

Frequency Table

To download

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	237	19.9	38.2	38.2
	Agree	383	32.2	61.8	100.0
	Total	620	52.1	100.0	
Missing	System	569	47.9		
Total		1189	100.0		

To play games

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	204	17.2	32.9	32.9
	Agree	416	35.0	67.1	100.0
	Total	620	52.1	100.0	
Missing	System	569	47.9		
Total		1189	100.0		

To watch movies online

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	275	23.1	44.4	44.4
	Agree	345	29.0	55.6	100.0
	Total	620	52.1	100.0	
Missing	System	569	47.9		
Total		1189	100.0		

For social networking

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	137	11.5	22.1	22.1
	Agree	483	40.6	77.9	100.0
	Total	620	52.1	100.0	
Missing	System	569	47.9		
Total		1189	100.0		

For academic discussions

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	550	46.3	88.7	88.7
	Agree	70	5.9	11.3	100.0
	Total	620	52.1	100.0	
Missing	System	569	47.9		
Total		1189	100.0		

For academic work once in a session

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	584	49.1	94.2	94.2
	Agree	36	3.0	5.8	100.0
	Total	620	52.1	100.0	
Missing	System	569	47.9		
Total		1189	100.0		

For academic work once in a semester

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	542	45.6	87.4	87.4
	Agree	78	6.6	12.6	100.0
	Total	620	52.1	100.0	
Missing	System	569	47.9		
Total		1189	100.0		

For school registration (cafe's work)

		Frequency	Percent	Valid Percent	Cumulative Percent

Valid	Disagree	143	12.0	23.1	23.1
	Agree	477	40.1	76.9	100.0
	Total	620	52.1	100.0	
Missing	System	569	47.9		
Total		1189	100.0		

For academic work once in a month

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	538	45.2	86.8	86.8
	Agree	82	6.9	13.2	100.0
	Total	620	52.1	100.0	
Missing	System	569	47.9		
Total		1189	100.0		

For academic work on daily basis

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	480	40.4	77.4	77.4
	Agree	140	11.8	22.6	100.0
	Total	620	52.1	100.0	
Missing	System	569	47.9		
Total		1189	100.0		

I don't use it throughout the sessions in the school

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	269	22.6	43.4	43.4
	Agree	351	29.5	56.6	100.0
	Total	620	52.1	100.0	
Missing	System	569	47.9		
Total		1189	100.0		

For academic work at least once in a week

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1	.1	.2	.2
	Disagree	583	49.0	94.0	94.2
	Agree	36	3.0	5.8	100.0
	Total	620	52.1	100.0	
Missing	System	569	47.9		
Total		1189	100.0		

For assignment

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	541	45.5	87.3	87.3

	Agree	79	6.6	12.7	100.0
	Total	620	52.1	100.0	
Missing	System	569	47.9		
Total		1189	100.0		

Descriptives

Descriptive Statistics

	N	Mean	Std. Deviation
To download	620	2.81	1.070
To play games	620	2.90	1.001
To watch movies online	620	2.67	1.071
For social networking	620	3.15	1.026
For academic discussions	620	1.67	.760
For academic work once in a session	620	1.68	.671
For academic work once in a semester	620	1.65	.773
For school registration (cafe's work)	620	2.96	.964
For academic work once in a month	620	1.74	.798
For academic work on daily basis	620	1.81	1.049
I don't use it throughout the sessions in the school	620	2.54	1.164
For academic work at least once in a week	620	1.52	.608
For assignment	620	1.50	.711
Valid N (listwise)	620		

Frequencies

Frequency Table

Proficient in the use of computer

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	163	13.7	26.3	26.3
	Agree	457	38.4	73.7	100.0
	Total	620	52.1	100.0	
Missing	System	569	47.9		
Total		1189	100.0		

Knowledge of database structures

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	547	46.0	88.2	88.2

	Agree	73	6.1	11.8	100.0
	Total	620	52.1	100.0	
Missing	System	569	47.9		
Total		1189	100.0		

