ASSESSMENT OF LECTURERS' ATTITUDES, SELF- EFFICACY AND ACCESS TO THE UTILIZATION OF INFORMATION AND COMMUNICATION TECNOLOGY IN COLLEGES OF EDUCATION IN KADUNA STATE

BY

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SUBMITTED TO

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DECLARATION

I declare that this dissertation entitled "Assessment of Lecturers Attitudes, Self-Efficacy and Access to Utilization of Information and Communication Technologies (ICTs) in Colleges of Education in Kaduna State" has been carried out by me in the Department of Curriculum and Educational Foundation, Ahmadu Bello University, Zaria. The information derived from the literature has been duly acknowledged and the listed references provided. No part of this dissertation was previously presented for another degree or diploma at this or any other institution.

_____ _____

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CERTIFICATION

This dissertation titled “assessment of lecturers attitudes, self efficacy and access on utilization of information and communication technologies in Colleges of Education in Kaduna State” by Fatima Binta Sani has been read and meets the regulations governing the award of the Master’s degree (Instructional Technology) Ahmadu Bello University, Zaria and is approved for its contribution to knowledge and literary presentation.

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DEDICATION

This dissertation is dedicated to my parents, my father Alhaji Sani Ibrahim and my mother Hajiya Suwaiba Sani, my husband Bashir Sani and to my children (Karimah, Haroon and Muhammad Sani).

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First and foremost, I expressed my profound gratitude to Allah the Omnipotent, most Gracious and most Merciful for giving me this golden opportunity to carry out this research work successfully. All praises be endowed to Him, the most high.

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ABSTRACT

This study assessed lecturers' attitudes, self-Efficacy and access on utilization of Information and Communication Technologies in Colleges of Education in Kaduna State. The study has three objectives and corresponding null hypotheses. The study was conducted in the two Colleges of Education in Kaduna State. The study adopted survey research design. The population of this study comprises of all the lecturers in two Colleges of Education in Kaduna State. A sample size of 274 lecturers was used in the study based on the sampling table of Krejcie and Morgan. The instrument for data collection was a self-administered questionnaire. The instrument was subjected to validation before administration. A pilot test was conducted to test the reliability of the instrument. Reliability of the instrument was determined using the Cronbach Alpha Moment Co-efficient. Percentages were used to interpret the demographic data of the study, while cumulative frequencies were used to answer research questions 1-3 The independent t-test was used to answer research hypothesis 1 and one way Analysis of variance was used for hypothesis 2 and were tested at > p0.05 level of significance using Statistical Package for Social Science. Based on the results of this study, it can be concluded that that a majority (>90%) of the lecturers have a positive attitude towards the use of information and communication technologies for instructional purposes. Majority (>90%) of the lecturers were competent in using Information and Communication Technologies for instructional purposes. The study also confirmed that most of the information and communication technologies resources mentioned in the study instrument were not accessible for instructional purposes. It was also confirmed that significant differences exist in the attitude of lecturers towards the use of information and communication technologies for instructional purposes in Colleges of Education based on their qualification. The study also found that there exist a significant difference in the availability, accessibility and the use of information and communication technologies for instructional purposes in Colleges of Education based on source of funding. It is therefore recommended that tertiary institutions should conduct capacity building trainings for their lecturers in order to familiarize them with information and communication technologies. Also, funding for information and communication technologies infrastructure should be increased by both the Federal and State governments beyond what the Tertiary Education Trust Fund is doing.

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CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Education is the process of acquisition of knowledge, skills, values, beliefs, and habits. Education is not only limited to teaching the students according to prescribed syllabus at a specific school level. It has much broader objectives, goals and other concepts. Thus, education is an increasingly important tool to combat poverty and to establish a modern nation. The science of teaching, or pedagogy is 'any conscious activity by one person designed to enhance learning in another' (Watkins & Mortimore, 1999, p.17). The process of this knowledge transfer has evolved over time responding to the changing dynamics. As new concepts of learning have evolved, teachers are expected to facilitate learning and make it meaningful to individual learners rather than just to provide abstract knowledge and skills (Tondeur, Hermans, Valcke & van Braak 2008).

Modern developments of innovative technologies have provided new possibilities for teaching professions, but at the same time have placed more demands on teachers to learn how to use these new technologies in their teaching (Robinson & Latchem, 2003). This has facilitated the paradigm shift from the traditional instructional material or traditional pedagogical methods to a more modern and innovative technological based teaching and learning methods. These challenges task teachers to continuously retrain themselves and acquire new knowledge and skills while maintaining their job (Carlson & Gadio, 2002). The revolution of information and communication technology (ICTs) is drastically influencing the nature of learning and the production of knowledge, hence transforming the globe in unprecedented trend (Holloway & Valentine, 2003).

ICTs have become one of the basic building blocks of modern society (Daniels, 2002). Many countries now regard understanding ICT and mastering the basic skills and concepts of ICT as part of the core of education, alongside reading, writing and numeracy. Information and communications technologies are computer based tools used by people to work with information and communication processing needs of an organization. Its purview covers computer hardware and software, the network, and other digital devices like video, audio, camera, and so on, which convert information (text, sound, motion, etc,) into digital form (Moursund & Bielefeldt, 1999). Successful integration of ICT in the school system depends largely on the competence and on the attitude of teachers towards the role of modern technologies in teaching and learning. Thus, experienced teachers, newly qualified, and student-teachers need to be confident in using ICT effectively in their teaching (Kyriakidou, Chrisostomou, & Bank, 2000).

The potentials of information and communication technology (ICT) to facilitate students' learning, improve teaching and enhance institutional administration had been established in literature (Kazu & Yavulzalp, 2008; Kirschner & Woperies, 2003). The use of information and communication technology as a tool for enhancing students' learning, teachers' instruction, and as catalyst for improving access to quality education in formal and non-formal settings has become a necessity. Recognizing the impact of new technologies in work places, educational institutions need to restructure their education program and classroom facilities. This would help in harnessing the potentials of ICT in improving the content of teacher education. Information and communication technology as tools within the school environment can be use for school administration and management. It can as well be utilized in the process of teaching and learning. Use of ICT in educational institutions can enhance the presentation of classroom work, teaching/learning repetitive tasks, teaching/learning intellectual, thinking and problem solving

skills, stimulating creativity and imagination; for research by teachers and students, and as communication tool by teachers and students (Collis & Moonen, 2001; Derbyshire, 2003; Moursund & Bielefeldt, 1999).

The field of education has been affected by ICTs, which have undoubtedly affected teaching, learning, and research (Yusuf, 2005). A great deal of research has proven the benefits to the quality of education (Al-Ansari, 2006). ICTs have the potential to innovate, accelerate, enrich, and deepen skills, to motivate and engage students, to help relate school experience to work practices, create economic viability for tomorrow's workers, as well as strengthening teaching and helping schools change (Davis & Tearle, 1999; Lemke and Coughlin, 1998; cited by Yusuf, 2005). Hepp, Hinostroza, Laval & Rehbein (2004) claim in their paper that ICTs have been utilized in education ever since their inception. Although at that time computers have not been fully integrated in the learning of traditional subject matter, the commonly accepted rhetoric that education systems would need to prepare citizens for lifelong learning in an information society boosted interest in ICTs (Pelgrum & Law, 2003).

Most of the tertiary institutions in Kaduna state lack the needed ICT facilities for teaching and learning (Zubairu, 2014). Most of these institutions depended on manual systems, with little use being made of ICTs in teaching, admission, examination, registration, student records, finance and accounting. In addition, internet access and e-mail applications were minimal and what was on the ground were desk computers for office work and other general applications. Waite (2004, cited in Malcolm & Godwilly, 2008) indicate that even though teachers showed great interest and motivation to learn about the potential of ICTs, in practice, the use of ICT is relatively low and it is focused on a narrow range of applications, with word processing being the predominant use. The application of other ICT tools such as video conferencing, emailing

and the Internet was rare. Moreover, institutions of higher learning are still using old versions of software, black board and textbooks in teaching.

1.2 Statement of the Problem

The use of Information and Communication Technology (ICT) in Nigeria education is lagging behind expectation and desire. Hence, the need to draw up and design learning process in the future and the role of ICT to support this process, with a focus on teacher training. There is the need for a powerful role of teacher training in the process of educational innovation and the implementation of ICT. The teacher training institutes such as the Colleges of Education and Faculties of Education in the Universities provide the teachers of the future with the assumption that teachers are the key figures in arranging learning processes.

These institutions, expectedly, anticipate new developments and prepare prospective teachers for their future role. The nature and extent to which ICT is being used in education is considered to be a result of synergy between 'top-down' and 'bottom up' processes. Institutions such as Colleges of Education where prospective secondary school teachers are being trained have to shift their focus from dealing with present education to that of 'future education'. This, invariably will make teachers to be prepared and encouraged for the implementation of ICT in secondary education.

Although it is recognized, resources will differ from school to school, opportunities to create effective learning and teaching environments makes it necessary for tutors to not only talk about ICT in the classroom but also to model best practice by demonstrating different ways in which technology can enhance the delivery of ICT knowledge. Tutors are therefore expected to provide experiences that clearly demonstrate to trainees how they too can use ICT in the delivery of ICT to the pupils they teach.

ICT is being used as an integrated component of the learning environment where preservice teachers develop new understandings, skills, and dispositions with regard to technology integration into teaching and learning. A teacher educator is supposed to continue to develop this capacity in his work, to develop more opportunities for this type of learning within his courses, and to help the teachers in training (preservice teachers) continue to build upon what they have learned. The role of the ICT oriented educator is, therefore, to enable trainee teachers to have access to the latest technologies and to give the preservice teachers experience of ICT in a variety of contexts. The methods that will be used to deliver ICT through ICT by tutors should enable trainee teachers to integrate ICT within their teaching and provide opportunities for them to use the technologies they will encounter in school. Tutors, in order to provide for the need of their trainees, need to be aware of the current thinking about good practice. They should also have knowledge and understanding of relevant research so they can support the needs of the trainees.

