IMPACT OF INFORMATION AND COMMUNICATION TECHNOLOGY ON THE MANAGEMENT OF TERTIARY ACADEMIC INSTITUTIONS IN KADUNA STATE, NIGERIA.

By

Maryam ADAMU

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A Dissertation submitted to the School of Post Graduate Studies, Ahmadu Bello University, Zaria, in partial fulfilLment of the requirements for the Award of Masters Degree in Educational Administration and Planning.

Department of Educational Foundations and Curriculum, Faculty of Education, Ahmadu Bello University Zaria, Nigeria

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Declaration

I hereby declare that the work in this dissertation titled "The Impact of Information Communication Technology (ICT) on the Management of Tertiary Academic Institutions in Kaduna State, Nigeria." was performed by me in the Department of Educational Foundations and Curriculum under the supervision of Prof. Bashir Maina and Dr A. M. Jumare. The information derived from the literature has been duly acknowledged in the text and a list of references provided. No part of this work has been presented for another degree or diploma at any institution.

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Maryam ADAMU
M.Ed/Educ/44307/2012-13

Certification

This project dissertation titled The Impact of Information Communication Technology (ICT) on the Management of Tertiary Educational Institutions in Kaduna State, Nigeria meets the regulations governing the award of the degree of M.Ed in Educational Admin and Planning of the Ahmadu Bello University, and is approved for its contribution to knowledge and literary presentation.

_____ _____

Prof. Bashir Maina
Chairman, Supervisory Committee Date

_____ _____

Dr A. M. Jumare
Member, Supervisory Committee Date

_____ _____

Prof. Bashir Maina
Head of Department Date

_____ _____

Prof. S. Z. Abubakar
Dean, School of Postgraduate Studies Date

Dedication

This study is dedicated to my parents Mal. Aliyu Adamu, Hadiza Aliyu and my husband Abdul-Aziz Haruna, whose sacrifice resulted to all my life achievements; you have been my source of inspiration. May the almighty Allah reward you with Jannatul Firdausi. Ameen.

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Abstract

The study examined the Impact of Information and Communication Technology on the Management of Tertiary Academic Institutions in Kaduna State, Nigeria. The study was set to examine the impact of Information and Communication Technology on record keeping, communication, monitoring and evaluation, staff development, maintenance of discipline, decision making process, maintenance of facilities, conducts of examinations and presentation of results in tertiary academic institutions in Kaduna State. Survey research method using questionnaire was adopted for the data gathering. The research sample consisted of Deans of faculty/School Directors, Heads of Departments, Directors of Management Information Service, Staff of Faculty/School, and total (100) respondents from the four selected tertiary institutions in Kaduna state. Purposive sampling method was used in selecting the respondents. Data collected were analyzed using simple descriptive statistics and Likert scale. Findings from the study revealed that ICTs such as computers perform the role of aiding school administration and data management in the area of record keeping and retrieval with a mean of 3.91. However, respondents disagreed that through Circuit Camera Television (CCTV), the management of Tertiary Institutions in Kaduna State monitored and evaluated staff in the discharge of their duties with mean score of 2.05 which means that the management of the four selected tertiary institutions did not ensure ICT compliance in monitoring and evaluation. However, the result also revealed respondents disagreed that through E-learning platform, the management of this institutions developed staff capacity with mean score of 2.97. They also disagreed that through ICT facilities management encouraged the use of ICT support services for orientation of newly employed staff in the institutions with mean score of 2.94. This means that management are yet to utilize the potentials of ICT for staff development purpose. Eight null hypotheses were tested, out of which three (3) were retained while five (5) rejected. The study concludes, based on the hypotheses tested, that ICT has great impact on the smooth running of the tertiary academic institutions in Kaduna State in respect of record keeping and retrieval, communication and staff development. The study recommends that the management should ensure ICT compliance to both academic and non-academic staff and students' for quality assurance of the tertiary institutions. Also, the management should encourage the application of ICT (such as computer) in examination conduct, script marking and result to be released on-line. This will ensure timely release of students' result and storage of data as well as ease staff work load.

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OPERATIONAL DEFINITION OF TERMS

Some terms are discussed below based on the way they are used in the research work.

Management: management involves a person or a manager, making use of resources (both human and physical or material) in achieving the goals of an organization through effective planning, organizing, directing, motivating, controlling and budgeting.

Academic tertiary institutions: as the education given after secondary education in universities, colleges of education, polytechnics, and mono technics including those institutions offering correspondence courses.

Information and communication technology: ICTs cover Internet service provision, telecommunications equipment and services, information technology equipment and services, media and broadcasting, libraries and documentation centres, commercial information providers, network-based information services.

Record Keeping: is receiving and storing, call up, and transmitting a vast amount of information that will facilitate administrative duties.

Communication: Dissemination of information and knowledge between management and staff and students of the institutions.

Monitoring & Evaluation: is effective monitoring and efficient teaching performance and feedback. Evaluation is periodic assessment of the relevance, performance and efficiency in the tertiary institution.

Staff Development: is efficient management of personnel's in terms of training and capacity building.

Maintenance of Discipline: in this context is the management and keeping records of crime, staff and students indiscipline and growth of checked in the institutions.

Decision making: is determination of control, direction and method of accomplishing the overall organisational objectives for better output.

Maintenance of Facilities: using ICT in keeping record of facilities.

Conduct of Examination: application of ICT in examination conducts and result accessible online.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

It is observed that more and more organizations in Nigeria are shifting towards ICT driven systems to enhance its effectiveness and competitiveness, such as computer education. Computers are device capable for data storage and processing. Computer technology are being used for financial, sending and receiving, emailing etc; however, almost every management activity in our tertiary institutions requires computer technology, that is why computer education becomes imperative in management of tertiary institutions. Ogunkola, (2008) opined that without computer education one cannot be able to make progress as far as his career options are concerned except it is matched with knowledge of computer technology. He further noted that ICT tool to be used in management and administration of institutions is the computer, together with basic software packages like MS Word, Excel, PowerPoint, or the equivalent open source packages, and access to email and the internet. Computer has been described as an automatic electronic machine that performs calculation. It is capable of accepting data, and performing operation according to instruction (programme), and providing result of the operation with great speed and accuracy.

Management is the effective allocation and utilization of scarce resources to achieve predetermined results, the scarce resources include people, money, materials and time. Adejumo, (2000) described management as involving planning and innovation, coordination and supervision as well as undertaking risks and handling uncertainty. He argued that management is the activity of working with people in organizations in accomplishing results.

Therefore, management of tertiary institutions entails ensuring efficiency and effectiveness in the use of the available human, physical and financial resources together with the ability to combat any constraints that might hamper the achievement of the objectives in which computer education can aid in achieving the goal of institutional management.

Tertiary institutions are also known as higher education, in Nigeria it is that level of educational institution that provides education to individuals after post secondary education. National policy on education (2004) defines tertiary institution as the education given after secondary education in universities, colleges of education, polytechnics, and Mono technics including those institutions offering correspondence courses. Tertiary institutions have been described as parastatals which award professional and non-professional certificates. They are involved in providing higher education opportunities.

Following series of complaints because of highly populated institutions with limited admission opportunities, in this present dispensation, individuals and organizations have been given the go-ahead to establish private tertiary institutions provided they comply with the standards. One is, therefore, not surprised that tertiary institutions have proliferated the country with 117 universities, 64 colleges of education and 43 Polytechnics as at 2011. The increase number of staff and students in our tertiary institutions in Nigeria calls for the provision of ICT facilities for record purposes. Okoli (2007, p. 524) classifies university records into two broad categories, namely management and administrative records. Management records are generated at the top management level (vice chancellor, deputies, bursar, librarian, and registrar) in the form of meeting records, procedures, decisions and resolutions. On the other hand, administrative records take the form of admission records, personnel records

(employment, leave and duty records), and physical resource records. Note that the growing complexities of universities in Nigeria and the challenges pose to management affirmed the application of Hi-Tech information technology's crucial for quality assurance (Okorie, Agabi & Uche, 2005).

Various studies revealed that using ICT will promote issues on students' admission, planning and computation of students' results, staff development, record keeping, communication, quality assurance and staffing, financial management and information dissemination will increase the efficiency of tertiary institutions if Information Communication and Technology facilities are adequately and properly utilized, Lawsent and Vincent-Loncrin (1995); Foray (2004); Omirin, (2007). Thus, in developing countries including Nigeria, the argument is no longer whether or not tertiary institutions should invest in ICT (OECD, 2005).

Going by the institutional objectives, with man power shortage to properly handle students records and ICT facilities in Nigeria tertiary institutions, it is therefore paramount to assess the impact of ICT in the tertiary institutions in the area of data management and information dissemination.