Knowledge of electronic formats e.g. PDF, JPEG.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	317	26.7	51.1	51.1
	Agree	303	25.5	48.9	100.0
	Total	620	52.1	100.0	
Missing	System	569	47.9		
Total		1189	100.0		

Working in an interactive platforms e.g. video conferencing , BBS, LISTSERV, Chat room etc

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	452	38.0	72.9	72.9
	Agree	168	14.1	27.1	100.0
	Total	620	52.1	100.0	
Missing	System	569	47.9		
Total		1189	100.0		

Online acquisition procedures/techniques

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	541	45.5	87.3	87.3
	Agree	79	6.6	12.7	100.0
	Total	620	52.1	100.0	
Missing	System	569	47.9		
Total		1189	100.0		

Online navigation techniques

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	610	51.3	98.4	98.4
	Agree	10	.8	1.6	100.0
	Total	620	52.1	100.0	
Missing	System	569	47.9		
Total		1189	100.0		

Use of electronic library tools e.g. CD-ROM, OPAC, Subject gateway etc

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	497	41.8	80.2	80.2
	Agree	123	10.3	19.8	100.0

	Total	620	52.1	100.0	
Missing	System	569	47.9		
Total		1189	100.0		

Working in a network environment

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	505	42.5	81.5	81.5
	Agree	115	9.7	18.5	100.0
	Total	620	52.1	100.0	
Missing	System	569	47.9		
Total		1189	100.0		

Use of internet telephone

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	603	50.7	97.3	97.3
	Agree	17	1.4	2.7	100.0
	Total	620	52.1	100.0	
Missing	System	569	47.9		
Total		1189	100.0		

Installation of computer system/ application software e.g. Microsoft windows XP ,Linux, Microsoft office, CorelDraw etc

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	488	41.0	78.7	78.7
	Agree	132	11.1	21.3	100.0
	Total	620	52.1	100.0	
Missing	System	569	47.9		
Total		1189	100.0		

Descriptive Statistics

	N	Mean	Std. Deviation
Proficient in the use of computer	620	3.02	1.017
Knowledge of database structures	620	1.79	.632
Knowledge of electronic formats e.g. PDF, JPEG.	620	2.55	1.128
Working in an interactive platforms e.g. video conferencing , BBS, LISTSERV, Chat room etc	620	1.99	.817

Online acquisition procedures/techniques	620	1.77	.659
Online navigation techniques	620	1.52	.537
Use of electronic library tools e.g. CD-ROM, OPAC, Subject gateway etc	620	1.85	.867
Working in a network environment	620	1.83	.717
Use of internet telephone	620	1.49	.644
Installation of computer system/ application software e.g. Microsoft windows XP ,Linux, Microsoft office, CorelDraw etc	620	1.85	.878
Valid N (listwise)	620		

Frequency Table

I feel satisfied using ICTs

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	320	51.2	51.6	51.6
	Agree	297	47.5	47.9	99.5
	3	3	.5	.5	100.0
	Total	620	99.2	100.0	
Missing	System	5	.8		
Total		625	100.0		

ICTs are easy to use to find online information

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	301	48.2	48.5	48.5
	Agree	318	50.9	51.3	99.8
	3	1	.2	.2	100.0
	Total	620	99.2	100.0	
Missing	System	5	.8		
Total		625	100.0		

ICTs are user – friendly

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	369	59.0	59.5	59.5
	Agree	250	40.0	40.3	99.8
	4	1	.2	.2	100.0

	Total	620	99.2	100.0	
Missing	System	5	.8		
Total		625	100.0		

Using ICT presents a feeling of certainty

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	311	49.8	50.2	50.2
	Agree	309	49.4	49.8	100.0
	Total	620	99.2	100.0	
Missing	System	5	.8		
Total		625	100.0		

It is easy to learn how to use ICTs

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	333	53.3	53.7	53.7
	Agree	284	45.4	45.8	99.5
	3	3	.5	.5	100.0
	Total	620	99.2	100.0	
Missing	System	5	.8		
Total		625	100.0		