The importance of ICTs in furthering the science and art of teaching has been elaborated. However, despite the obvious benefits of ICTs in enhancing the teaching process, little is known about the competence, attitudes and access to ICTs of lecturers in Colleges of Education in Kaduna State. In this era of globalization, job efficacy of academic staff in higher institutions cannot be divorced from the level of ICT proficiency which is necessary for quality academic output. Unfortunately, some teachers still do not recognize the opportunities that ICT presents for improving the efficiency and effectiveness of their job. Some of them lack knowledge that would aid the application of ICT skills in instructional delivery, research and record management. This results in the utilization of ICT among teachers in the teaching/learning situation being low (Jusuf, 2005).

Much as investment in ICT continues to increase, information communication technologies such as computers; video players and projectors have not been effectively used into lecture rooms in Colleges of Education in Kaduna State. Most lecturers do not use these ICTs in their instructional delivery as expected. Institutions of higher learning in Kaduna State have tried to integrate ICT into teaching and learning environments as evidenced by interventions by agencies like TETFUND, NCC, NITDA and Galaxy Backbone, but they have faced a problem of staff attitude, self efficacy and access (Zubairu, 2014). Several studies had documented minimal ICT implementation in institutions of higher learning, ICT implementation had been studied under different perspectives (e.g. attitude, time, age, motivation and income) none had been in the context of Kaduna State. While there could have been several contributing problems; cost of ICT training materials, skills development in ICT, and administrative support may have played a major role in affecting ICT implementation in Colleges of Education in Kaduna State. Furthermore, attitude, self-efficacy and access as factors influencing ICT utilization for instructional purposes may be as a result of the qualification and funding status of the institutions. There is thus a need for the study to establish factors influencing ICT utilization for instructional purposes in Colleges of Education in Kaduna State.

1.3 Objectives of the Study

The main purpose of this study is to investigate the attitude, self-efficacy, and access to information and communication technology by lecturers in Colleges of Education in Kaduna State. Specifically, the objectives of the study are to:

1. Determine the attitudes of lecturers towards the use of ICT for instructional purposes
2. Determine the self efficacy of lecturers in the use of ICT for class instruction

3. Determine the accessibility to ICT facilities by lecturers in the Colleges of Education

1.4 Research Questions

1. What are the attitudes of lecturers towards the use of information and communication technology (ICT) facilities for instructional purposes?

2. What are the levels of self efficacy of lecturers in the use of information and communication technology (ICT) for class instruction?

3. To what extent are the information and communication technology (ICT) facilities accessible to lecturers of the Colleges of Education?

1.5 Hypotheses

The study seeks to test the following hypotheses:

i) There is no significant difference in the attitude of lecturers towards the use of ICTs for instructional purposes in Colleges of Education based on their qualification.

ii) There is no significant difference in the accessibility and the use of ICTs for instructional purposes in Colleges of Education based on source of funding.

1.6 Significance of the Study

The study could provide vital information to the Ministry of Education, management of institutions of higher learning and educational partners to establish how lecturers self efficacy, attitude and access to ICT materials may positively or otherwise affect ICT usage in teaching, and hence be in a position to adjust appropriately. Management of institutions of higher learning would be able to identify both administrative and technical bottlenecks and measures of dealing

with them in prompting ICT implementation among their staff. Knowledge gained from this research study would be useful to educators and policy makers like Nigerian Educational Research and Development Council (NERDC) in making wise decision in relation to their ICT curriculum. Theoretically, the study would also prompt more researchers in the area having contributed to literature for future studies.

Therefore this study will sensitize policy makers, educational administrators, and curriculum planners in evaluating the effectiveness of the teaching process and it will help the teacher on the need to plan towards effective curriculum implementation in teacher training institutions. Furthermore, the Federal and state Ministries of Education can use the result of the study to guide in policy formulation and implementation regarding the use of ICT for instructional purposes in educational institutions. The Nigerian Educational Research and Development Council (NERDC), the agency that produces instructional materials for schools will also find the result of this study valuable as it will provide background information for the production of curriculum materials that will aid in preparing the minds of lecturers and students to utilize ICTs for teaching and learning.

1.7 Scope of the study

In content, the study focused on three aspects, that is, attitude of lecturers, self-efficacy of lecturers and access to ICT facilities by lecturers. The sample population consisted of lecturers with different academic qualifications in two Colleges of Education in Kaduna State. Geographically, the study focused on/was limited to two Colleges of Education in Kaduna State with different sources of funding being the Federal and State governments respectively. The variables investigated within the context of this study included only attitudes, self-efficacy and accessibility.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Introduction

This chapter presents review of related literature based on the conceptual framework, ICTs in education, lecturers' attitude on the utilization of ICTs, lecturers' competence on the utilization of ICTs, ICT availability, accessibility and use by lecturers, utilization of ICTs by lecturers and empirical studies on use of ICTs in Colleges of Education.

2.2 Conceptual Framework

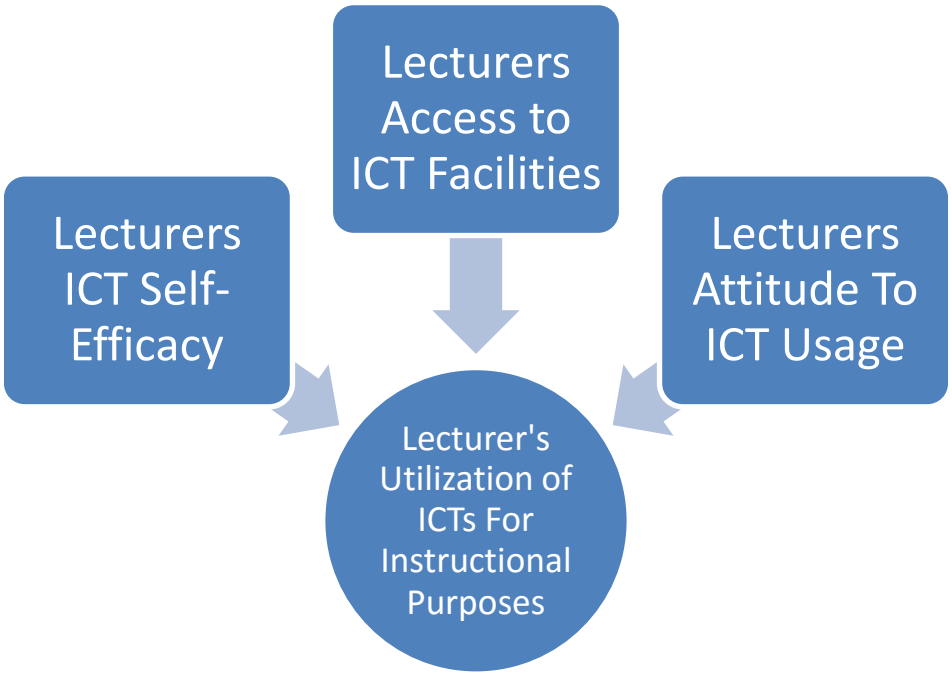


Fig 1: Conceptual Framework

The conceptual framework for this study is based on the assumption that lecturer's utilization of ICTs for instructional purposes (dependent variable), which will enhance their teaching process

is determined by their attitude, self-efficacy and access to usage of ICT facilities of ICT facilities (independent variables). While qualification and source of funding are the moderating variables. The study will seek to establish a relationship between these variables in the two teacher training institutions in order to determine the ways in which these factors can be enhanced to ensure increased job delivery by lecturers.

2.2.1 Information & Communication Technologies (ICTs)

Information can be defined as knowledge communicated by others or obtained from investigation of study or instruction (Abdulsalam, Akinola & Buwanhot, 2008). It could be the process by which the form of an object of knowledge is impressed upon by the apprehending mind so as to bring about a state of knowing. Technology, on the other hand, is the science of application of knowledge to practical purposes. Technology determines the quality of life of a people and the overall status of their nation (Momah, 1999). Information has been the driving force of so many human activities in search of developing one's self, which has created a basis for the need to know.

ICT stands for information and communication technology and is defined as a diverse set of technological tools and resources used to communicate, and to create, disseminate, store, and manage information. The term ICT refers to forms of technologies that are used to create, store, share or transmit, and exchange information. This broad definition of ICT includes such technologies as radio, television, video, DVD, telephone (both fixed line and mobile phones), satellite systems, computer and network hardware and software; as well as the equipment and services associated with these technologies, such as videoconferencing and electronic mail (UNESCO, 2002).

ICT has been defined by different commentators; many of such definitions focusing particularly on the 'newer' computer-assisted, digital or electronic technologies, such as the internet of mobile telephony. Some, however, do include 'older' technologies, such as radio or television. Others even do include the whole range of technologies that can be used for communication, including print, theatre, folk media and dialogue processes. Some focus only on the idea of information handling or transmission of data. Other definitions encompass the broader concept of tools to enhance communication processes and the exchange of knowledge (Greenberg, 2005; Weigel & Waldburger, 2004). The impact of ICT is becoming more pronounced worldwide. Such that rarely is anything mentioned in any area of human endeavors without reference to this type of technology. Information and communication technology according to Miller and Akume (2009) is daily giving rise to new concepts and ideas, innovation and invention, and making impact not only in the industries/businesses but also in the education sector.

Hence, the ICT evolutional trend has transformed the global perception on the way we think and everyday application of our daily tasks. Subsequently, the effects of ICT on every human Endeavour are so dramatic in speed and performance that it's been viewed as the back bone and information super highway of our modern lives (Onyemah, 2009). The world has turned to be a global village now. Simply put, we are in the era of information age. These technologies have brought profound changes to all human endeavors. The ease of data collection, processing, transmission, and interpretation provided these technologies have engendered the flow of information across boards and between individuals, cultures, nationalities, corporate bodies and organization as never before, causing great technological, economic and social changes and binding the world ever more closely together. Murray (2003), posited that economic

forecasts and business analysts predict that the 21st century jobs will require information processing skills. Development of information literacy, therefore, becomes inevitable for workers of the future. The call for the 21st century literacy in ICT simply reflects the fact that the call for an educated citizenry and work force continues to rise to reflect changes in the society: In the contemporary world, in all sectors of life (be it in medicine, business, banking, politics, military, economics, insurance, and even education) are integrating ICTs in their operational activities.