1.2 Statement of the Problem

There is increase in student's population in higher institutions which accelerated the need for ICTs to process, store and retrieve data in a fast, systemic and accurate fashion. The importance of e-administration in higher education is on the increase due to efficient electronic administration and handling of existing resources economically. The introduction of ICT in our educational sector aims at simplification of a lot of diversified management and administrative tasks. According to Sanat (2006), the use of ICT in higher educational institutions starts with the stages of receiving e-notifications regarding admission, course schedules, and billing procedures and continues till the end

of the course including online publication of results. The Action Plan for reforms in the field of higher education revealed that the potential of Information Communication Technology (ICT) should be fully utilized (UNESCO 1998).

The main functional areas of e-administration in tertiary institutions are; Management Information System (MIS) which is a necessity in university administration, since it is required for need assessment, logistics and planning, resources utilization, operational control and management or evaluation of results, the second is financial management.

Therefore, ICT is supposed to be an integral part of the management process and its potential capacity in university administration will go a long way in ensuring institutional effectiveness. Computer-based MIS in the universities is used for the process of mechanized analysis, updating, storage, display and retrieval of sets of information, particularly those connected with the management and operational sides of administrative decisions. With all the mentioned potential of ICT most Nigerian tertiary institutions are yet to fully adapt to the use of ICT in the management of their institutions.

However, there are still missing data's and results here and there due to inadequate record keeping; wastage of human material and time due to inadequate communication network; also lack of staff development and constraints of man power shortage to handle ICT facilities.

With respect to these problems, the study is interested in identifying the level of ICT impact and its contributions to the management of tertiary institutions in Kaduna state, Nigeria.

1.3 Objectives of the Study

The aim of the study is to examine the impact of computer education on the management of tertiary institutions in Kaduna state.

The specific objectives therefore, were to:

1. ascertain the impact of ICT on record keeping in tertiary academic institutions in Kaduna State;
2. identify the impact of ICT on communication in tertiary academic institutions in Kaduna State;
3. ascertain the impact of ICT on monitoring and evaluation in tertiary academic institutions in Kaduna State;
4. find out the impact of ICT on staff development in tertiary academic institutions in Kaduna State;
5. examine the impact of ICT on maintenance of discipline in tertiary academic institutions in Kaduna State;
6. determine the impact of ICT on decision making process by the management of tertiary academic institutions in Kaduna State;
7. assess the impact of ICT on maintenance of facilities in tertiary academic institutions in Kaduna State, and
8. find out the impact of ICT on the conduct of examinations and presentation of results in tertiary academic institutions in Kaduna State.

1.4 The Research Questions

The specific research questions are:

1. What is the impact of ICT on record keeping in tertiary academic institutions in Kaduna State?

2. In what way does ICT impact on communication in tertiary academic institutions in Kaduna State?
3. How does ICT impact on monitoring and evaluation in tertiary academic institutions in Kaduna State?
4. What is the impact of ICT on staff development in tertiary academic institutions in Kaduna State?
5. In what way does ICT impact on maintenance of discipline on management of tertiary academic institutions in Kaduna State?
6. What is the impact of ICT on decision making process of tertiary academic institutions in Kaduna State?
7. How does ICT impact on maintenance of facilities of tertiary academic institutions in Kaduna State?
8. In what way does ICT impact on conduct of examinations and presentation of results in tertiary academic institutions in Kaduna State?

1.5 Research Hypotheses

On the basis of the research questions asked the following null hypotheses were formulated for the study;

HO_1. There is no significant difference in the opinions of respondents on impact of ICT on Record Keeping in tertiary academic institutions of Kaduna State.

HO_2. There is no significant difference in the opinions of respondents on the impact of ICT on communication in tertiary academic institutions in Kaduna State.

HO_3. There is no significant difference in the opinions of respondents on the impact of ICT on monitoring and evaluation in tertiary academic institutions in Kaduna State.

HO_4. There is no significant difference in the opinions of respondents on the impact of ICT on staff development of tertiary academic institutions of Kaduna State.

HO_5. There is no significant difference in the opinions of respondents on the impact of ICT on Maintenance of Discipline in tertiary academic institutions in Kaduna State.

HO_6. There is no significant difference in the opinions of respondents on the impact of ICT on decision making process in tertiary academic institutions in Kaduna State.

HO_7. There is no significant difference in the opinions of respondents on the impact of ICT on maintenance of facilities in academic tertiary institutions in Kaduna State.

HO_8. There is no significant difference in the opinions of respondents on the impact of ICT in conduct of examinations and presentation of results in tertiary academic institutions in Kaduna State.

1.6 Significance of the Study

This study revealed the relevance of information and communication technology particularly as it relates to management of tertiary institutions. Similarly, the outcome of the study is expected to assist management of tertiary institutions in their decisions towards Information and Communication Technology. The research is of benefit to researchers who are expected to acquaint themselves with this research and source out knowledge that can be of benefit to their research. The outcome also revealed how Information and Communication Technology can be improved in management of tertiary institutions as such it can be a useful source of literature review.

The results, conclusions and recommendations of this study are useful to tertiary institutions when using the computer for managerial activities to set up guides based on their needs for use of emerging information technologies. Similarly, the study will help fill the gap discovered in the empirical studies on the use of ICT on management of tertiary institutions in Kaduna State, Nigeria. Findings are expected to provide feedback on the areas of ICT usage which management staff can engage in for speeding managerial activities as well as suggested various computer facilities to engage other

stakeholders, government agencies and foreign bodies. In addition, the result of this study is beneficial to National Universities Commission (NUC).

1.7 Basic Assumptions

For the purpose of this study, the following basic assumptions were made:

1. Proper record keeping in tertiary institution could improve staff turn over; the world has become a global village where information is at the punch of a button;
2. Good communication network will breach information gab between and among management, staff and students in tertiary institutions;
3. ICT utilization will ease problem of monitoring and evaluation in tertiary institutions in Kaduna state;
4. Application of ICT will improve on staff development;
5. Application of ICT in learning will improve student academics discipline;
6. It is hope that application of ICT will enhance decision making process;
7. Effective application of ICT in tertiary institution will help in maintaining facilities; and

8. It is hoped that ICT will help in administrative services such as admission, registration, and payment of fees, student's records, staff development, community development and a host of others.

1.7 Scope of the Study

The scope of the study determined the extent of ICT usage for managerial activities in academic tertiary institutions in Kaduna state. The research work did not cover all the tertiary institutions in Kaduna state but only the universities, colleges of education and polytechnics as selected by the researcher.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Introduction

The impact of ICT in management of academic tertiary institutions in Kaduna state is the main focus of this research. This chapter reviewed related literature of the study and the clarification of concepts as it related to the context of the study. Therefore, the review covered the following sub-topics: conceptual frame work; information communication, uses and challenges; concept of planning; computer in information storage and retrieval; Impact of ICT in record keeping; Impact of ICT in Communication; Impact on monitoring and evaluation; on staff development; on discipline; on decision making; and on maintenance of facilities; Empirical studies and summary.

2.2 Conceptual Framework

The term ‘management’ has been defined by various authorities. Adejumo, (2000) for instance, defined management as involving planning, innovation, coordination and supervision as well as undertaking risks and handling uncertainty. He argued that management is the activity of working with people in organizations in accomplishing results. Adeyemi, (2007) regarded management as the process of utilizing human and material resources in accomplishing designated objectives. This could be done by organizing, directing, coordinating and evaluating programmes in a bid to achieve goals or objectives. In such a social process, there is always a structural hierarchy comprising the subordinates and super ordinates.

Thus, management involves a person or a manager, making use of resources (both human and physical or material) in achieving the goals of an organization through effective planning, organizing, directing, motivating, controlling and budgeting (Alebiosu, 2000; Nwadiani, 2000; Ajabor, 2001). As a professional discipline, management involves personnel and finance. Although job specification might vary from one position to another, circumstances and environment might affect managerial functions (Afolabi, Jegede,& Popoola, 1999; Bandele, 2001).

Management is, therefore, the effective allocation and utilization of scarce resources to achieve predetermined results. The scarce resources include people, money, materials and time. Of these, human beings are the most important, because the effectiveness with which they are used determines the quality of results produced by other resources.

Considering the foregoing definitions, management could be examined in various ways. It could be seen as a field of study. It could also be seen as the principle of administering an organization which will be discussed extensively in chapter two. It also involves tasks. The manager is responsible for whatever he achieves, be it success or failure. Every failure is a failure of a manager. Ghaemian, (1998) asserted that people manage, rather than force. Effective management therefore involves ensuring efficiency and effectiveness in the use of /the available human, physical and financial resources together with the ability to combat any constraints that might hamper the achievement of the objectives.

As such, the primary function of management is to take decisions leading to the achievement of organizational objectives. The types of decisions management makes will determine its information needs. However, the numerous crises in Nigerian tertiary institutions could have been prevented if Information Communication and Technology

facilities are in place in the institutions (Faloye and Oparah 2007). Thus, Adedapo (2007) argued that school managers need effective management of activities with the use of a computers and other Information Communication and technology equipment.