I am confident about completing assignments through the use of ICTs

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	350	56.0	56.5	56.5
	Agree	268	42.9	43.2	99.7
	3	2	.3	.3	100.0
	Total	620	99.2	100.0	
Missing	System	5	.8		
Total		625	100.0		

I am comfortable surfing through the web

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	285	45.6	46.0	46.0
	Agree	334	53.4	53.9	99.8
	3	1	.2	.2	100.0
	Total	620	99.2	100.0	
Missing	System	5	.8		
Total		625	100.0		

I am At ease with ICT technicalities

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	202	32.3	32.6	32.6

	Agree	413	66.1	66.6	99.2
	3	5	.8	.8	100.0
	Total	620	99.2	100.0	
Missing	System	5	.8		
Total		625	100.0		

It is easy to connect the web using ICTs

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	251	40.2	40.5	40.5
	Agree	363	58.1	58.5	99.0
	3	6	1.0	1.0	100.0
	Total	620	99.2	100.0	
Missing	System	5	.8		
Total		625	100.0		

I am disappointed whenever I use ICTSs

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	194	31.0	31.3	31.3
	Agree	324	51.8	52.3	83.5
	3	90	14.4	14.5	98.1
	4	12	1.9	1.9	100.0
	Total	620	99.2	100.0	
Missing	System	5	.8		
Total		625	100.0		

I feel at ease using ICTs

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	223	35.7	36.0	36.0
	Agree	346	55.4	55.8	91.8
	3	51	8.2	8.2	100.0
	Total	620	99.2	100.0	
Missing	System	5	.8		
Total		625	100.0		

Correlations

Correlations

		accessibilty	ExtentofUse
accessibilty	Pearson Correlation	1	-.052
	Sig. (2-tailed)		.192
	N	620	620
ExtentofUse	Pearson Correlation	-.052	1
	Sig. (2-tailed)	.192	
	N	620	620

Multiple Comparisons

Dependent Variable: ExtentofUse
Tukey HSD

(I) Institution	(J) Institution	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Ambrose Alli University	Delta State University	1.24303	.84116	.946	-1.5167	4.0028
	University of Uyo	.28100	.92987	1.000	-2.7698	3.3318
	Bbcock University	-6.43487*	1.05494	.000	-9.8960	-2.9738
	University of Ibadan	-2.24297	.89799	.343	-5.1892	.7032
	Abia State University	-5.42582*	.84986	.000	-8.2141	-2.6375
	University of Nigeria	-6.72991*	.88786	.000	-9.6429	-3.8169
	Imo State Univertsity	-3.31349*	.89114	.012	-6.2372	-.3898
	Madonna University	.20238	1.54351	1.000	-4.8617	5.2664
	University of Calabar	-2.73173	.98385	.193	-5.9596	.4962
	Enugu State University of Technology	-1.54429	.94409	.895	-4.6417	1.5531
	Osun State University	-3.46429	1.18382	.134	-7.3482	.4197
Delta State University	Ambrose Alli University	-1.24303	.84116	.946	-4.0028	1.5167
	University of Uyo	-.96203	.85519	.994	-3.7678	1.8437
	Bbcock University	-7.67791*	.98974	.000	-10.9251	-4.4307
	University of Ibadan	-3.48601*	.82042	.001	-6.1777	-.7943
	Abia State University	-6.66886*	.76744	.000	-9.1867	-4.1510
	University of Nigeria	-7.97294*	.80932	.000	-10.6282	-5.3177
	Imo State Univertsity	-4.55652*	.81292	.000	-7.2236	-1.8895
	Madonna University	-1.04065	1.49970	1.000	-5.9610	3.8797
	University of Calabar	-3.97476*	.91359	.001	-6.9721	-.9774
	Enugu State University of Technology	-2.78732	.87063	.063	-5.6437	.0691
	Osun State University	-4.70732*	1.12611	.002	-8.4019	-1.0127
University of Uyo	Ambrose Alli University	-.28100	.92987	1.000	-3.3318	2.7698
	Delta State University	.96203	.85519	.994	-1.8437	3.7678
	Bbcock University	-6.71587*	1.06616	.000	-10.2138	-3.2179
	University of Ibadan	-2.52397	.91115	.196	-5.5133	.4654
	Abia State University	-5.70682*	.86375	.000	-8.5407	-2.8730
	University of Nigeria	-7.01091*	.90116	.000	-9.9675	-4.0543
	Imo State Univertsity	-3.59449*	.90440	.004	-6.5617	-.6273
	Madonna University	-.07862	1.55120	1.000	-5.1679	5.0107
	University of Calabar	-3.01272	.99587	.104	-6.2800	.2546
	Enugu State University of Technology	-1.82528	.95661	.754	-4.9638	1.3132
	Osun State University	-3.74528	1.19382	.076	-7.6621	.1715
Bbcock University	Ambrose Alli University	6.43487*	1.05494	.000	2.9738	9.8960
	Delta State University	7.67791*	.98974	.000	4.4307	10.9251
	University of Uyo	6.71587*	1.06616	.000	3.2179	10.2138
	University of Ibadan	4.19190*	1.03848	.004	.7848	7.5990
	Abia State University	1.00905	.99715	.997	-2.2625	4.2806
	University of Nigeria	-.29504	1.02973	1.000	-3.6734	3.0834