2.3 Theory of Innovation

Modern digital technologies – particularly multimedia and ICT – are characterized by a transition from systems that are closed, static and monistic to ones that are open, dynamic and pluralistic, ones which enable broad access to information and knowledge and invite social and scholastic interactions that transcend the constraints of time and place. These technologies offer a new interpretation of concepts such as learning, school, authority and the teacher-student relationship (Alexander, 2006; Anderson, 2004; Venezky & Davis, 2002). The widespread penetration of these technologies into all levels of education, training and higher education in recent years has dictated considerable changes in teaching-learning-training processes (Aviram, 2000; Koehler & Mishra, 2009; Kozma, 2002). This is evident in the formulation of technology-oriented pedagogical concepts (Lowenthal & Muth, 2008).

During the past decade, we have witnessed extensive implementation of educational technology as an integral part of teaching, learning and training processes (Cunningham, 2009; De Freitas & Oliver, 2005; Fullan & Smith, 1999; Halverson & Smith, 2010; Selwyn, 2010). This involves the development of unique strategies for adapting multimedia and computer technologies to educational needs and projects of innovative technology implementation such as

the ‘interactive board’, the ‘computer for every teacher’ or the ‘computer for every student’. Analysis of contemporary professional literature reveals that despite the immense inherent potential of educational technologies to enhance and improve teaching, learning and training, these educational systems have a structural resistance to the organizational and pedagogical changes resulting from their implementation (Charter, 2008; Fullan, 2001; Levin & Fullan, 2008). This resistance presents several obstacles to the implementation process (Salmon, 2005) which lead to disappointment with the limited impact the technologies have on school culture (Cuban, 1986, 1993; Venezky, 2001), a disappointment that is common to most such endeavors (Fullan & Smith, 1999; Mioduser, Nachmias, Tubin & Forkosh, 2006). As early as 1987, Papert aptly described the stagnation of the education system and its resistance to technological innovation, when he formulated his implementation paradox, claiming that the more suited innovative technologies are to the existing system and the fewer changes needed to implement them, the more marginal the impact they will have (Papert, 1987)

Studies on technological innovation implementation in education systems show that contrary to the recommendations for leading models of innovation implementation (Levin & Fullan, 2008; Rogers, 1995; Tyack & Cuban, 1995), the decision about how innovations are to implemented in education systems is usually an imposed top-down policy, that does not involve principals and teachers, and does not take into account the organizational culture, practices, norms and inherent resistance to change. (Levin & Fullan, 2008; Ogobonna & Harris, 2003; Vaillant, 2005; Zimmerman, 2006). The research also indicates that most projects focus on the external characteristics of the organization and ignore the need for a change in the organization’s culture, norms and basic assumptions (Schein, 1990) as a prerequisite for effective, meaningful

implementation of innovation (Fullan, 2006; Goldhaber & Eide, 2002; Hargreaves & Goodson, 2006; White, 2007).

The search for suitable methods of implementation has led education system leaders over the past decade to examine effective implementation strategies (Sarason, 1995). In contemporary literature we find two main implementation models: Islands of Innovation and Comprehensive Innovation. In the Islands of Innovation model, the innovation encompasses only a small part of the organization and is usually focused on a particular content area or a particular task (Mioduser et al, 2006). This model usually leads to first degree changes which mainly involve changes in the characteristics and behaviors of the organization without a significant change in its culture, norms and basic assumptions in the organization (Argyris & Schon, 1978; Raz, 2002, 2006). In contrast, in the model of Comprehensive Innovation, the innovation permeates all levels of the organization (Mioduser et al., 2006). It creates a new organizational culture and leads to second degree changes which affect values and basic assumptions in the organization (Argyris & Schon, 1978; Raz, 2002, 2006). At the highest level, this innovation might even become a paradigm shift within the organization (Pelgrum, Brummelhuis, Collis, Plomp, & Janssen, 1997).

Because of the complexity and high cost of educational technology implementation (Venezky & Davis, 2002; Fullan, 2001), many organizations choose to employ the Islands of Innovation model (Avidov- Ungar, 2010) at the first stages of integration, in the belief that this will facilitate gradual, controlled implementation during which these islands will radiate onto their surroundings and lead to comprehensive innovation (Carter, 2008; Day & Lindsey, 2009; Del Val & Fuentes, 2003). Because of the many disappointments with innovative educational technology implementation projects (Cuban, Kirkpatrick & Peak, 2001; Venezky, 2001), the Islands of Innovation model is attractive to education systems because it only uses up a small

part of their resources and any damage from failure is limited. Because the implementation is limited in scope, the big challenge in successful implementation of the islands of innovation model lies in their successful expansion to the organization as a whole, including the creation of a change in its culture, and in particular its values and basic assumptions (Dodgson & Bessant, 1996; Morrison, 1998; White, 2007).

2.4 Overview of ICTs in Education

The use of information and communication technologies in the education process has been divided into two broad categories: ICTs for Education and ICTs in Education (Tella, Tella, Toyobo, Adika and Adeyinka, 2010). ICTs for education connotes the development of information and communications technology specifically for teaching/learning purposes, while the ICTs in Education involves the adoption of general components of information and communication technologies in the teaching learning process (Olakulehin, 2007). The following are the functions of the use of ICT in education as described in literature (SER, 1998, Moonen and Kommers, 1995, Pilot, 1998). ICT as *object*. It refers to learning about ICT. Mostly organized in a specific course. What is being learned depends on the type of education and the level of the students. Education prepares students for the use of ICT in education, future occupation and social life. ICT as an '*assisting tool*'. ICT is used as a tool, for example while making assignments, collecting data and documentation, communicating and conducting research. Typically, ICT is used independently from the subject matter. ICT as a medium for teaching and learning. This refers to ICT as a tool for teaching and learning itself, the medium through which teachers can teach and learners can learn. It appears in many different forms, such as drill and practice exercises, in simulations and educational networks. ICTs are now tools for organization and management in schools (White, 2007).

The field of education has been affected by ICTs, which have undoubtedly affected teaching, learning, and research (Yusuf, 2005). A great deal of research has proven the benefits to the quality of education (Al-Ansari, 2006). ICTs have the potential to innovate, accelerate, enrich, and deepen skills, to motivate and engage students, to help relate school experience to work practices, create economic viability for tomorrow's workers, as well as strengthening teaching and helping schools change (Davis and Tearle, 1999; Lemke and Coughlin, 1998; cited by Yusuf, 2005). As Jhurree (2005) states, much has been said and reported about the impact of technology, especially computers, in education. Initially computers were used to teach computer programming but the development of the microprocessor in the early 1970s saw the introduction of affordable microcomputers into schools at a rapid rate.

Computers and applications of technology became more pervasive in society which led to a concern about the need for computing skills in everyday life. Hepp, Hinostroza, Laval and Rehbein (2004) claim that ICTs have been utilized in education ever since their inception, but they have not always been massively present. Laurillard (2002) highlighted that instructional technology and research initiatives surrounding educational innovation have evolved very quickly over the past hundred years, beginning with the development of the phonograph, radio, film and television and their implementation as teaching and learning tools in tertiary schools. As computer-based innovations were developed, they also became tools in the classroom in many forms (e.g., drill and practice software, simulations, educational games, tutorials, video disks, internet access, email, digital media, personal computers, laptops, etc). Therefore, Lucus and Murray (2002) concurred that the educational system is being challenged to change as innovative technology changes the interaction with information and knowledge and as new generations of students pass through with new expectations and new needs. Although at that time computers

have not been fully integrated in the learning of traditional subject matter, the commonly accepted rhetoric that education systems would need to prepare citizens for lifelong learning in an information society boosted interest in ICTs (Pelgrum, & Law, 2003).

ICT offers several opportunities in higher education. First, they can be used as a means of preparing the current generation of students for future workplace that is, providing tools for tomorrow's practices. This is underscored in the foreword written by Lemke (2005) in the Milken Exchange on Education Technology commissioned report. Lemke noted inter alia Today's students live in a global knowledge based age, and they deserve teachers whose practice embraces the best that technology can bring to learning. Through teachers' use of technology (ICT) students can be given the opportunities of becoming a part of the knowledge age and skills imparted to the young people in an increasingly complex world. Academics will need to use ICT in order to equip tomorrow's employees and customers with the requisite competence and knowledge to use ICT within their work (Davis and Tearle, 1999).

Conventional teaching has emphasized content. For many years course have been written around textbooks. Teachers have taught through lectures and presentations interspersed with tutorials and learning activities designed to consolidate and rehearse the content. Contemporary settings are now favoring curricula that promote competency and performance. Curricula are starting to emphasize capabilities and to be concerned more with how the information will be used than with what the information is. Contemporary ICTs are able to provide strong support for all these requirements and there are now many outstanding examples of world class settings for competency and performance-based curricula that make sound use of the affordances of these technologies (Oliver, 2000). The integration of information and communication technologies can

help revitalize teachers and students by providing them access to unlimited teaching-learning resources. This can help to improve and develop the quality of education by providing curricular support in difficult subject areas. To achieve these objectives, teachers need to be involved in collaborative projects and development of intervention change strategies, which would include teaching partnerships with ICT as a tool. According to Zhao and Cziko (2001) three conditions are necessary for teachers to introduce ICT into their classrooms: teachers should believe in the effectiveness of technology, teachers should believe that the use of technology will not cause any disturbances, and finally teachers should believe that they have control over technology. However, research studies show that most teachers do not make use of the potential of ICT to contribute to the quality of learning environments, although they value this potential quite significantly (Smeets, 2005). Harris (2002) conducted case studies in three primary and three secondary schools, which focused on innovative pedagogical practices involving ICT. Harris (2002) concludes that the benefits of ICT will be gained "…when confident teachers are willing to explore new opportunities for changing their classroom practices by using ICT. As a consequence, the use of ICT will not only enhance learning environments but also prepare next generation for future lives and careers (Wheeler, 2001). Changed pool of teachers will come with changed responsibilities and skill sets for future teaching involving high levels of ICT and the need for more facilitative than didactic teaching roles (Littlejohn et al., 2002).