ICT is considered to be one of the pillars upon which quality education for all can indeed become a reality, because of its unique capacity for bringing the world to even the most remote and disadvantaged of communities. ICT are now vital to support the business of educational institutions, and support the full academic lifecycle, in terms of learning and teaching from individuals students enquiries through to accreditation and graduation and in terms of research from initial bid writing through to project delivery and dissemination. It includes six main areas: pay roll and financial accounting, administration of student data, inventory management, personnel records maintenance, library systems and learning management systems.

The core IT services provides support for the following areas. Firstly, the student journey, from an initial enquiry through to graduation. This includes managing of a student's initial enquiry about courses, application, module selection, monitoring and support for the delivery of a course, assignment handling, examinations and graduation. For on campus students systems are in place for accommodations. This is usually done through a central IT system, but there may also be local bespoke systems for some departments. Courses are delivered and support through an institutional Virtual Learning Environment (VLE)/Learning Management System (LMS). Most institutions have one centrally supported system, but in some instances there may be local or be spoke systems. According to Zainally (2008), "Information and Communication technology provides several facilities and possibilities for educational administrators to do their tasks". There is a mention that communication and information systems have changed the very nature of higher education, allowing information to be transferred,

stored, retrieved, and processed by almost all who work, study or interact with a given institution.

As Lowther et al. (2008) have stated that there are three important characteristics are needed to develop good quality teaching and learning with ICT: autonomy, capability, and creativity. Autonomy means that students take control of their learning through their use of ICT. In this way, they become more capable of working by themselves and with others. Teachers can also authorize students to complete certain tasks with peers or in groups. Through collaborative learning with ICT, the students have more opportunity to build the new knowledge onto their background knowledge, and become more confident to take risks and learn from their mistakes.

They are required not only to listen to the native pronunciation from the dictionary, but also to learn the definitions and examples of a new vocabulary item. They then have to make a recording of their own pronunciation and provide examples of how this new word is used in context. Before completing this task, they have to know which browser to use in order to search a suitable online audio dictionary. They will have to browse several online dictionaries, and select the one that best meets their learning needs. In addition, finding good software to record their voice is another prerequisite for these learners. Therefore, the whole learning process enriches students' learning skills and broadens their knowledge beyond what they already know. By using ICT, students' creativity can be optimized. They may discover new multimedia tools and create materials in the styles readily available to them through games (Gee 2007, 2011), CDs, and television. With a combination of students' autonomy, capability, and creativity, the use of ICT can improve both teaching and learning quality.

2.3 Information Communication Technology

Information Communication Technology is a network which offers a steadily expanding range of new services that have major economic consequences for the standardization of information in universities (Nwafor, 2005). It is computer-based tools used by organization personnel in the processing of their information and communication needs. It encompasses the computer hardware and software, the network and several other devices, e.g audio, video, photography, camera, etc., that convert information and so on into Information Communication Technologies in the management of Education. (IAAR) 2009.

Common digital form (Yusuf, 2005a). Njoku (2006) identified three categories of ICT somewhere to be processed information (computer systems), disseminated information (telecommunication systems), and represented information (multi-media systems). Information Technology systems available for university administration in Rivers State have been listed as e-mail, internet, intranet, teleconference, facsimile (Fax), minicomputer, micro-computer, main-frame computer, word processing computer, and basic website (Nwafor, 2005). ICT is an eclectic application of computing, communication, telecommunication and satellite technology. Lopez (2003) argues that they have provided innovative opportunities for teaching and learning and they have engendered advances in research about how people learn, thereby bringing about rethinking the structure of education. The prevalence and rapid development of information communication technologies (ICTs) has transformed human society from the information technology age to the knowledge age (Johnson, 2007).

The objectives of the federal government of Nigeria on information technology are well articulated by (Yusuf, 2005b): making ICTs mandatory at every level of education; developing ICTs curricula for primary, secondary and tertiary institution; use

of ICTs for ICTs companies investment in education; study grants and scholarships on ICTs; training the trainer scheme for National Youth Service Corp (NYSC) members; ICTs capacity development at federal, state and local levels; growth of private and public sector dedicated ICTs primary, secondary and tertiary educational institutions; and working with international and domestic initiatives for transfer of ICT knowledge (p.316). Two of the key targets set by the Agency charged with the responsibility of implementing the government's ICTs policy were the provision of information technology (IT) facilities for the various levels of education (primary, secondary and tertiary) including the Universal Basic Education Scheme; and providing of "training the trainers" using existing establishments, like the National Directorate of Employment (NDE) and the NYSC scheme (Iriaejen, 2002). Babalola (2007) report that a major reform and development in university education to be significant improvements in communication and ICTs improvements with its positive influence on teaching and research technologies. Also, a major tertiary education reform recommended by the World Bank (2002) was that there should be electronic networking involving Staff development.

2.4 Impact of ICT in Record Keeping

Historically, the system of governance is based on sound record keeping so that irrespective of the executive head, the records forms the basis for governance, control and decision making. Billion of pages of information are being generated each year by various departments in tertiary institutions. Some of this is in duplicate and triplicate form. Even then the relevant information is difficult to locate from the existing records and sharing of information between departments is not-existent. In tertiary institutions, people receive, store, process, call up selectively and retrieve, and transmit a vast amount of potentially useful information that will facilitate administrative duties. In

some of Nigerian's higher institutions today, students' academic records and transcripts are computed and processed using computer. Using computer to process vast amounts of academic data had been easier, faster and accurate.

The need for technological innovation has led to a revolution in the development of technological facilities that are applicable to keeping and management of school records. Making use of ICT for record keeping and management will go a long way in raising the standard of school records anywhere in the world. Educators are fast realising the need for using computer for the keeping and management of school records. This would be convenient to both administrators and academic and non-academic staff in tertiary institutions. Records and record keeping constitute the life wire of organizations (Egwunyenga, 2006). It would be very difficult to plan and administer any organization such as the a tertiary institution effectively if records are not kept and managed properly.

Okoli (2007, p. 524) classifies university records into two broad categories, namely management and administrative records. Management records are generated at the top management level (vice chancellor, deputies, bursar, librarian, and registrar) in the form of meeting records, procedures, decisions and resolutions. On the other hand, administrative records take the form of admission records, personnel records (employment, leave and duty records), and physical resource records. It seems that the growing complexities of universities in Nigeria and the challenges it poses to management makes the application of Hi-Tech information and ICTs indispensable for quality assurance (Okorie, Agabi & Uche, 2005).

Record keeping and management ought to be taken as a vital responsibility by school authorities because of the indispensable role records play in the effective day-to-day running of the institution. In order to make decisions on both short and long term

policies, school authorities rely on information that are on records. However, most institutions authorities do not have a good culture of record keeping. The few records that are kept are usually not properly stored, thus creating the problem of retrieval to users when needed. The few tertiary institutions authorities that have adopted the electronic record-keeping practice in the record management system of their institutions have risen above such problems of storage and retrieval, as ICT affords the opportunity to have a quick and easy view of all the records on school activities. Hence, by means of modern data storage facilities like computers, microfilm, CD-Rom, cassettes, e-mail, collaboration software and hardware, technological advancement had contributed to the effective storage and management of school records. The use of ICT for school record keeping and management gives an overview of the number of students that registered, accurate information on students' fees payment status, and a comprehensive database of staff, students and instructors with just a click.

Due to the expansion in tertiary institutions, it is essential that computerization takes place and a total overhauling of the existing ICT system be undertaken for easy record keeping and management. ICT has the potentials for easing the administrative duties of tertiary institutions record keeping and management. Being aware of the significant role of information and communication technology in our lives, especially in our educational activities, management of tertiary institutions should be wise enough to use ICT in supporting record keeping and management. Presently, records of most tertiary institutions are kept manually and, with the passage of time, vital records and information are lost due to the rise

in the number of activities. A lot problem has been identified from manual record keeping and management practice. They include lack of skills in the interpretation of scores from assessment instruments, lack of skills in records and preparation of reports

and shortage of experts in record keeping. For any school system to engage in satisfactory record keeping and management activities, information and communication technology must be applied in its operational system. This is because human beings can make mistakes.

However, with the help of these modern electronic devices, the mistakes will either be eliminated or reduced to its barest minimum. Osakwe (2012) is of the view that records kept and managed in tertiary institutions are classified as management records, administrative records, reference records and student records.

Management records are records of meetings, procedures, decisions and resolutions kept as important reference materials through which institutions keep track of changes in their procedures, practices and to know the state of transparency of their activities in the past and present. They also stand as the basis for determining what should be done in the future. Administrative records include admission records, personnel records and physical resource records.

Admission records are permanent records showing students particulars from the first day of admission. They help to keep track of the student's enrolment. They are a source of reference on every matter relating to when a student came into the institution, course of study, possible date of graduation, etc.