	Imo State Univertsity	3.12138	1.03256	.104	-.2663	6.5091
	Madonna University	6.63725*	1.62925	.003	1.2919	11.9826
	University of Calabar	3.70315*	1.11355	.044	.0497	7.3566
	Enugu State University of Technology	4.89059*	1.07858	.000	1.3519	8.4293
	Osun State University	2.97059	1.29362	.480	-1.2736	7.2148
University of Ibadan	Ambrose Alli University	2.24297	.89799	.343	-.7032	5.1892
	Delta State University	3.48601*	.82042	.001	.7943	6.1777
	University of Uyo	2.52397	.91115	.196	-.4654	5.5133
	Bbcock University	-4.19190*	1.03848	.004	-7.5990	-.7848
	Abia State University	-3.18285*	.82934	.008	-5.9038	-.4619
	University of Nigeria	-4.48694*	.86824	.000	-7.3355	-1.6384
	Imo State Univertsity	-1.07052	.87159	.987	-3.9301	1.7891
	Madonna University	2.44536	1.53230	.910	-2.5819	7.4726
	University of Calabar	-.48875	.96618	1.000	-3.6587	2.6811
	Enugu State University of Technology	.69869	.92566	1.000	-2.3383	3.7357
	Osun State University	-1.22131	1.16917	.997	-5.0572	2.6146
Abia State University	Ambrose Alli University	5.42582*	.84986	.000	2.6375	8.2141
	Delta State University	6.66886*	.76744	.000	4.1510	9.1867
	University of Uyo	5.70682*	.86375	.000	2.8730	8.5407
	Bbcock University	-1.00905	.99715	.997	-4.2806	2.2625
	University of Ibadan	3.18285*	.82934	.008	.4619	5.9038
	University of Nigeria	-1.30409	.81836	.911	-3.9890	1.3809
	Imo State Univertsity	2.11233	.82192	.299	-.5843	4.8090
	Madonna University	5.62821*	1.50460	.011	.6918	10.5646
	University of Calabar	2.69410	.92162	.135	-.3296	5.7178
	Enugu State University of Technology	3.88154*	.87905	.001	.9975	6.7656
	Osun State University	1.96154	1.13262	.853	-1.7545	5.6775
University of Nigeria	Ambrose Alli University	6.72991*	.88786	.000	3.8169	9.6429
	Delta State University	7.97294*	.80932	.000	5.3177	10.6282
	University of Uyo	7.01091*	.90116	.000	4.0543	9.9675
	Bbcock University	.29504	1.02973	1.000	-3.0834	3.6734
	University of Ibadan	4.48694*	.86824	.000	1.6384	7.3355
	Abia State University	1.30409	.81836	.911	-1.3809	3.9890
	Imo State Univertsity	3.41642*	.86115	.005	.5911	6.2418
	Madonna University	6.93229*	1.52639	.000	1.9244	11.9402
	University of Calabar	3.99818*	.95677	.002	.8592	7.1372
	Enugu State University of Technology	5.18563*	.91583	.000	2.1809	8.1904
	Osun State University	3.26563	1.16141	.178	-.5448	7.0761
Imo State Univertsity	Ambrose Alli University	3.31349*	.89114	.012	.3898	6.2372
	Delta State University	4.55652*	.81292	.000	1.8895	7.2236