According to Cabero (2001), the flexibilization time-space accounted for by the integration of ICT into teaching and learning processes contributes to increase the interaction and reception of information. Such possibilities suggest changes in the communication models and the teaching and learning methods used by teachers, giving way to new scenarios which favour both individual and collaborative learning. The use of ICTs in educational settings, by itself acts

as a catalyst for change in this domain. ICTs by their very nature are tools that encourage and support independent learning. Students using ICTs for learning purposes become immersed in the process of learning and as more and more students use computers as information sources and cognitive tools, the influence of the technology on supporting how students learn will continue to increase. In the past, the conventional process of teaching has revolved around teachers planning and leading students through a series instructional sequences to achieve a desired learning outcome.

ICTs are also transformational tools which, when used appropriately, can promote the shift to a learner centered environment. ICTs, especially computers and Internet technologies, enable new ways of teaching and learning rather than simply allow teachers and students to do what they have done before in a better way. ICTs have an impact not only on what students should learn, but these also play a major role on how the students should learn (Kozma, 2005).

Along with a shift of curricula from "content-centered" to "competence-based", the mode of curricula delivery has now shifted from "teacher centered" forms of delivery to "student-centered" forms of delivery. ICTs provide motivation to Learn. ICTs such as videos, television and multimedia computer software that combine text, sound, and colorful moving images can be used to provide challenging and authentic content that will engage the student in the learning process. ICTs help in providing a catalyst for rethinking teaching practice (Flecknoe,2002; McCormick & Scrimshaw, 2001) developing the kind of graduates and citizens required in an information society (Department of Education, 2001); improving educational outcomes (especially pass rates) and enhancing and improving the quality of teaching and learning (Wagner, 2001; Garrison & Anderson, 2003).

ICTs can help deepen students' content knowledge, engage them in constructing their own knowledge, and support the development of complex thinking skills (Kozma, 2005; Kulik, 2003; Webb & Cox, 2004). Studies have identified a variety of constructivist learning strategies (e.g., students work in collaborative groups or students create products that represent what they are learning) that can change the way students interact with the content (Windschitl, 2002). Academics and students who use ICTs gain deeper understanding of complex topics and concepts and are more likely to recall information and use it to solve problems outside the classroom (Apple Computer, 2002). In addition, through ICTs, Academics and students extend and deepen their knowledge, investigation, and inquiry according to their needs and interest when access to information is available on multiple levels (CEO Forum on Education and Technology, 2001). Babalobi (2010) acknowledges that ICT is the processing and maintenance of information, and the use of all forms of computer, communication, network and mobile technologies to mediate information.

2.5 Lecturers' Attitude on the Utilization of ICTs

Simply having ICTs in schools will not guarantee their effective use. Regardless of the quantity and quality of technologies placed in classrooms, the key to how those tools are used is the teacher; therefore teachers must have the competence and the right attitude towards technology (Kadel, 2005). Attitudes refer to one's positive or negative judgment about a concrete subject. Attitudes are determined by the analysis of the information regarding the result of an action and by the positive or negative evaluation of these results (Ajzen & Fishbein, 1980).

There is a common saying that attitude determines altitude. Studies have established close links and affinities between teachers' attitude and their use of ICTs. More positive attitudes towards the computer were associated with a higher level of computer experience (Dyck &

Smither, 1995; Teo, 2008). Students' confidence on ICT can be explained through the attitude and behaviors of their teachers. Teachers' behavior is a critical influence on students' confidence and attitude towards ICT as they provide important role model to their students (Derbyshire, 2003). The literature suggests that lack of adequate training and experience is one of the main reasons why teachers do not use technology in their teaching. This also eventuates in teachers' negative attitude towards computer and technology. In addition, lack of confidence leads to reluctance to use computers by the teachers (Kumar & Kumar, 2003).

Attitude of pre-service and in-service teachers towards computer and technology skills can be improved by integrating technology into teacher education (Zammit, 1992). Finding has revealed that a significant relationship exist between computer attitude and its use in institutions for pre-service teachers (Khine, 2001), and also for serving teachers in the affective attitude, general usefulness, behavioral control, and pedagogical use (Yuen & Ma, 2002). Attitude is a major predictor of future computer use. Lee (1997) indicated the importance of appropriate responses to the trainee's feelings about using ICT as one of the factors critical to success.

Literature suggests that lack of adequate training and experience is one of the main reasons why teachers do not apply technology utilization in their teaching. This also eventuates in teachers' negative attitude towards computer and technology. In addition, lack of confidence leads to reluctance to use computers by the teachers (Kumar & Kumar, 2003). Attitude of pre-service and in-service teachers towards computer and technology skills can be improved by integrating technology into teacher education (Zammit, 1992). Findings have revealed that a significant relationship exist between computer attitude and its use in institutions for pre-service teachers (Khine, 2001), and also for serving teachers in the affective attitude, general usefulness, behavioral control, and pedagogical use (Yuen & Ma, 2002). Attitude is a major predictor of

future computer use. Lee (1997) study indicated the importance of appropriate responses to the trainee's feelings about using ICT as one of the factors critical to success.

Thus, there is the need to take care of the emotional needs of student teachers as attitude is a major predictor of future ICT use. Student teachers have positive attitude and are highly enthusiastic about interactive whiteboards as an important feature of teaching and learning, and this motivated them to practice using the technology (Kennewell & Morgan, 2003)

2.6 Lecturers' Competence on the Utilization of ICTs

Regardless of the quantity and quality of technology available in classrooms, the key to how ICTs are used is the lecturer; therefore, lecturers must have the competence and the right attitude to-wards technology (Kadel, 2005). Competence is defined as the ability to combine and apply relevant attributes to particular tasks in particular contexts. These attributes include high levels of knowledge, values, skill, personal dispositions, sensitivities and capabilities, and the ability to put those combinations into practice in an appropriate way (Commonwealth Department of Educa-tion, Science and Training, 2002). An ICT competency describes what a lecturer should know to be able to use technology in his/her professional practice. Kirschner and Woperies (2003) highlighted some major ICT competencies lecturers require. These include competency in making personal use of ICT, mastery of a range of educational paradigms that make use of ICT, making use of ICT as minds tools, using ICT as tool for teaching, mastering a range of assessment paradigms which involves use of ICT and understanding the policy dimensions of the use of ICT for teaching and learning. In Nigeria, higher education institutions still have a long way to make optimal use of ICT in the learning process as the ICT competencies of the majority of teachers at this level is at the basic level, if they have any at all.

At the global level UNESCO designed a competency framework for teachers (ICT-CFT), which was launched in 2008 to help educational policy-makers and curriculum developers identify the skills teachers need to harness technology in education (UNESCO, 2002). The Competency Standards were developed in cooperation with Cisco, Intel, and Microsoft, as well as the International Society for Technology in Education (ISTE).The framework was created by crossing three approaches to ICT integration in education (Technology Literacy, Knowledge Deepening, and Knowledge Creation) with the six components of the educational system (Policy & Vision, Cur-riculum & Assessment, Pedagogy, ICT, Organization & Administration, and Teacher Profes-sional Development).

Krumsvik (2008) emphasized that specific competence besides the ordinary technology competence is required from teachers because the focus of their work is in education and instruction. He defined teachers' ICT competence as teacher's proficiency in using ICT in a professional context with good pedagogic-didactic judgment and his or her awareness of its implications for learning strategies. Kabakci (2009) proposed a framework for developing teachers' ICT resources competence. His framework is based on a stage based model introduced by Zhao, and Cziko (2001) presenting teachers, technology use according to the following four stages: Survival stage, Mastery stage, Impact stage, and Innovation stage. Kabakci (2009) proposed that the most important aspect in the framework is that teachers should participate in professional development programs according to the stages of technology use, and media resources related activities should be realized in accordance with each teacher's current stage of ICT use. Sabliauskas, Bukantaite, and Pukelis (2006) made a review of several research publications modeling the ICT competency areas for teachers, Based on the review, they constructed the following list of areas included in teacher ICT competencies, Basic ICT

competencies, Technological ICT competencies, ICT policy competencies, Competencies in the ethical areas of ICT use, Competencies of ICT integration into the teaching subject, Competencies of didactical methods based on the use of ICT and Competencies of managing teaching/learning process working with ICT. Studies have revealed that there is a wide gap between policy development and implementation in the Nigerian schools as regards computer education in Nigerian schools (Jegede & Owolabi, 2005). Gaining an appreciation of student-teachers' attitude and perceived competence in the use of ICT may provide useful insight into the future of technology integration, acceptance and usage in teaching and learning in Nigerian teacher education institutions and other developing countries.

Educational systems around the world are under increasing pressure to use the 'new' ICT (UNESCO, 2002 as cited by Yuen, Lee, Law & Chan, (2008) based on the premise that it is important for bringing changes to classroom teaching and learning. These skills include the ability to become lifelong learners within a context of collaborative inquiry and the ability to work and learn from experts and peers in a connected global community (Law *et al*., 2008). The information society demands a workforce that can use technology as a tool to increase productivity and creativity. This involves identifying reliable sources of information, effectively accessing these sources of information, synthesizing and communicating that information to colleagues and associates (Alibi, 2004). Hence, Hawkins (1998) affirmed that information is a key resource for undergraduate teaching, learning, research and publishing. This brings the need for effective methods of information processing and transmission.

2.7 ICT Availability, Accessibility and Use by Academics

As technological innovation continues in universities, levels of ICT availability, accessibility and use for faculty, schools, students and educational technologists become increasingly important; it is clear that "different technologies are deployed at different rates in different ways at different settings" (Molenda & Sullivan, 2002:43). Some major questions asked include the elements that would constitute effective professional development programs for faculties. Researchers need to investigate effective ways to help each population successfully work with new instructional technologies. Also Vanderlinde and van Braak (2010) report that, ICT infrastructure measures the perceived availability and suitability of the ICT tools such as hardware, software and peripheral equipment provided in the school. Cowie, Jones and Harlow, (2005) report that with the ICT infrastructure provided, the teachers were able to access school network, the Internet and laptop accessories (printer, digital camera, data projector, large TV screen, scanner and video camera). Hence, the educators have more prospects to utilize instructional technology when the ICT infrastructures are provided in a well manner. Earlier research studies have shown clearly that ICT infrastructure can be one of the factors that influence the technology use among the teachers (Cowie, Jones & Harlow, 2005; Shiue, 2007).