Personnel records provide information about the employment and duty records of both academic and non-academic staff members. These records contain detailed personal information of staff (in terms of age, gender, qualification, previous experience, appraisal forms, certificates), detailed description of tasks to be performed by staff in accordance with the employment conditions of service as well as staff disciplinary committee files. Physical resource records are records of tangible assets

such as classrooms, offices, laboratories and workshops as well as the equipment and furniture in them (Salau, 2005; Oyedeji, Salau & Oluwalola, 2008).

Reference records are policy records which must be possessed by the institutions. They include government policies, decisions of governing council and procedures on funding and moral codes Daramola,(1995 in Osakwe (2012)). Student records include the personal data of students as at the time of admission, matriculation number, date/year of admission, department/course of study, degree in view, mode of entry, letter of recommendation/attestation, name of course adviser, academic records (transcripts, examination scripts), social records, and students disciplinary committee file.

2.5 Impact of ICT in Communication in Tertiary Institutions

It is mentioned that ICT is used in administration to support the business strategies and processes of higher education institutions, and a "dynamic new shift occurred in higher education" due to the application of ICT in University administration. This facilitated creation of large and complex institutions that could function with increased efficiency and user-friendliness. It is also mentioned that usage of ICT in higher education administration involves "harnessing technology for better planning, setting standards, effecting change and monitoring results of the core functions of universities. One of the key conclusions arrived at is that the integration of ICTs in higher education is inevitable (UNESCO, 2009).

Olive Mugenda (2006) said ICT fosters the dissemination of information and knowledge by separating content from its physical location. This flow of information is largely impervious to geographic boundaries allowing remote communities to become integrated into global networks and making information, knowledge and culture

accessible, in theory, to anyone. It is also mentioned that ICT enhances day-to-day management of institutions and the various functional areas in which it could be used are specified below:

• Timetabling

• Student admission and Tracking

• Financial Management

• Medical services

• Procurement and Store management

• Data distribution and management

ICT is used in maintenance of student and staff records and for communication and document management (OECS 2001). Kumar & Kumar (2005) have mentioned about the positive perception towards the use of ICT in education. It is mentioned in the study that students of different universities reported the usage of ICT for communication and for on-line discussion forums. ICT facilitated contact and information exchange and also promoted access to higher education. ICTs included systems for student admission and records, examination results and transcripts, finance database, human resources database, and management information.

2.6 Impact of ICT in Monitoring and Evaluation

Monitoring and evaluation (M & E) is relatively new in the development field. Even though 'monitoring' is as old as management, the emergence of 'evaluation' began both at country level and in the United Nations system in the early 1950s. However, the evolution has been slow and uneven since. In the 1980s, international agencies such as World Bank (WB), UNESCO, and Food and Agriculture Organisation (FAO) of the United Nations had begun to recognise the problems involved in

formulating effective monitoring and evaluation systems. Arising from this, these organisations issued guidelines for project design staff and handbooks for practitioners.

Monitoring is understood as a continuous assessment of the functioning of the project activities in the context of implementation schedules and of the use of project inputs by targeted populations in the context of design expectations. It is an internal project activity, an essential part of good management practice, and therefore an integral part of day to day good management.

The purpose of monitoring in educational sector is to achieve effective and efficient teaching performance by improving feedback to educational management at all levels in improving operational plans and in taking timely corrective actions in case of shortfalls and constraints, if any, in implementation of each educational component as a whole. Monitoring could be carried out by using the data within a management information system, such a system includes the basic physical and financial records, the details of input and services provided to beneficiaries and the data obtained from surveys and other mechanisms designed specifically to service the monitoring function.

Evaluation is a periodic assessment of the relevance, performance, efficiency and impact of the education in the context of its stated objectives. It is learning and action oriented management tool and an organisation process for improving activities still in progress and future planning, programming and decision making. Monitoring, evaluation are generated through the management information system, but with a view to comparisons over time and against comparable control information. The full exercise of the evaluation function will require, in selective cases, in supplementing the management information system with data from input studies that may be designed and executed outside the project management system itself.

2.6.1. Participatory Methods for Education Monitoring and Evaluation

Participatory monitoring and evaluation (PM& E) enables management and stakeholders to observe and measure their progress, analyse problems and introduce changes to their action plans when necessary. PM & E allows staff of Tertiary Educational Institutions to:

- Follow implementation progress of each action of the year.
- Keep management updated on progress.
- Evaluate the commitment of staff in executing the ongoing activities.
- Evaluate results of the actions underway and modify them if necessary.

Monitoring is a continuous process during implementation. By contrast, evaluation is carried out periodically, perhaps once per year or when activities are completed. However management of tertiary Educational Institutions are to adopt all aspects of the PM&E:

- In collecting and analyzing data,
- In designing the terms of reference,
- In formulating recommendations and making changes in the implementation of activities.

Similarly, for effective and efficient PM&E, the tools and methods to be selected must be able to attain the following:

- Build capacity of staff to reflect analyse and take action.
- Accountability to staff, management and stakeholders.
- Development of lessons that can lead to corrective action by staff.
- Development of lessons learned which help programme staff improvement and implementation.

Therefore a well designed M & E system provides staff with key information at the time they need it to make decisions. It also allows for correction, modification and confirmation of ongoing programmes.

2.7 Impact of ICT in Staff Development

The managerial function of staffing involves manning the organization structure through proper and effective selection, appraisal and development of the personnel's to fill the roles assigned to the employers/workforce. According to Haimann (2011), Staffing pertains to recruitment, selection, development and compensation of subordinates. Staffing is an important managerial function- Staffing function is the most important managerial act along with planning, organizing, directing and controlling. The operations of these four functions depend upon the manpower which is available through staffing function.

Staffing is a pervasive activity- As staffing function is carried out by all mangers and in all types of concerns where business activities are carried out. Staffing is a continuous activity- This is because staffing function continues throughout the life of an organization due to the transfers and promotions that take place. The basis of staffing function is efficient management of personnel's Human resources can be efficiently managed by a system or proper procedure, that is, recruitment, selection, placement, training and development, providing remuneration, etc.

Staffing helps in placing right men at the right job. It can be done effectively through proper recruitment procedures and then finally selecting the most suitable candidate as per the job requirements. Staffing is performed by all managers depending upon the nature of business, size of the company, qualifications and skills of managers, etc. In small companies, the top management generally performs this function. In

medium and small scale enterprise, it is performed especially by the personnel department of that concern.

Harris (1980) viewed staff development as that aspect in administration, which implies the training of an individual in organization, to enhance his performance, Ngu (1980) viewed it as the process of behavioral modification or moulding of workers in order to integrate organizational needs with their characteristics. This view is expressed in consonance with the view, expressed in Novit (1979) when he pointed out that staff development is the training of personnel in an organization towards motivating them to become competent and hard work in achieving goals of the organization. The management should develop keen interest in knowing the needs of the staff and developing good programmes for their managerial activities. Ejiofor (1991) suggested that an employee should be adequately compensated through the following means among others; wages/salaries, medical care, transportation and so on. Ryan (1991) and Finegold (1991) in Dung (1998) were of the opinion that measurement of training should be viewed as an integral part of the process of total quality management.

2.7.1 Staffing Process: Steps involved in Staffing

Manpower requirements: The very first step in staffing is to plan the manpower inventory required by a concern in order to match them with the job requirements and demands. Therefore, it involves forecasting and determining the future manpower needs of the concern.

Recruitment: Once the requirements are notified, the concern invites and solicits applications according to the invitations made to the desirable candidates.

Selection: This is the screening step of staffing in which the solicited applications are screened out and suitable candidates are appointed as per the requirements.

Orientation and Placement: Once screening takes place, the appointed candidates are made familiar to the work units and work environment through the orientation programs. Placement takes place by putting right man on the right job.

Training and Development: Training is a part of incentives given to the workers in order to develop and grow them within the concern. Training is generally given according to the nature of activities and scope of expansion in it. Along with it, the workers are developed by providing them extra benefits of in-depth knowledge of their functional areas. Development also includes giving them key and important jobs as a test or examination in order to analyze their performances.

Remuneration: It is a kind of compensation provided monetarily to the employees for their work performances. This is given according to the nature of job- skilled or unskilled, physical or mental, etc. Remuneration forms an important monetary incentive for the employees.

Performance Evaluation: In order to keep a track record of the behaviour, attitudes as well as opinions of the workers towards their jobs. For this regular assessment is done to evaluate and supervise different work units in a concern. It is basically concerning to know the development cycle and growth patterns of the employees in a concern.

Promotion and transfer- Promotion is said to be a non- monetary incentive in which the worker is shifted from a higher job demanding bigger responsibilities as well as shifting the workers and transferring them to different work units and branches of the same organization.