	University of Uyo	3.59449*	.90440	.004	.6273	6.5617
	Bbcock University	-3.12138	1.03256	.104	-6.5091	.2663
	University of Ibadan	1.07052	.87159	.987	-1.7891	3.9301
	Abia State University	-2.11233	.82192	.299	-4.8090	.5843
	University of Nigeria	-3.41642*	.86115	.005	-6.2418	-.5911
	Madonna University	3.51587	1.52830	.477	-1.4983	8.5300
	University of Calabar	.58176	.95981	1.000	-2.5673	3.7308
	Enugu State University of Technology	1.76921	.91902	.743	-1.2460	4.7844
	Osun State University	-.15079	1.16392	1.000	-3.9695	3.6679
Madonna University	Ambrose Alli University	-.20238	1.54351	1.000	-5.2664	4.8617
	Delta State University	1.04065	1.49970	1.000	-3.8797	5.9610
	University of Uyo	.07862	1.55120	1.000	-5.0107	5.1679
	Bbcock University	-6.63725*	1.62925	.003	-11.9826	-1.2919
	University of Ibadan	-2.44536	1.53230	.910	-7.4726	2.5819
	Abia State University	-5.62821*	1.50460	.011	-10.5646	-.6918
	University of Nigeria	-6.93229*	1.52639	.000	-11.9402	-1.9244
	Imo State Univertsity	-3.51587	1.52830	.477	-8.5300	1.4983
	University of Calabar	-2.93411	1.58415	.788	-8.1315	2.2633
	Enugu State University of Technology	-1.74667	1.55976	.994	-6.8641	3.3707
	Osun State University	-3.66667	1.71551	.596	-9.2950	1.9617
University of Calabar	Ambrose Alli University	2.73173	.98385	.193	-.4962	5.9596
	Delta State University	3.97476*	.91359	.001	.9774	6.9721
	University of Uyo	3.01272	.99587	.104	-.2546	6.2800
	Bbcock University	-3.70315*	1.11355	.044	-7.3566	-.0497
	University of Ibadan	.48875	.96618	1.000	-2.6811	3.6587
	Abia State University	-2.69410	.92162	.135	-5.7178	.3296
	University of Nigeria	-3.99818*	.95677	.002	-7.1372	-.8592
	Imo State Univertsity	-.58176	.95981	1.000	-3.7308	2.5673
	Madonna University	2.93411	1.58415	.788	-2.2633	8.1315
	Enugu State University of Technology	1.18744	1.00916	.991	-2.1235	4.4984
	Osun State University	-.73256	1.23634	1.000	-4.7888	3.3237
Enugu State University of Technology	Ambrose Alli University	1.54429	.94409	.895	-1.5531	4.6417
	Delta State University	2.78732	.87063	.063	-.0691	5.6437
	University of Uyo	1.82528	.95661	.754	-1.3132	4.9638
	Bbcock University	-4.89059*	1.07858	.000	-8.4293	-1.3519
	University of Ibadan	-.69869	.92566	1.000	-3.7357	2.3383
	Abia State University	-3.88154*	.87905	.001	-6.7656	-.9975
	University of Nigeria	-5.18563*	.91583	.000	-8.1904	-2.1809
	Imo State Univertsity	-1.76921	.91902	.743	-4.7844	1.2460
	Madonna University	1.74667	1.55976	.994	-3.3707	6.8641