In a study in South Western Nigeria, Olatokun (2009) defined access in terms of physical access to an ICT device. The simplest, though most limited, way of thinking about ICT access is in terms of ownership of a device (Warschauer, 2004). Ownership, however, is not the only way people gain access to ICTs. Even if a person does not own a particular ICT device, sometimes they can access one through another member of the household, a friend or a neighbour, through the work place, or in public places. "Access" means an individual could utilize an ICT because it is available, but may not necessarily be doing so, while "use" means a person is actually

utilizing an an ICT facility. Computer access has always been an important factor for successful adoption of technology (Ho, 2010). Wood, Mueller, Willoughby, Specht and DeYoung, (2005) claimed that lack of access to computer labs or the inconvenient location of computers inhibited the teachers' use of ICT in their teaching. Access to computers also had a significant impact on their competency and this in turn affected the use of computers in their classrooms Wood, Mueller, Willoughby, Specht and DeYoung, (2005) Pickersgil (2003) found out that the ease of access and ICT facilities allow academics to become experts in searching for information rather receiving facts. He claimed that ease of accessibility increases that awareness of the world around them. Lack of access to much needed infrastructure is the result of insufficient funds (Ololube, Ubogu & Ossai, 2007).While ICT continues to advance in western and Asian countries, African countries still experience a lag in its implementation, and that continues to widen the digital and knowledge divides. Kiptalam and Rodriguez. (2011) observed that access to ICT facilities in higher learning institutions is a major challenge facing most African countries, with a ratio of one computer to 150 students against the ratio of 1:15 students in the developed countries.

An earlier study by Pelgrum (2001) reported on a survey of 26 countries on the obstacles perceived by teachers to impede computer use in the classroom. The study showed insufficient number of computers as one of the top obstacles which affected the realization of ICT in the schools. In line with a recent study by Albirini (2006) who also found out that Syrian teachers surveyed in his study reported a high access to computers at home (owned computers at home) but only a few had access to computers at school. This indicated that insufficient computers at school posed a major challenge to ICT integration in schools. Computer software was also mentioned as another challenge to teachers. With the lack of appropriate software, teachers faced

with the problem of matching the software to the curriculum of the school and they also faced the lack of guidance on how to make use of it. According to Albirini (2006), this was made even more difficult with the lack of country version of educational software. He indicated that although there were computers available, appropriate computer software could be a major challenge for teachers to integrate ICT. Even when teachers have received training in the use of ICT, on-site technical support was not available at schools. When faced with technical problems teachers seem to lose confidence in using technology (Ho, 2010). Human resources are necessary to provide technical support for equipment maintenance and repair and to provide help with the design, implementation and evaluation of an innovation (Ely, 1976). Yang and Huang (2008) in a study of high school English teachers in Taiwan revealed that the lack of support and poor management of hardware were seen as barriers to ICT use in teaching.

Thus, effective professional development may require an understanding of the kinds of motivations and psychological resistances that determine how faculties will decide to use new technologies. To what degree, for example, is the adoption of instructional technology related to a faculty's disciplinary affiliation or commitment to high quality instruction? As information technologies become increasingly woven into social expectations, Molenda and Sullivan (2002) opine that the pressure to adopt them in education can only increase. Informing educational leaders and decision makers on the full range of issues concerning development and deployment of technology and innovation is increasingly a critical priority.

The demands on higher education faculties no longer focus solely on content expertise but also on creating active learning environments that integrate technology within content. Faculties can adapt to this role by reflecting, analyzing, observing, implementing, and evaluating

successful examples of best practices in technology integration (Ertmer, 1999). Use of an Innovation Component Configuration Map (ICCM) which measures technology integration practices, would also help faculties reflect on their pedagogical practices related to technology integration within their curriculum and allow them to document contemporary exemplary practices in technology integration.

Ertmer (1999) elaborates further between external (first order) and internal (second order) barriers. First order barriers would include lack of access to ICT facilities, support, time constraints, and tenure and promotion guidelines which do not promote innovation. Second order barriers would include beliefs about instructional technology, teaching methodologies, and attitudinal change. Similarly Rockwell, Schauer, Fritz and Marx (1999) reveal specific factors such as time requirements, cost, instructional design, instructor-student relationships, reward structure, degree programs, policy and training. In addition, their study (a survey of 207 faculty and 30 administrators) revealed faculties do indeed have pedagogical concerns, such as "providing innovative instruction and applying new teaching techniques". However, a scrutiny of their work falls short on how to address these intrinsic concerns of academics motives regarding availability, accessibility and use of ICT.

Taking a cue from the above, the unavailability and inaccessibility of ICT facilities affects the use of ICT by the academics of higher education. This means that Academics inability to access internet, computers, scanners, video conferencing, emails among others in higher educational institutions, consequently translates to Academics not using these facilities for collaboration, research, teaching, learning, distance learning and improved student-faculty relationship as purported in the objectives of the study. With exponential growth in e-learning or distance education practices in higher education, there is the increasing interest in faculty

members' use of and perceptions of ICT. While the innovators and early adopters of e-learning have embraced it enthusiastically, the majority of faculty members seem still disengaged and uninterested in learning (Newton, 2003). Access to ICT, point to the heart of faculty members' disposition to change, innovation adoption, and general unwillingness to move out of their comfort zones to develop new skills and competencies in order to be able to cope with new phenomena. It has been suggested that engagement in innovative educational practices has tended to render faculty members vulnerable. Besides, it has the potential to detract them from the pursuit of their research and other reward-related activities (Bower, 2001; McKenzie *et al*., 2000).

Innovation in teaching and research, especially in view of the changing context of higher education, is inevitable (Clarke, 2003). The political, social, economic and educational imperatives for the engagement in e-learning now seem to be clear. However, without institutional sponsorship, support and appropriate rewards for engagement in ICT (e-learning) and the pursuit of excellence, faculty members are likely to remain disengaged and unenthusiastic about engagement in e-learning or innovative educational practices.

2.8 Utilization of ICTs by Lecturers

Much literature described faculty in higher education as comfortable using technologies such as word processing, email, and web searching (Vannatta, 2000), but not comfortable integrating technology into their classroom practices for meaningful learning (Ropp and Brown, 2000). The issues of best practices in innovative use of technology and integration among higher education faculty are not clearly focused and the results of research in this area vary widely indicating the need for additional research (Kozma, 2003).

Interestingly, a study by Agbatogun (2006) discovered that with global technological wave that is affecting every sector and every aspect of academics' life whether male or female, experienced or inexperienced, humanities, science or vocationally oriented need to struggle zealously to be computer literate in order to face the present educational challenges. Not only that, Onasanya, Shehu, Oduwaiye and Shehu (2010) confirmed the findings in this study that, attitude of male academics towards integration of ICT in tertiary institution is higher than female academics. Male academics were rather found to be more interested in the use of ICT facilities/equipment for teaching and research work than their female counterparts in the Humanities and Arts.

Chong, Sharaf and Daniel (2005) found out that most academics in higher learning institutions use ICT on regular basis for common computer packages such as word processing, spread sheet, databases and for internet services such as search engine. This is supported by Amanortsu *et al*. (2013) that found Academics used computer slides presentation and reading materials from web sites. Surprisingly, Chong, Sharaf and Daniel only discovered fewer academics using higher level skills activities such as evaluative (e.g. assignments, portfolio, testing), instructional (e.g. drill practice, tutorials, remediation), organizational (e.g. database, spread sheets, record keeping, lesson plans) and creative (e.g. Desktop publishing, digital video, digital camera, scanners, and graphics) as these activities required specialized knowledge and training in order to used it. Chong *et al.* (2005) claimed that eight aspects of computing purposes were: informative, communicative and expressive, integrating computer technology, evaluative, instructional, organizational and creative purpose.

Secondly, ICT can make the university more efficient or more productive, engendering variety of tools to support and facilitate teacher's professional activities. Finally, ICT is seen as

means to reform and innovate teaching, that is, to stimulate learners to learn actively and independently in a self-directed way and/or in collaboration with others (Kirschner & Woperies, 2003). It can be deduced that ICTs can be used to enhance learning and teaching within a university system.

However, some scholars (McFarlane & Sakellariou 2002; Bransford, Brown, & Cocking, 2000) have raised doubts about the effectiveness of ICTs in education. Others have claimed that the effectiveness of ICT depends on those who use them. Academics are key to the successful implementation of ICT in higher education. "What we do know, whether from personal experience as teacher or learner, or as the result of 20 years of research is that ICT has an impact on learning, for some learners, under some conditions, and that it cannot replace a teacher" (McFarlane & Sakellariou 2002).

McFarlane has placed great emphasis on the key role of the Academic's skill in integrating ICT. Abimbade (1998) expressed that one needs to be literate in the use of computers to effectively use them in teaching, learning and research. To fully tap into the outcomes from the availability, accessibility and use of ICT facilities scholars such as Bower (2001) and McKenzie *et al*., (2000) suggested that faculty members' dispositions to change, innovation adoption and general unwillingness to move out of Academics' comfort zones and develop new skills and competencies in order to be able to cope with new phenomena is most critical. Therefore, they advocated the engagement in innovative educational practices that have tended to render faculty members vulnerable and more importantly, it has the potential to detract them from the pursuit of their research and other academic related activities.

2.9 Empirical studies on use of ICT in Nigeria

A study by Zubairu (2014) on the use of ICTs by Federal Colleges of Education in Nigeria concluded that ICT resources are not available in Federal Colleges of Education in Nigeria. The study also reported that ICT resources that were supposed to be used in content delivery by lecturers were not accessible and lecturers were not exposed and proficient in using ICT resources. Cirfat, Zumyil and Ezema, (2003) assessed the adequacy, relevance, and utilization pattern of available ICT facilities in two Colleges of Education in Plateau State. The result of the study indicates that the status of ICT in the two Colleges of Education was below average. Very few ICT facilities were available. Apart from the computer department, none of the departments in the school of sciences possesses a computer, and any of its accessories.

Busari (2003) carried out an investigation into the training status and ICT support of teacher trainers in institutions of higher learning in Lagos State. All the Colleges of Educations, Universities and Polytechnics in Lagos State formed the population of the study. It was found out that most teacher trainers has little ICT support from their employers and that the majority of them rarely applied ICT in instructional delivery.