2.8 Impact of ICT in Maintenance of Discipline

Various literature reviews reveal that Information administration is one part of overall administration of education institutions which mainly covers general and day-to-day operational activities. Hence, it could be concluded that Information administration cycle includes four major components namely, Student administration, Staff administration, and General administration. A theoretical model for Information administration has been formulated, and is depicted in figure 1:

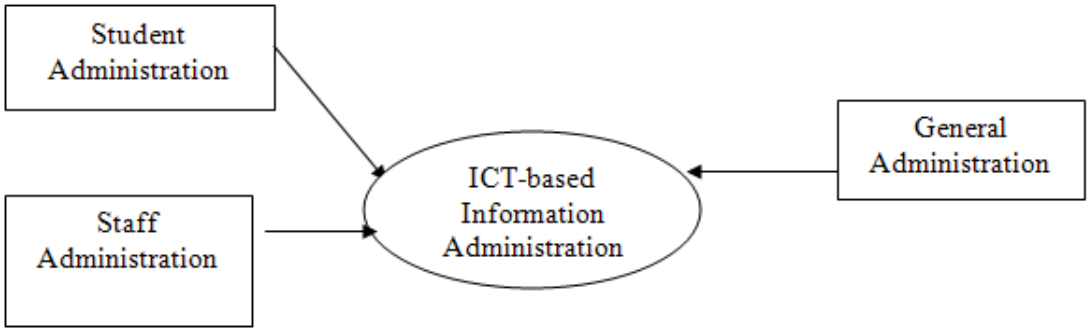


Figure 1: Theoretical model for Information administration.

Source: Krishnaveni R. and Meenakumari J. (2010).

Information administration in this context refers to activities relating to the management of higher education institutions which is often mentioned in other studies as managerial activities in higher education institutions. The administrative systems include Personnel administration, student administration, resources administration, financial administration and general administration (Maki, 2008). Based on the literature review the three main functional areas of information administration that are of great significance for day-to-day management of higher education institutions was identified as follows:

• Student administration

• Staff administration

• General administration

Student administration is an important and integral part of information administration. This involves various activities commencing from the admission process to learning activities till processing of results and performance analysis.

The integration of ICT into this process enhances the overall admission activities of higher education institutions by making it more accessible to many (Obeng 2004). Based on the literature review, the important items identified under this category relates to the automation of admission process through e-media. This includes admission enquiry by students, applying for admissions through electronic media, registration / enrolment using 1computers, course allotment, and availability of information like timetable / class schedule in electronic form and attendance monitoring / maintenance through e-media. Further it includes the various communications relating to transport, hostel accommodation and other communication

2.9 Impact of ICT in Decision Making

Rajeev (2008) has specified that ICT has played a major role in reducing operational inefficiency and improving decision-making in many areas of governance. An integrated higher education service system is one such concept that empowers the governing bodies to administer the progress of education plan in the whole country and serve various stakeholders in a much better manner. Planning is considered as one way for decision making process.

Planning is the first and the most important function of management which in essence is aimed at preparing for and predicts future events. It involves the development of strategy and procedure required for effective realization of the entire plans as suggested by (Dare, 2008). Planning entails determination of control, direction and

method of accomplishing the overall organizational objectives. Planning is increasingly becoming an important administrative component through which administrative purposes are initiated translated into programmes and implemented to achieve the desired objective.

Effective planning is essential in African countries where education has to compete with other sectors of the economy for the allocation of funds within very limited national resource; Edem (2006) stated that educational poor planning is often accompanied by dissipated effort, wasted resources and poor results. This is based on the fact that correct decision is usually hard to reach because of the difficulty of anticipating the consequences which may result from the choice him of alternatives.

Therefore, planning as a managerial function is designed to prepare the organization for the future and to ensure that decisions regarding the use of people and resources to achieve the objectives of the school. It is obvious that individual and school activities without plan are certainly to be frustrated and achievement of goals may be very difficult. A school manager must be able to develop programmes and approaches for the use of the resources to achieve the state or predetermined educational goals of the school.

Furthermore, Hinjari (2006) posited that planning as the first action of the school principal is aimed at identifying the mission of the school and to set the objectives as well as identify different strategies by which to achieve the agreed mission and objectives. This means that planning deals with the adoption of appropriate mechanism to using minimize resources in order to get maximum result. Therefore, strategy in planning helps the school to determine its future plans in other to exploit the environment by taking a detailed analysis of their strengths and weakness.

2.10 Impact of ICT on Maintenance of Facility

A computer can send information to another computer. These communications are made either through telephone line or special -computer cables or wires. The information that could be sent may be in form of airline company queries, bank transactions, statistical reports, personal messages and so on. There is virtually no type of information that cannot be communicated between one computer and the other provided they are connected together. There are a number of advantages of computer communication. First is the high speed and accuracy in information transmitted due to the absence of other intervening media. The communication is between the sending and receiving computers. Second is the rapidity of information processing. Computer can process a huge amount of data in a microsecond. For example, a research fellow who needs information about a particular topic in atomic physics can obtain such information in a matter of minutes. The process of getting such information from a library through our normal conventional library manual system is to visit the library and search through the reference hooks. This will definitely take your days and with much effort. Hut in computer communication in countries where computer companies operate proprietary databases for subjects of interest, you can link your computer through the telecommunication line with the appropriate proprietary database and the information could he obtained in less than an hour (Brightman and Dunsdale, 1986).

Thirdly, a large amount of data could be stored and processed across varying distances. Teleprocessing: A method of processing the data between one computer and the other through the telephone lines is called Teleprocessing. The data being transmitted could be words, letters or numbers of programs. The communication can occur between microcomputers, mini computers, mainframe or a combination of these.

These communicating computers may be located within varying distances between each other, even across the continent. Digital computers generate digital signals which cannot be transmitted through telecommunication lines, which can only transmit analog signals. A peripheral device called moden is installed to translate or modulate the digital signals to analog signals before transmission from the sending computer. The receiving computer, which understands only digital signals, must have a modem for the transmission and demodulation of the input signals from analog to digital (Brightman and Dunsdalc, 1986). When the computer has received and processed the data, the result is sent back in reverse operation. The airline companies are able to carry out seat reservation and booking through their agents across the country using this Teleprocessing system of data processing. In addition to moden, communication software is needed to enable the computer, the moden and the telephone to work together (Hartley, 1978)

It has facilitate faster decision making in the management, messages sent by hand, which has no guarantee of being delivered on time and no security of content could now be easily sent by e-mail, on line chat and even intercom. Thus allowing management to make decision on issues faster and pass the copies to each department through their email. Telecommunication has also helped in the productivity of staff in processing student results and transcript. The issues of missing result, miss matched names and grades were eliminated by automation of the records. With identification code assigned to each student and staff, computer process information accurately. This has lead to the development of database to keep file electronically which in turn makes it easier for the staff to manage the database and ensure the consistency of its data as rightly observed by Zambuk and Gital (2012).

The first principle in achieving managerial effectiveness as suggested by Sefiu (2013), is to have access to the most valuable and up- to- date information. Hence, it is believed that most of the problems of educational organizations in Nigeria may be traced back to the problems of poor management of information on education. Such problems can only be eliminated in our educational organizations through accurate and timely availability and use of information needed for planning to respond to situations such as adequacy of educational statistics.

Opeke (1982), in sefiu (2013), reiterated this belief that, human and material resources become better conserved when planners have access to quality, timely and relevant information which are important results of information management. Thus, information management attempts to utilize the information resources of organizational members to full potential. Such an administrative stance is likely to improve the planners' access to both quantitative and qualitative information as well as to improve the planners' ability to interact effectively with its environment- a situation that will assure that optimum decisions are made based on clear insights.

Nothing moves when there is no information flow. Information is the current that keeps the organization rolling to progress. The manager, as a monitor, perpetually scans his environment for information, interrogates his liaison contacts and his subordinates and receives unsolicited information, much of which as a result of the network of personal contact he has developed. Moreover, by virtue of sort of information for his organization, as a disseminator, he must share and distribute much of this informant.

2.11 Empirical Studies

Various studies proved that management activity in our tertiary institutions today requires computer technology. Fredriksson and Elżbieta (2009) in there study opined that Communication and general administration are the two main areas in which ICT is used in the management of education institutions. According to Sanat (2006), the use of ICT in higher educational institutions starts with the stages of receiving e-notifications regarding admission, course schedules, and billing procedures and continues till the end of the course including online publication of results.

A related study by Suri (2005), reported that Spanish and Indian universities have been changing fast due to the development of new Information and Communication Technologies (ICT). He further mentioned that user satisfaction is a widely used measure of ICT success. According to (OECS 2001) ICT is used in maintenance of student and staff records and for communication and document management. Kumar and Kumar (2005) have found the positive perception towards the use of ICT in education. The study discovered that students of different universities reported the usage of ICT for communication and for on-line discussion forums.

Various literature reviews reveal that Information administration is one part of overall administration of education institutions which mainly covers general and day-to-day operational activities. Hence, it could be concluded that Information administration cycle includes four major components namely, Student administration, Staff administration, and General administration. As such, the primary function of management is to take decisions leading to the achievement of organizational objectives. The types of decisions management makes will determine its information needs. However, the numerous crises in Nigerian tertiary institutions could have been prevented if Information Communication and Technology facilities are in place in the

institutions (Faloye and Oparah 2007). Thus, Adedapo (2007) argued that school managers need effective management of activities with the use of a computers and other Information Communication and technology equipment.