	University of Calabar	-1.18744	1.00916	.991	-4.4984	2.1235
	Osun State University	-1.92000	1.20494	.911	-5.8732	2.0332
Osun State University	Ambrose Alli University	3.46429	1.18382	.134	-.4197	7.3482
	Delta State University	4.70732*	1.12611	.002	1.0127	8.4019
	University of Uyo	3.74528	1.19382	.076	-.1715	7.6621
	Bbcock University	-2.97059	1.29362	.480	-7.2148	1.2736
	University of Ibadan	1.22131	1.16917	.997	-2.6146	5.0572
	Abia State University	-1.96154	1.13262	.853	-5.6775	1.7545
	University of Nigeria	-3.26563	1.16141	.178	-7.0761	.5448
	Imo State Univertsity	.15079	1.16392	1.000	-3.6679	3.9695
	Madonna University	3.66667	1.71551	.596	-1.9617	9.2950
	University of Calabar	.73256	1.23634	1.000	-3.3237	4.7888
	Enugu State University of Technology	1.92000	1.20494	.911	-2.0332	5.8732

*. The mean difference is significant at the 0.05 level.

Correlations

Correlations

		ExtentofICTSkills	ExtentofUse
ExtentofICTSkills	Pearson Correlation	1	.245**
	Sig. (2-tailed)		.000
	N	620	620
ExtentofUse	Pearson Correlation	.245**	1
	Sig. (2-tailed)	.000	
	N	620	620

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

Z-Test

Group Statistics

	Gender	N	Mean	Std. Deviation	Std. Error Mean
ExtentofUse	Male	301	28.7641	5.49917	.31697
	Female	319	28.4044	5.51523	.30879

```
ONEWAY Extent of Use BY Institution
  /MISSING ANALYSIS
  /POSTHOC=TUKEY ALPHA(0.05).
```

One way

ANOVA

ExtentofUse

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4450.471	11	404.588	17.184	.000
Within Groups	14314.656	608	23.544		
Total	18765.127	619			

Post Hoc Tests
Homogeneous Subsets

Extent of Use

Tukey HSD[a,b]

Institution	N	Subset for alpha = 0.05				
		1	2	3	4	5
Delta State University	82	24.7927				
University of Uyo	53	25.7547	25.7547			
Madonna University	12	25.8333	25.8333			
Ambrose Alli University	56	26.0357	26.0357	26.0357		
Enugu State University of Technology	50	27.5800	27.5800	27.5800		
University of Ibadan	61	28.2787	28.2787	28.2787	28.2787	
University of Calabar	43		28.7674	28.7674	28.7674	
Imo State Univertsity	63		29.3492	29.3492	29.3492	29.3492
Osun State University	24			29.5000	29.5000	29.5000
Abia State University	78				31.4615	31.4615
Bbcock University	34					32.4706
University of Nigeria	64					32.7656
Sig.		.069	.051	.073	.144	.082

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 39.050.

b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

Correlations

Correlations

		EaseofUse	ExtentofUse
EaseofUse	Pearson Correlation	1	.468**
	Sig. (2-tailed)		.000
	N	620	620
ExtentofUse	Pearson Correlation	.468**	1
	Sig. (2-tailed)	.000	
	N	620	620

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

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	EaseofUse, accessibilty, ExtentofICTSkills[b]	.	Enter

a. Dependent Variable: ExtentofUse

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.474[a]	.224	.220	4.86127

a. Predictors: (Constant), Ease of Use, accessibilty, Extent of ICT Skills

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4207.876	3	1402.625	59.353	.000[b]
	Residual	14557.251	616	23.632		
	Total	18765.127	619			

a. Dependent Variable: Extent of Use

b. Predictors: (Constant), Ease of Use, accessibilty, Extent of ICT Skills

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	17.816	2.057		8.661	.000
	Accessibility	-.030	.038	-.028	-.779	.436
	ExtentofICTSkills	-.101	.053	-.087	-1.892	.059
	EaseofUse	.818	.072	.522	11.346	.000

a. Dependent Variable: ExtentofUse