A study carried out by Wisdom and Terumber (2012) examined ICT resource utilization, availability and accessibility by teacher educators in the College of Education (COE) Katsina-Ala. The study revealed that ICT resources were not available in COE Katsina-Ala for teacher educators' instructional development. Teacher educators in COE Katsina-Ala could not access ICT resources for instructional development purposes., The study also shows that ICT resources were not available in COE Katsina-Ala. The institution did not supply computers to its lecturers, many of them owned personal laptops and desk top computers which were not connected to the

internet and as such could not access internet services in their offices for instructional preparations. They mostly relied on personnel mobile devices to access the internet.

Similarly, Ajayi (2008) observed that there were no functional ground internet facilities in most of the tertiary institutes in Nigeria. This appears to hinder the extent of teacher educators' exposure to the use of ICT in instructional delivery. Teachers as well as students appear not to be knowledgeable in the use of ICT because there appears not to be any official training for both the teachers and the students in school. It has also been observed by (Ajayi, 2008) that most tertiary institutions lack computer literate teachers; irregular power supply appears to thrive in the institutions. Moreover, it seems the institutions could not purchase enough computers for use because of inadequate funding. Besides, the non proper inclusion of the ICT programs in the curriculum of Nigerian educational system seems to be another major challenge facing the adoption of ICT in teacher training institutions.

Adeshina et al (2013) investigated the use of internet based information for teaching secretarial studies in colleges of education in Nigeria with the revelation that access to Internet by the lecturers was very poor. The study revealed lack of proper training on the use of the internet for instructional delivery as the major reason for this limited access and use of internet resources in teaching. In another study, Oghuvwu, (2010) states that lecturers in colleges of education in Delta state of Nigeria are proficient in internet usage as his findings show that they use databases, electronic mail, search engines and the world wide web to conduct research as well as teach their courses. In a similar study, Viatonu, Olagunju and Adeyemi, (2013) report that male academic staff members use the internet more than their female counterparts in private colleges of education in Lagos State of Nigeria.

Akpan (2014) investigated the influence of ICT competence on lecturers' Job in two Nigerian universities. The results of the study revealed that male and female lecturers did not differ significantly in their level of ICT competence. Lecturers with high ICT competence were found to be more efficacious in classroom instruction, research/publication, communication and recordkeeping than those with moderate and low ICT competence. The findings of this study revealed that the level of ICT competence of lecturers significantly enhanced their job efficacy.

Tella (2011) conducted a survey on College of Education staff on the level of availability, use of and perception of the impact of ICT on teacher education in South Western Nigeria. The study revealed low level of usage of ICT gadgets and non-availability of some ICT equipments. The results of the study revealed and suggested a low level of usage of ICT gadgets; non availability of ICT equipment and that the respondents were disgruntled with the sluggish use and integration of ICT level of availability and use of ICT in some South-western Nigeria Colleges of Education.

A study by Kpolovie and Awusaku (2016) on ICT adoption attitude of lecturers in two universities in Rivers state Nigeria revealed that gender and area of specialization have no significant difference in the attitude of lecturers' towards ICT adoption in teaching and research. On years of experience, moderately and less experienced lecturers are more competent in the use of ICTs than their highly experienced counterparts. ICT facilities are significantly more accessible at the Federal university (University of Port Harcourt) than at the State university (Rivers State University of Science and Technology).

Onasanya, Shehu, Oduwaye and Shehu, (2010) studied attitude of higher institution teachers towards the integration of ICT in teaching and research. The study revealed that University lecturers and Polytechnic lecturers are better trained in ICT integration in teaching

than their college of education counterparts. Ani, Edem and Ottong, (2010) discovered that lecturers in the University of Calabar have very low access to internet with most respondents gaining access to the internet though commercial cybercafés off campus. The study further revealed that the major reasons for internet access are communication, teaching and research related activities among others. Other researcher report that internet access in most institutions of higher learning is mostly gained through cybercafés (Mishra, 2009; Bankole & Babalola, 2012; Omotayo, 2006). Apart from using commercial cybercafés to gain internet access, Ogunrewo & Odusina (2010) state that academic staff of tertiary institutions were found to access the internet mostly via personal computers as they surf the net for information on research and academic materials.

A study by Onwuagboke, Ranjit-Sing, Fong and Unwogbuke (2014) on how faculty members in colleges of Education in South Eastern Nigeria make use of the internet in their professional practices revealed that Self-instruction, trial & error; organised training and workshops and Colleagues & friends assistance are the major source of internet training for faculty members. Similarly, Personal Laptop with modems; Personal mobile phones and Public cybercafé are the predominant mode of internet access available to faculty members. Significant differences exist between male and female faculty members with regards to internet use and frequency of use. There were also significant differences in internet uses and frequency of use between groups of faculty members according to teaching experience.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the methods, procedures and techniques used in the conduct of the study. Specifically, it discusses the research design, population, sample and sampling technique, instrumentation, validity of the instrument, pilot testing and reliability of the instrument, procedure for data collection and procedure for data analysis.

3.2 Research Design

The study adopted the survey research design. A survey is used in studies that have individuals as units of analysis (Babbie, 2001). This is also what Nworgu (1991) described as allowing a group of people or items to be studied by collecting and analyzing data from only a few people or items to be considered as representative of the entire group.

It allows the researcher to gather information about a target population without undertaking a complete enumeration. It is a research method that is good for both small and large population and it is a common research method in social science (Hale, 2011).

3.3 Population

The population of this study comprised of all the lecturers in two Colleges of Education. They consist of 555 male lecturers and 422 female lecturers. There were 977 male and female respondents. Their distribution is presented in table 3.1 as follows:

Table 3.1: Distribution of Lecturers in Colleges of Education in Kaduna State

Institution	Female	Male	Total
College One	209	346	555
College Two	62	360	422
GRAND TOTAL	**271**	**706**	**977**

Source: National Commission for Colleges of Education (NCCE), 2011.

3.4 Sample and Sampling Technique

A sample size of 274 lecturers was used for the study. Stratified Random sampling technique using the Krejcie and Morgan (1971) sampling table of was employed to obtain the proportion of the respondents from the sample frame of 977 lecturers.

3.5 Instrumentation

The measurement scale used in this study for data collection was a 41 items questionnaire adapted. It has four (4) different sections; Section A required the respondents' demographic information that includes: Sex and Qualification of the respondents', while Section B – D contains 41 items on "Assessment of attitude, self efficacy and access of ICT resources for instructional purposes among lecturers in Colleges of Education in Kaduna state".

It was designed on a four point Likert scale type in which the respondents chose from the options provided. The Respondents responded to the items by a tick (√) against the appropriate option that reflect their perception as seen in Appendix 1.

3.5.1 Validation of the Instrument

The researcher ensured content validity of the instrument by ensuring that questions in it conformed to the study's research objectives and conceptual framework. The instrument was submitted to three experts within Ahmadu Bello University who evaluated the relevance, wording and clarity of questions in the instrument. The research experts independently judged

the validity of the items in the questionnaire. The validations were made by Faculty Members; one from the Department of Measurement and Evaluation and Educational Psychology while the other two were from the department of Educational Foundations and Curriculum (Instructional Technology Section).

3.5.2 Pilot Testing

To ensure the reliability of the instrument a pilot test was conducted in one of the Federal Colleges of Education in the North West. The institution selected is similar to those that were used in the study in terms of location and other features. The lecturers have common traits in terms of curriculum. The pilot test involved administration of the questionnaire to a group of 20 lecturers in the aforementioned institution.

3.5.3 Reliability of the instrument

Reliability is the degree of accuracy with which an instrument measures whatever it is measuring. Reliability has to do with consistency and stability of the instrument. To establish index of the instrument from pilot study conducted, the Cronbach Alpha Moment Co-efficient provided by SPSS. The calculated value of alpha was found to be 0.847. As the acceptable reliability coefficient value of alpha is 0.70, the instrument was considered reliable.

3.6 Procedure for Data Collection

After establishing the validity and reliability of the instruments, an introductory letter was obtained from the Head, Department of Educational Foundations and Curriculum, ABU, Zaria, which was used to facilitate the ease of the administration of the questionnaires in the respective colleges. To save time and reduce on transport costs, the researcher used the services of fellow lecturers as research assistants who distributed Self Administered Questionnaires (SAQs) to

lecturers. 274 questionnaires were distributed to lecturers. The filled SAQs were collected from the research assistants after three weeks from the first College of Education and after three months from second College of Education. Thereafter, the items were coded and then entered into the computer for analysis. Out of 274 SAQs distributed to lecturers, 220 (80%) were filled correctly and returned while 54 (20%) were not returned.

3.7 Procedure for Data Analysis

Frequency counts and percentage were used to explain the demographic data of the respondents. Frequency count and descriptive statistics were used to answer the research questions. Objective 1 was achieved using Likert Composite index for Lecturer's attitudinal index. Objective 2 was obtained from Likert scoring scale. Objective 3 was also obtained from the Likert scale. All these indices were obtained and their threshold was determined.

The hypotheses ware determined using one way ANOVA t-test. This was used for difference between teachers' attitudinal index from different colleges and also for accessibility based on the criteria specified. Data were collected using structured questionnaires from the respondents. Data collected were analyzed using SPSS version 22. Research questions were answered using Mean and Standard deviation while research hypotheses raised were tested using t-test and ANOVA at a 0.05 level of significance.

CHAPTER FOUR

DATA ANALYSIS, RESULTS, AND DISCUSSION

4.1 Introduction

This chapter focused on data analysis, presentation and discussion of results obtained from the study.

4.2 Analysis and Results Presentation

Table 4.2.1: Distribution of Respondents by College

	Frequency	Percent
College One	135	61.36
College Two	85	38.63
Total	220	100.0

Table 4.2.1 shows the distribution of respondents by college affiliation. The results indicate that lecturers working with College one accounted for 60.8% of the respondents while lecturers working with College two accounted for 40.2% of the respondents. The same trend is repeated on the funding organ of the colleges with 60.8% working in a Federal Government funded institution, while 40.2% indicated that they were working in a state government funded institution.