ICT is considered to be one of the pillars upon which quality education for all can indeed become a reality, because of its unique capacity for bringing the world to even the most remote and disadvantaged of communities. ICT are now vital to support the business of educational institutions, and support the full academic lifecycle, in terms of learning and teaching from individuals students enquiries through to accreditation and graduation and in terms of research from initial bid writing through to project delivery and dissemination.

However, various studies identified the contributions of ICT in the management of tertiary institutions to include six main areas: pay roll and financial accounting, administration of student data, inventory management, personnel records maintenance, library systems and learning management systems. Zainally (2008) opined that "Information and Communication technology provides several facilities and possibilities for educational administrators to discharge their tasks". Therefore communication and information systems have changed the very nature of higher education, allowing information to be transferred, stored, retrieved, and processed by almost all who work, study or interact with a given institution.

2.12 Summary

An attempt has been made in this research to utilize the relevant literature to assess the impact of ICT on management of academic tertiary educational institutions, in Kaduna state. This research work will enable management of tertiary educational institutions in Kaduna State to have a clearer insight of the benefit, and potentials of ICT in management of academic tertiary institutions. This study will also enable tertiary

educational institutions to improve on the managerial, validity, credibility and ease their activity. This will further reduce missing data's, information and will offer the chances for more graduates intake in the tertiary educational institutions in Kaduna state without any challenges.

According to Zainally (2008), "Information and Communication technology provides several facilities and possibilities for educational administrators to do their tasks". There is a mention that communication and information systems have changed the very nature of higher education, allowing information to be transferred, stored, retrieved, and processed by almost all who work, study or interact with a given institution. The author has also quoted from other research work that there is an increase in managerial effectiveness and efficiency through usage of Information and Communication technologies.

The various research studies conducted to evaluate the extent of usage of Information and Communication Technologies in multiple aspects of higher education revealed that heads of faculties utilized technology in planning, and to a large extent in the supervision and evaluation of academic affairs, student affairs, financial affairs and administrative affairs. It was concluded that information and communication technologies have an impact on increase of the scientific level of faculty members, students, and staff. Ashish and Arun (2005) highlighted the importance of Information Technology (IT) as a modern day techno-management tool that would benefit institutions of higher education in India. Gumala (2005) reported that Spanish and Indian universities have been changing fast due to the development of new Information and Communication Technologies (ICT). The author has mentioned that user satisfaction is a widely used measure of ICT success. The author has concluded by providing a conceptual model for implementing a good technical system

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents research methodology, which include the research design, population, sample and sampling techniques, instrument for data collection, procedure for data collection and methods of data analysis.

3.2 Research Design

The research design adopted for the conduct of this study was a survey design. The rationale for the design is that it can select sample from the target population and the inferences from the sample could be generalized on the entire population. In a study such as this one, it's not easy to study the entire population. The researcher used survey research method because the target population being studied consists of deans of faculty or directors of higher institutions, head of departments, director of management information service (MIS), and faculty/school registry staff of the tertiary institutions in Kaduna state. The approach that was used is what Nworgu (1991), described as sample survey in which the data in the survey are collected through questionnaires in order to collate the data.

3.3 Population of the Study

In Kaduna state, there are numerous educational tertiary Institutions. For the purpose of these study only universities, colleges of education and polytechnics' were considered. They include Ahmadu Bello University, Zaria, Nuhu Bamalli Polytechnic, Zaria, Federal College of Education, Zaria, Kaduna State University, Kaduna, Federal college of Education, Gidan Waya and Kaduna Federal Polytechnic Kaduna. The population of the study consisted of Deans of faculties or Directors of schools, Heads of

department, Directors information management system and Faculty/school registry staff of the tertiary institutions in Kaduna state.

Table 1: Population of the Study

Names of institution	Location	Deans of faculties or Director of School	Head of Departments	Director management information system	Faculty/school registry staff
Ahmadu Bello university	Zaria	12	90	1	30
Kaduna State University	Kaduna	7	27	1	20
Federal College of Education	Zaria	7	36	1	10
Federal College of Education	Kafanchan	4	24	1	13
Nuhu Bamalli polytechnic	Zaria	6	27	1	15
Federal Polytechnic	Kaduna	9	45	1	18
Total		45	249	6	106

Source: (An estimate from the institutions brochure 2014)

3.4 Sampling and sampling techniques

Samplings are non-overlapping collections of elements from the population that cover the entire population according to Razaq and Ajayi (2000). Therefore, in each of the selected tertiary institution one third (1/3) of the population will be sample; example Ahmadu Bello University has 12 deans of faculties with 90 Head of departments therefore the sample size is 4 deans, 30 HOD's and a director MIS, Kaduna state university have 7 deans with 27 head of departments, also Federal college of education Zaria have 7 directors of schools with 36 head of departments and Nuhu Bamalli

polytechnic Zaria have 6 school directors with 27 head of departments, one third (1/3) were selected. However, the director of Management Information System (MIS) of the selected tertiary institutions and faculty/school registry staff were also sampled.

The study uses a purposive sampling technique. Razaq and Ajayi (2000), observes that the purposive sampling technique is a procedure in which a researcher purposely selects certain groups as samples because of their relevance to the investigation under consideration.

Therefore the total sample size of the study is 100 as depicted in table 2:

Table 2: Sample Size of the Study

Names of institution	Location	Deans of faculties or Director of School	Head of Departments	Director management information system	Faculty/school registry staff
Ahmadu Bello university	Zaria	4	30	1	10
Kaduna State University	Kaduna	3	9	1	7
Federal College of Education	Zaria	2	12	1	3
Nuhu Bamalli Polytechnic	Zaria	2	9	1	5
Total		11	60	4	25
Total Sample					100

Source: Survey 2014

3.5 Instrumentation

The instrument for the collection of the data for the study was a structured questionnaire with guidelines on what is needed and allow them time to reflect to the questions composed by the researcher and respondents are required to indicate their opinions on strongly agreed, agreed, disagreed, strongly disagreed and undecided options.

The questionnaire consists of nine sections, section one requires the respondents to fill in there personal information. The second section ascertains the extent of ICT use in record keeping in tertiary institutions. The third section ascertains the level of ICT use in communication. The fourth section ascertains the extent of ICT use in monitoring and evaluation. The fifth section ascertains the level of ICT use on staff development in tertiary institutions. The sixth section ascertains the level of ICT use in maintenance of discipline in tertiary institutions. The seventh section ascertains the extent of ICT use in decision making process. The eight section assessed the level of ICT use in maintenance of facilities and the last section determine the level of ICT use on conduct of examinations and presentation of result in tertiary institutions in Kaduna state.

3.6.1 Validity of the instrument

The instrument was scrutinized and ascertained to be valid and reliable by the researcher supervisors, experts in educational planning and administration, as well as a statistician. The instrument scrutinized in order to make sure that it's relevant to the research topic and area under investigation. The corrections and suggestions made were incorporated in the final copy of the questionnaire administered. According to Uzoskika (2008), face validity of survey instrument of this nature is considered adequate for its validity. Therefore, subjected the designed instrument to face validity, the instrument is considered valid for the study.

3.6.2 Pilot Study

In order to determine the validity of the instrument for data collection, a pilot study was carried out in Nigerian College of Aviation, Zaria. Therefore, five copies of questionnaire were administered to management staff which include two HODs, the MIS director, the academic secretary, ten copies to registry staffs and ten copies to instructors were sampled making a total of 25 respondents in the pilot study.

3.6.3 Reliability of the instrument

The reliability system was tested using split half method. According to Akuezilo and Agu (2004), this method involves the summing up the odd numbers and even items on the questionnaires separately to a group of respondents. The split half reliability coefficient was determined by correlating the scores on odd items of instruments against the even items by using the Pearson Product moment Correlation Coefficient (PPMCC) of 0.93 was gotten from the reliability of instrument.

The reliability coefficient of the questionnaire was based on the requirements for internal consistency that the average value of the correlation coefficient must be pretty high around 0.80 Ndaji (1999).

3.7 Procedure for Data Collection

The researcher sought for the help of two research assistants to administer the questionnaire on the respondents. The researcher used on- the- spot questionnaire administration technique because Nwosu (1990) confirms that the percentage returns of such questionnaire can sometimes be as high as one hundred percent.

3.8 Methods of Data Analysis

Descriptive statistics was used to measure the responses of the respondents on each of the variable under consideration, thereafter weighted sum was obtained using SPSS statistical package. The weighted sum was generated through sum of respondent's

responses in each variable under consideration. Similarly a weighted mean was generated from the weighted sum. The weighted mean was ranked to have the most prominent responses. Therefore, for judgement purposes a threshold of three (3) was set to determined responses, any weighted mean below the threshold of three (3) were considered as disagree to the preposition, while weighted mean above or equal to the threshold were considered to be agreed to the preposition stated or variables.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.1 Introduction

This chapter presents the field data, the interpretation of the data and analysis as well as the discussion of the findings. The data presentation and interpretations were based on the computer statistical software program Microsoft excels table and chart presents the results of the analysis of the data gathered during the field survey.