Table 4.2.2: Distribution of Respondents by Gender

	Frequency	Percent
Valid	4	1.8
Male	143	65
Female	77	35
Total	220	100.0

Furthermore, the data in Table 4.2.2 shows that out of 220 respondents, 173 (65.50%) are male while, 77 (34.50%) are female. This means that the male lecturers form the majority of the respondents that took part in the study.

Table 4.2.3: Distribution of Respondents by Qualification

Qualification	Frequency	Percent
B.Ed	72	32.7
BA.Ed	34	15.5
B.Sc Ed	14	5.64
PGDE	18	8.2
M.Ed	63	28.6
Ph.D	19	8.6
Total	220	100.0

Table 4.2.3 shows that 72 (32.70%) of the respondents who took part in the survey are are B.Ed degree hplders, 48 (21.8%), are BA.Ed holders followed by B.sc (Ed) 14 (5.64%). The number of respondents who possess PGDE was 18 (8.2%), next are 63 (28.6%) with M.Ed, while 19 (8.6%) possess Ph.D respectively.

4.3 Answering Research Questions

The three research questions raised were answered using descriptive statistics (Mean and Standard deviations) as follows:

Research Question One

Research Question 1: What are the attitudes of lecturers towards the use of information and communication technology (ICT) facilities for instructional purposes?

To answer the above question, the respondents were asked to rate their attitude towards the use of ICT resources for instructional purposes on a five point Likert scale. Item 5-19 of the research

instrument was used to answer this question. The result is presented in the table 4.3.1. as follows:

Table 4.3.1: Lecturers attitude on the use of ICT resources for instructional purposes

S/N	Rating Items	Strongly agree	Agree	Disagree	Strongly disagree	Mean response	Decision
5	Use of ICT tools would help me organize my work	65	107	24	11	3.09	Agree
6	Using ICTs will make subject matter more interesting	45	98	57	10	2.85	Agree
7	Use of ICTs save time and effort	65	112	20	6	3.16	Agree
8	Using of ICTs is enjoyable	58	110	30	9	3.05	Agree
9	Use of ICTs make me more productive	50	117	29	8	3.02	Agree
10	Use of ICTs in Teaching offers real advantage	91	89	25	10	3.21	Agree
11	ICTs have proved to be effective learning tools	37	80	59	33	2.58	Agree
12	Use of ICTs can enhance students learning	68	103	29	9	3.10	Agree
13	I would rather do things by hand than with ICTs	70	71	55	15	2.93	Agree
14	Use of ICT will improve education	64	118	11	14	3.12	Agree
15	ICTs do not scare me at all	47	114	37	13	2.92	Agree
16	I do not like talking with others about ICTs	29	45	45	37	2.57	Agree
17	I like to use ICTs in teaching	66	90	39	14	3.00	Agree
18	ICTs are a fast means of getting information	92	87	20	9	3.26	Agree
19	I would like to learn more about ICTs	105	68	20	15	3.26	Agree
	Cumulative Mean					**3.01**	
	Decision Mean 2.50						

The result presented in the table above indicated a positive attitude. The lowest mean score is 2. 57 and the highest mean score is 3. 26; meaning that all the scores are above the average score of 2.50.

Research Question Two: What are the levels of self efficacy of lecturers in the use of information and communication technology (ICT) for class instruction?

To answer this question, respondents were asked to rate themselves on their perceived ability to use ICT resources for instructional purposes. The purpose was to ascertain the skill level of lecturers in using ICTs for instructional purposes. Item 20-29 of the research instrument were to answer this question. The result is presented in the table 4.3.2. as follows:

Table 4.3.2: Lecturers self- efficacy on the use of ICT resources for instructional purposes

S/N	Rating Items	Highly Competent	Competent	Fairly Competent	Not competent	Mean response	Decision
20	Using ICT in content delivery	39	107	58	1	2.90	Agree
21	Using ICT to conduct research	34	102	54	2	2.88	Agree
22	Using ICT to asses students' performance	32	107	53	17	2.74	Agree
23	Using ICT to keep students' records.	43	137	24	7	3.02	Agree
24	Using ICT to prepare lesson notes.	27	114	59	6	2.79	Agree
25	Using ICT to presents instructional materials	36	105	54	5	2.86	Agree
26	Using ICT to motivate students' learning	26	109	52	20	2.68	Agree
27	Using ICT to impart learning in students.	25	106	50	15	2.72	Agree
28	Using ICT to control students' learning.	23	95	43	49	2.44	Disagree
29	Using ICT to make lesson presentation more interesting	34	111	55	9	2.81	Agree
	Cumulative Mean					**2.75**	
	Decision Mean 2.50						

- Agree here = competent
- Disagree = Not competent

Table 4.3.2. Show that a majority of the lecturers indicated that they are competent in using ICTs for instructional purposes. The mean score for each of the items is above 2.50 indicating a level of self efficacy that is above average. Item number 23 has the highest mean score, meaning that using ICT to keep students records is the highest self efficacy of the lecturers involve in the study.

Research Question Three: To what extent are the information and communication technology (ICT) facilities accessible to lecturers of the Colleges of Education?

Research Question three sought to assess the types of ICT resources that are accessible to lecturers for instructional purposes. To answer this question, respondents were asked to rate themselves on the items provided on the perceived accessibility to ICT resources for instructional purposes. Items 30-41 of the research instrument were used to answer this question. The result is presented in table 4.3.3 as follows:

Table 4.3.2: Lecturers accessibility to ICT resources for instructional purposes

S/N	Rating Items	Highly Accessible	Accessible	Fairly Accessible	Not Accessible	Mean Response	Decision
30	Computer system e.g Laptop, desktop	27	90	48	35	2.55	Agree
31	Flash drive	25	67	99	2	2.60	Agree
32	Printer	22	59	45	68	2.18	Disagree
33	Word Processing Excel, Power point	27	68	57	44	2.40	Disagree
34	Smart Board	21	46	33	95	1.96	Disagree
35	Scanning machine	28	45	33	74	2.15	Disagree
36	Internet Connectivity	27	43	59	67	2.15	Disagree
37	Digital Projector	30	38	45	79	2.10	Disagree
38	Digital Camera	30	38	45	56	2.25	Disagree
39	Radio	132	33	16	7	3.54	Agree
40	TV	67	65	56	10	2.95	Agree
41	DVD	63	27	82	20	2.69	Agree
	Cumulative	**Mean**				**2.46**	

Decision Mean 2.50

Result in table 4.3.3. shows a mean score of less than 2.50 for all the items except for items 39, 40 and 41 respectively with mean scores of 3.54, 2.95 and 2.69. This by implication means that lecturers in the two colleges of education covered in this study do not have good access to the facilities identified in the measurement scale except for Radio, Television and DVD. Thus, except for Radio, Television and DVD Players lecturers in Colleges of Education hardly uses ICT facilities in the instructional delivery..

4.4: Hypotheses Testing

$H0_1$: There is no significant difference in the attitude of lecturers towards the use of ICTs for instructional purposes in Colleges of Education based on their qualification.

To test this hypothesis, One Way ANOVA was used on the difference between attitudes of lecturers towards the use of ICTs for instructional purposes in Colleges of Education based on qualification and is presented in table 4.4.1 as follows:

Table 4.4.1: ANOVA Statistics on Attitude of lecturers towards the use of ICTs for Instructional Purposes in Colleges of Education based on their qualification

Groups	Sum of Squares	Df	Mean Square	F	P-value	Decision
Between Groups	12.000	4	3.000	6.909	0.000	Reject H_0
Within Groups	86.849	200	0.434			
Total	98.849	204				

The result of the ANOVA in respect of the first hypothesis as shown in Table 4.4.1 indicate that the calculated F value (6.909) is greater than the p-value (0.05) at 4 degrees of freedom. Therefore going by the decision rule, null hypothesis which states that there is no significant difference in the attitude of lecturers towards the use of ICTs for instructional purposes in Colleges of Education based on their qualification is therefore rejected. The result reveals that significant differences exist in the attitude of lecturers towards the use of ICTs for instructional purposes in Colleges of Education based on their qualification. This implies that, respondent from College one (Federal Colleges) have more access than those in College two (the State Colleges).

$H0_2$: There is no significant difference in the availability, accessibility and the use of ICTs for instructional purposes in Colleges of Education based on source of funding.

Table 4.4.2: t-test Analysis of Availability, Accessibility and the Use of ICTs for instructional purposes in Colleges of Education based on source of funding

Groups	N	Mean	S.d	Df	t-cal	P-value	Decision
Federal	122	2.79	8.89	195	4.793	0.00	Reject
State	95	2.19	5.02				H_{01}

*Significant at $p \leq 0.05$

Table 4.4.2 shows the t-test comparison of availability, accessibility and the use of ICTs for instructional purposes in Colleges of Education based on source of funding. The calculated t-value (4.793) is higher than the critical p- value (0.05). This indicates that there is a statistical significant difference in the use of ICTs for instructional purposes based on source of funding at 0.05 level of significance. Therefore, going by the decision rule, $H0_1$ which states that there is no significant difference in the availability, accessibility and the use of ICTs for instructional purposes in Colleges of Education based on source of funding was rejected. Hence there existed a significant difference in the availability, accessibility and the use of ICTs for instructional purposes in Colleges of Education based on source of funding.

4.5 Summary of Major Findings

The summary of major findings is as follows:

1. The study revealed that a majority of the lecturers have a positive attitude towards the use of ICTs for instructional purposes

2. The study also revealed that majority of the lecturers are competent in using ICTs for instructional purposes.

3. A majority of the lecturers perceived that a greater majority of the ICT resources mentioned in the study instrument (printers, digital projectors, smart board, scanning machines, digital cameras and internet connectivity) were not accessible for instructional purposes. Only a few of the items (computers, flash drive, radio, TV and DVD) were rated as being accessible for instructional purposes.