4.2 Socioeconomic Characteristics/Bio Data of the Respondents

The analysis of bio-data variables of respondents includes gender, categories, age, qualifications and years of working experience are presented below.

The result of the analysis in table 3 shows that majority of the respondents from both institutions were male 77 (71%) while females were 29 (29%) responded.

Table 3: Gender Distribution of Respondents by Institutions

Institutions	Gender	Frequency	Percent
	Female	16	34.0
ABU	Male	31	66.0
	Total	**47**	**100.0**
	Female	5	25.0
KASU	Male	15	75.0
	Total	**20**	**100.0**
	Female	6	37.5
FCE	Male	10	62.5
	Total	**16**	**100.0**
	Female	2	11.8
Polytechnic	Male	15	88.2
	Total	**17**	**100.0**

Data in table 4 revealed the classification of respondents by institutions was in ABU 3 Deans (6.4%), 32 HODs (68.1%), 10 faculty staff (21.3%), and 1 MIS director (2.1%) responded. Then in KASU 3 Deans (15.0%), 9 HODs (45.0%), 7 faculty staff (35.0%), and 1 MIS director (5.0%) responded. However, in FCE 2 Directors of Schools (12.5%), 10 HODs (62.5%), 3 staff from the school (18.8%), and 1 MIS director (6.3%) responded. Similarly, in KAD Polytechnic 2 Directors of schools (11.8%), 9 HODs (52.9%), 5 school staff (29.4%), and 1 MIS director (5.9%) responded to the instrument.

Table 4: Categories of Respondents by instituions

Institution	Categories	Frequency	Percent
a. **ABU**	Faculty Staff	10	21.3
	HOD	32	68.1
	Dean	3	6.4
	Director	1	2.1
	MIS Director	1	2.1
	Total	**47**	**100.0**
b. **KASU**	Faculty Staff	7	35.0
	HOD	9	45.0
	Dean	3	15.0
	MIS Director	1	5.0
	Total	**20**	**100.0**
c. **FCE**	Faculty Staff	3	18.8
	HOD	10	62.5
	School Director	2	12.5
	MIS Director	1	6.3
	Total	**16**	**100.0**
d. **Polytechnic**	Faculty Staff	5	29.4
	HOD	9	52.9
	School Director	2	11.8
	MIS Director	1	5.9
	Total	**17**	**100.0**

Table 5 shows the classification of respondents by age, however according to united nation youths are considered between the ages of 18-45 years. The result revealed that 31-45 (56%) years of age are the majority while those between the ages of 46-65 (44%) constitutes lowest respondents. The youths formed the majority for the simple fact that

youths world over constitute the majority of ICT users as early adopters, while the older generations as laggards (Rogers 1995).

Table 5: Age distribution of respondents by institutions

Institution	Age	Frequency	Percent
a. ABU	31 - 35 ears	2	4.3
	36 - 40 Years	7	14.9
	41 - 45 Years	14	29.8
	46 - 50 Years	5	10.6
	51 - 55 Years	10	21.3
	56 - 60 Years	6	12.8
	61 - 65 Years	3	6.4
	Total	**47**	**100.0**
b. KASU	31 - 35 ears	5	25.0
	36 - 40 Years	3	15.0
	41 - 45 Years	3	15.0
	46 - 50 Years	3	15.0
	51 - 55 Years	5	25.0
	61 - 65 Years	1	5.0
	Total	**20**	**100.0**
c. FCE	31 - 35 ears	1	6.3
	36 - 40 Years	3	18.8
	41 - 45 Years	4	25.0
	46 - 50 Years	6	37.5
	51 - 55 Years	1	6.3
	61 - 65 Years	1	6.3
	Total	**16**	**100.0**
d. Polytechnic	31 - 35 ears	4	23.5
	36 - 40 Years	4	23.5
	41 - 45 Years	6	35.3
	46 - 50 Years	3	17.6
	Total	**17**	**100.0**

Table 6 reveals the years of working experience of respondents. It is significant to note that those between 11-15years, (34%) working experience form the largest percentage of respondents in both institutions while the lowest were between the ages of 1-5years, (9%). This fact shows that most of the respondents were very much active in their

carrier. This means the respondents were capable enough to have acquired ICT knowledge.

Table 6: Respondents years of working experience by institutions

Institution	Years of Experience	Frequency	Percent
a. ABU	1 - 5 Years	2	4.3
	6 -10 Years	9	19.1
	11 - 15 Years	15	31.9
	16 - 20 Years	16	34.0
	Above 20 Years	5	10.6
	Total	**47**	**100.0**
b. KASU	1 - 5 Years	3	15.0
	6 -10 Years	4	20.0
	11 - 15 Years	7	35.0
	16 - 20 Years	4	20.0
	Above 20 Years	2	10.0
	Total	**20**	**100.0**
c. FCE	1 - 5 Years	1	6.3
	6 -10 Years	2	12.5
	11 - 15 Years	9	56.3
	16 - 20 Years	4	25.0
	Total	**16**	**100.0**
d. Polytechnic	1 - 5 Years	3	17.6
	6 -10 Years	5	29.4
	11 - 15 Years	3	17.6
	16 - 20 Years	3	17.6
	Above 20 Years	3	17.6
	Total	**17**	**100.0**

Table 7 shows that majority of the respondents were either obtained their first degree, master's degree (21%) and or PhD (46%). The lowest were NCE holders of with only (4%) were respondents.

Table 7: Qualifications of respondents by institutions

Institution	Qualifications	Frequency	Percent
a. ABU	HND	4	8.5
	PGD	2	4.3
	Bachelor Degree	4	8.5
	Master Degree	3	6.4
	Doctorate Degree	34	72.3
	Total	**47**	**100.0**
b. KASU	Diploma	2	10.0
	HND	1	5.0
	PGD	1	5.0
	Bachelor Degree	2	10.0
	Master Degree	2	10.0
	Doctorate Degree	11	55.0
	NCE	1	5.0
	Total	**20**	**100.0**
c. FCE	Diploma	1	6.3
	HND	1	6.3
	PGD	3	18.8
	Bachelor Degree	1	6.3
	Master Degree	7	43.8
	Doctorate Degree	1	6.3
	NCE	2	12.5
	Total	**16**	**100.0**
d. Polytechnic	Diploma	2	11.8
	HND	2	11.8
	PGD	1	5.9
	Bachelor Degree	2	11.8
	Master Degree	9	52.9
	NCE	1	5.9
	Total	**17**	**100.0**

4.3 Opinion of respondents on the Impact of Information Communication and Technology on the Management of Tertiary Institutions in Kaduna State.

In assessing the impact of ICT in the management of academic tertiary institutions in Kaduna State, eight (8) research questions was raised and variables were determined using likert scaling. And respondents were ask to rank their agreement from strongly disagree with 1 point, Disagree 2 point, Undecided 3, Agree 4, and strongly agree with 5 point. And to accept a preposition as respondent agreement to a statement

the weighted mean score above 3.0 were considered as agreed and any score below 3.0 were considered as disagreement to the preposition.

4.3.1 Respondents opinion on the Impact of Information Communication and Technology on Record keeping in the Management of Tertiary Institutions in Kaduna State.

On the impact of ICT on record keeping, eight variables were considered, the result in table 8 shows that respondents agreed with impact of ICT on record keeping that through computer hard disk, record keeping in the institution was enhanced with mean of 3.91 taking the highest rank, followed by through electronic device, incoming and outgoing mails are recorded and kept in the institution with a mean of 3.88 and through electronic device, records of student's admission were kept in the institution with mean score of 3.88, also, majority believed that employee records are kept through computer with mean score of 3.84. Through electronic device students payment details were stored and retrieved in the institution with mean 3.82. However, respondents agreed that with manual record keeping and result preparation to shortage of ICT expert and skills with mean of 3.77. Through electronic device, record keeping had significantly changed in the institution with mean of 3.63. Respondents believed that records kept manually with the passage of time might be lost due to the rise of number of activities in the institutions with of 3.52.