4. All the hypothesis were rejected.

4.6: Discussion of the findings

The results revealed that most teachers possess positive attitudes towards the use of ICT for educational purposes. This finding is consistent with other research (Albirini, 2004; Abdullah, *et al.*, 2006; Abu-Samak, 2006) showing the importance of teachers attitudes as a crucial factor related to ICT use. Developing teachers' favorable attitudes toward the use of ICT for educational purposes might be a result of the usefulness of ICT in the field of education. Thus, in order to enhance the utilization of ICT for educational purposes teachers should use ICT more frequently, use ICT for various educational tasks, and should believe that ICT makes a difference in their students' education and in the quality of their work. Lecturers play an important role in the implementation of ICT into schools and their attitudes have proved to be significant predictors of technology use in other words, teachers' attitude towards the use of ICT for educational purposes is one key factor for the success of the ICT utilization in schools. Researchers from different parts of the world believe that the use of ICT tools for educational purposes depends upon the attitudes of teachers toward the technology (Albirini, 2004; Teo,

2008; Huang & Liaw, 2005). Teachers' attitudes toward ICTs can determine the extent to which technologies are used in the process of teaching and learning. The attitude towards computer use is generated by an individual's salient beliefs about the consequences of continued use and his evaluation of these consequences. According to Summers (1990), the teachers' existing attitudes, skills, and working habits will have great influence on their acceptance, style of implementation, and outcome of using computers for teaching. The quantitative results for this question definitively indicated that the majority of the teachers have a positive attitude towards the use of ICT in teaching and learning process.

The result of the study on lecturer's self efficacy in using ICTs as shown in Table 4.3.2 revealed that a majority of the lecturers indicated that they are competent in using ICTs for instructional purposes except when using it to control students' behavior. On this point, a majority of lecturers indicated that they are not competent in using ICTs to control student behaviour. This result contradicts a similar study by Zubairu (2014) who reported that lecturers in Colleges of Education in North Western Nigeria were not proficient in using ICTs. Also in the same vein, Adelabu *et al.,* (2014) reported that lecturers in the University of Ibadan were not competent in using ICTs for teaching purposes. The results of this study may signify a shift in lecturers competencies or that interventions and policies enacted earlier to equip lecturers with such skills have started yielding fruit.

The study revealed that a majority of the lecturers are of the opinion that most of the ICT resources were not accessible for instructional purposes. Only a few of the items were rated as being accessible for instructional purposes. The implication of this is that there are not enough accessible ICT resources for instructional purposes in the two institutions. This result corroborates similar reports by Zubairu (2014), Lawal, Ahmadu and Dogara (2003) and

Olufunde, Oyetola and Kehinde (2010) who reported that ICT resources were not accessible to lecturers in the various institutions where the studies were carried out.

The study reveals that significant differences exist in the attitude of lecturers towards the use of ICTs for instructional purposes in Colleges of Education based on their qualification. This study is in agreement with the finding of Zubairu (2014), who found that there is a significant difference between lecturers' qualification and their attitude towards the use of ICTs for instructional purposes in Colleges of Education.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter focused on the summary of major findings of the study, implications of the findings, conclusion and recommendations.

5.2 Summary

This study assessed lecturers' attitudes, competencies and access on the utilization of information and communication technology in Colleges of Education in Kaduna state and was presented in five chapters.

Chapter one of the study presented the problem of this study. In the background of the study, the research sought to find out the level of lecturers' attitudes, competencies and access on the utilization of information and communication technology in Colleges of Education. The study was guided by three research questions and hypotheses. The study was delimited to only two colleges of Education.

Chapter two of the study provided the conceptual framework and literature review as relates to the topic of study. The review provided an overview of the paradigm shift in teaching and learning from the traditional to the modern as a result of the explosion in usage of Information and Communication technologies. ICTs have impacted on Education as any other sphere of life.

Chapter three of the study presented the methodology of the study. The study adopted survey research design. The population of this study comprises of all the lecturers in two Colleges of Education. They consist of 555 male lecturers and four hundred and 422 female

lecturers. Therefore there will be 977 male and female respondents. A sample size of 274 lecturers was used in the study. The instrument for data collection was a questionnaire. Percentages were used to interpret the demographic data of the study, while Likert scales were used to answer research questions 1-3. The independent t-test was used to answer research hypothesis 1 and one way ANOVA was used for hypothesis 2 and were tested at > p0.05 level of significance using Statistical Package for Social Science (SPSS).

Chapter five of this study presented the summary, conclusion and recommendation of the study.

5.3 Conclusion

Based on the results of this study, it can be concluded that that a majority of the lecturers have a positive attitude towards the use of ICTs for instructional purposes. This study also found that a majority of the lecturers were competent in using ICTs for instructional purposes. The study also confirmed that most of the ICT resources mentioned in the study instrument were not accessible for instructional purposes.

It was also confirmed that significant differences exist in the attitude of lecturers towards the use of ICTs for instructional purposes in Colleges of Education based on their qualification. The study also found that there exist a significant difference in the accessibility and the use of ICTs for instructional purposes in Colleges of Education based on source of funding.

5.4 Implications of the Findings

This study has revealed that lecturers have a positive attitude towards the use of ICTs for instructional purposes. Thus, policy makers should use this opportunity to initiate policies that encourage the use of ICTs for instructional purposes in tertiary teacher training institutions. The

fact the study also found that a majority of the lecturers were competent in using ICTs for instructional purposes makes it more expedient for such a policy. However, while attitude and self efficacy are widespread among the lecturers, the fact that most of them perceive ICT resources as not accessible for instructional purposes presents a challenge for policy makers to focus more effort in providing these resources to enhance teaching and learning in these institutions.

It was also confirmed that significant differences exist in the attitude of lecturers towards the use of ICTs for instructional purposes in Colleges of Education based on their qualification. The study also found that there exists a significant difference in the availability, accessibility and the use of ICTs for instructional purposes in Colleges of Education based on source of funding.

5.5 Recommendations

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

1. There is a need for the Government to operationalise the policy on integration of ICTs into the educational curriculum. The National Educational Research and Development Council (NERDC) should carry out a comprehensive study in Colleges of Education on the use of ICTs for instructional purposes and advise government accordingly.

2. Tertiary institutions should conduct capacity building trainings for their lecturers in order to familiarize them with ICTs

3. Funding for ICT infrastructure should be increased by both the Federal and State governments beyond what the Tertiary Education Trust Fund (TETFUND) is doing.

5.6 Limitations of the Study

The following limitations were observed in the course of this study:

1. The study was limited only to only two Colleges of Education. There was thus a geographical limitation that might affect any conclusions from this study. Thus, the findings of the study cannot be generalized.

2. The sample used in the study was also drawn from the same schools. Similar studies should be conducted drawing their samples from Colleges other than the two covered on this study or perhaps with a wider coverage.

3. The instrument used in this study only generate self reporting (self perceived) information. Similar studies using other sources of data collection need to be conducted.

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APPENDIX I

QUESTIONNAIRE FOR LECTURERS IN COLLEGES OF EDUCATION IN KADUNA STATE

ASSESSMENT OF LECTURERS ATTITUDES, SELF-EFFICACY AND ACCESS ON THE UTILIZATION OF INFORMATIONM AND COMMUNICATION TECHNOLOGY (ICT) IN COLLEGES OF EDUCATION IN KADUNA STATE

INTRODUCTION

This instrument is for an M.Ed research work. It is intended to assess the attitude, self-efficacy and access on the utilization of ICT resources for instructional purposes among lecturers in Colleges of Education in Kaduna State. The study is purely for academic exercise; as such you are assured of the confidentiality of your response.

Please feel free to respond as deemed appropriate. Thank you.

Instrument: The questionnaire has been designed under seven (4) different sections and harmonized in one single questionnaire; please endeavour to respond to all items by a tick ( ) against the appropriate option that reflects or shows your personal opinion to the item. Section A is for demographic data, while sections B – D is on "Assessment of Lecturers attitude, competencies and access on the utilization of ICT resources in Colleges of Education in Kaduna State".

Demographic Data

1. **Name of College**: ……

2. **Funding organ** Federal Government [ ] State Government [ ]

3. **Sex**: Male [ ] Female [ ]

4. **Education qualification**: B.Ed [ ] BA.Ed [ ] PGDE [ ]

   M.Ed [ ] PhD [ ]

Lecturers' Attitude on the Perceived Usefulness of ICT Resources for Instructional purposes

Q.1. What is your attitude on the use of ICT resources for instructional purposes?
Please indicate with a tick (√) from these options.

S/N	Rating Items	Strongly agree	Agree	Disagree	Strongly disagree
5	Use of ICT tools would help me organize my work.				
6	Using ICTs will make subject matter more interesting.				
7	Use of ICTs save time and effort				
8	Using ICTs is enjoyable				
9	Use of ICTs make me more productive				
10	Use of ICTs in Teaching offers real advantages				
11	ICTs have proved to be effective learning tools.				
12	Use of ICTs can enhance students learning				
13	I would rather do things by hand than with ICTs				
14	Use of ICT will improve education				
15	ICTs do not scare me at all				
16	I do not like talking with others about ICTs				
17	I like to use ICTs in teaching				
18	ICTs are a fast means of getting information				
19	I would like to learn more about ICTs				

Lecturers' perceived Competence of Using ICT Resources for Instructional Purposes

Q.2. What is your perceived self-efficacy of using ICT resources for instructional purposes?

Please indicate from these options.

S/N	Rating Items	Highly competent	Competent	Fairly competent	Not competent
20	Using ICT in content delivery.				
21	Using ICT to conduct research.				
22	Using ICT to assess students' performance.				
23	Using ICT to keep students' records.				
24	Using ICT to prepare lesson notes.				
25	Using ICT to presents instructional materials.				
26	Using ICT to motivate students' learning.				
27	Using ICT to impart learning in students.				
28	Using ICT to control students' learning.				
29	Using ICT to make lesson presentation more interesting.				

ICT Resources Accessible to Lecturers for Instructional Purposes

Q.3. Which types of the ICT resources are accessible to you for instructional purposes?

Please indicate from these options. Accessible (2), Fairly Accessible (1), Not Accessible (0)

S/N	Rating Items	Not Accessible	Fairly accessible	Accessible	Highly Accessible
30	Computer system e.g. Laptop, desktop				
31	Flash drive				
32	Printer				
33	Word processing, Excel, Powerpoint				
34	Smart Board				
35	Scanning machine.				
36	Internet connectivity				
37	Digital projector				
38	Digital camera				
39	Radio.				
40	TV				
41	DVD				

THANK YOU FOR COMPLETING THE QUESTIONAIRE