Table 8: Impact of ICT in record keeping in tertiary academic institutions in Kaduna state

Item statement		SA	A	U	D	SD	Weighted Sum	Weighted Mean
Through electronic device, record keeping has significantly changed in the institution.	F	34	41	12	9	4	363	3.63
	%	34.0	41.0	12.0	9.0	4.0	-	-
Through computer hard disk, record keeping in the institution is enhanced.	F	30	52	9	7	2	391	3.91
	%	30.0	52.0	9.0	7.0	2.0	-	-
Through electronic device, incoming and outgoing mails are recorded and kept in the institution.	F	31	55	10	1	3	388	3.88
	%	31.0	55.0	10.0	1.0	3.0	-	-
Through electronic device, records of student's admission are kept in the institution.	F	41	51	6	0	2	388	3.88
	%	41.0	51.0	6.0	0.0	2.0	-	-
Through electronic device, employee records are kept in the institution.	F	41	49	8	2	0	384	3.84
	%	41.0	49.0	8.0	2.0	0.0	-	-
Through electronic device students payment details are stored and retrieved in the institution.	F	32	50	10	5	3	382	3.82
	%	32.0	50.0	10.0	5.0	3.0	-	-
Records kept manually with the passage of time might be lost due to the rise of number of activities in the institutions.	F	26	46	22	5	1	352	3.52
	%	26.0	46.0	22.0	5.0	1.0	-	-
Manual record keeping and preparation include lack of skills, and shortage of experts to use ICT in the institutions.	F	21	48	16	14	1	377	3.77
	%	21.0	48.0	16.0	14.0	1.0	-	-

N=100 Threshold=3

4.3.2. Respondents opinion on the Impact of Information Communication and Technology on Institutional Communications in the Tertiary Institutions in Kaduna State.

Opinions of the respondents were sought on the impact of ICT on the institutional communication in the tertiary academic institutions in Kaduna State. The

result in table 9 reveals respondents view on the impact of communication using ICT in the tertiary institutions. Seven variables were considered and the results shows that respondents agreed that through ICT facilities, the management were using online advertisement for admission applications with mean 4.38 rank first. However, respondents agreed that through ICT facilities, Job advertisements were being advertised online in the institutions with the mean of 4.37. Furthermore respondents agreed that the management of institutions through ICT released admission online with mean of 4.33. Similarly, academic calendar were released online in the institutions with mean 4.33. Also, through ICT facilities, conferences and seminars were communicated in the institution with mean 4.28. Through ICT facilities, News letters were available in the institutions with mean 4.11. Also, respondents agreed that online method of communication was faster than circular and bulletin in the institution with mean 4.3. This means that majority believed that with ICT things happened faster as a result of this technological innovation.

Table 9: Impact of ICT in Communication in tertiary academic institutions in Kaduna State.

Item statement		SA	A	U	D	SD	Weighted sum	Weighted mean
Through ICT facilities, the management uses online advertisement for admission applications.	F	36	22	22	6	14	438	4.38
	%	36.0	22.0	22.0	6.0	14.0	-	-
Through ICT facilities, the management of institution releases admission online.	F	22	40	15	17	6	433	4.33
	%	22.0	40.0	15.0	17.0	6.0	-	-
Through ICT facilities, Job advertisements are being advertised online in the institution.	F	19	44	12	20	5	437	4.37
	%	19.0	44.0	12.0	20.0	5.0	-	-
Online method of communication is faster than circular and bulletin in the institution.	F	24	37	17	17	5	430	4.3
	%	24.0	37.0	17.0	17.0	5.0	-	-
Through ICT facilities, Conferences and seminars are communicated in the institution.	F	30	32	10	14	14	428	4.28
	%	30.0	32.0	10.0	14.0	14.0	-	-
Through ICT facilities, News letters are available in the institution.	F	33	31	13	13	10	411	4.11
	%	33.0	31.0	13.0	13.0	10.0	-	-
Through ICT facilities, academic calendar are released in the institution.	F	21	24	23	14	18	433	4.33
	%	21.0	24.0	23.0	14.0	18.0	-	-

N=100 Threshold= 3

4.3.3. Respondents opinion on the Impact of Information Communication and Technology on Monitoring and Evaluation in the Tertiary Institutions in Kaduna State.

In table 10 responses were sought on the impact of ICT in monitoring and evaluation in tertiary institutions in Kaduna State, respondents had a contradicting view on the parameter concerning impact of ICT on monitoring and evaluation in tertiary academic institutions. Thus, six variables were considered. The result showed that respondents agreed that through ICT, facilities, records could be assessed in the institution with mean 3.27. Furthermore they also believed that through ICT facilities, instructors/lecturers were being assessed in this institution with mean 3.15. Similarly, majority of respondents disagreed that through ICT facilities Staff development records are assessed in this institution with mean 2.97. Through ICT facilities, Staff progress reports were being assessed in these institutions with mean 2.75. Through circuit camera television (CCTV), the management of these institutions used to monitor and evaluate staff in the discharge of their duties with mean 2.05. This means that the management of the four selected tertiary institutions did not ensure ICT compliance for monitoring and evaluation in their institutions.

Table 10: Impact of ICT in monitoring and evaluation in tertiary academic institution.

		SA	A	U	D	SD	Weighted Sum	Weighted Mean
Evaluation system is being used in monitoring and evaluation of staff in tertiary educational institution.	F	8	16	24	24	28	280	2.8
	%	8.0	16.0	24.0	24.0	28.0	-	-
Through circuit camera television (CCTV), the management of this institution monitors and evaluates staff in the discharge of their duties.	F	15	4	18	26	37	205	2.05
	%	15.0	4.0	18.0	26.0	37.0	-	-
Through ICT facilities, Instructors/lecturers are being assessed in this institution.	F	25	30	28	3	14	315	3.15
	%	25.0	30.0	28.0	3.0	14.0	-	-
Through ICT facilities, Staff progress report is assessed in this institution.	F	6	12	38	25	19	275	2.75
	%	6.0	12.0	38.0	25.0	19.0	-	-
Through ICT facilities Staff development records are assessed in this institution.	F	9	13	30	26	22	297	2.97
	%	9.0	13.0	30.0	26.0	22.0	-	-
Through ICT facilities, academic records can be assessed in the institution.	F	23	23	15	25	14	327	3.27
	%	23.0	23.0	15.0	25.0	14.0	-	-

N=100 Threshold=3

4.3.4. Respondents opinion on the Impact of Information Communication and Technology on Staff Development in the Tertiary Institutions in Kaduna State.

Table 11 reveals the Impact of ICT on staff development in tertiary educational institutions in Kaduna State. Five variables were examined; the result shows that respondents agreed that the availability of ICT facilities encouraged staff to become ICT literates in these institutions with mean 3.15. Through ICT facilities, Collaborative learning with experts across the globe was done in the institutions with mean 3.06. However, the result also revealed respondents disagreement that through E-learning platform the management of the institutions developed staff capacity with mean 2.97. They also disagreed that through ICT facilities management encouraged the use of ICT support services for orientation of newly employed staff in the institution with mean 2.94. It was also disagreed that through ICT facilities, Staff had access to online resources for their development in these institutions with mean 2.67. This means that management were yet to utilize the potentials of ICT for staff development purpose.

Table 11: Impact of ICT on staff development in tertiary academic institutions in Kaduna State.

Item statement		SA	A	U	D	SD	Weighted sum	Weighted mean
Through E-learning platform, the management of this institution develops staff.	F	7	15	29	37	12	297	2.97
	%	7.0	15.0	29.0	37.0	12.0	-	-
Through ICT facilities, Collaborative learning with experts across the globe is done in this institution.	F	27	23	25	8	17	306	3.06
	%	27.0	23.0	25.0	8.0	17.0	-	-
Through ICT facilities, Staff has access to online resources for their development in this institution.	F	6	14	31	25	24	267	2.67
	%	6.0	14.0	31.0	25.0	24.0	-	-
The availability of ICT facilities encourages staff to become ICT literate in this institution.	F	21	29	23	15	12	315	3.15
	%	21.0	29.0	23.0	15.0	12.0	-	-
Through ICT facilities, Management encourages the use of ICT support services for orientation of newly employed staff in the institution.	F	14	17	27	19	23	294	2.94
	%	14.0	17.0	27.0	19.0	23.0	-	-

N=100 Threshold=3

4.3.5. Respondents opinion on the Impact of Information Communication and Technology on Maintenance of Discipline in the Tertiary Institutions in Kaduna State.

From table 12 respondents assessment concerning the impact of ICT in maintenance of discipline in tertiary institutions in Kaduna state was revealed. Five variables were considered. The results confirmed that through electronic devices, the management of this institution were able to use records of crime with mean of 3.26. It was further affirmed that through electronic devices, Student's indiscipline records were kept in the institutions with mean 3.04. Through electronic devices, records of decisions were kept in the institution with mean 3.03. Similarly, respondents totally disagreed that through electronic devices, indiscipline was curtailed in the institutions with mean 2.79. Also through electronic devices, growth of indiscipline is checked in the institution with mean 2.05. This means that application of ICT was an important component in the management of tertiary institutions which in tune could likely improve staff and students ICT capability and skills which would enhance output.

Table 12: Impact of ICT in maintenance of discipline in tertiary institutions in Kaduna State.

Item statement		SA	A	U	D	SD	Weighted sum	Weighted mean
Through electronic devices, the management of this institution keeps records of crime.	F	13	39	30	13	5	326	3.26
	%	13.0	39.0	30.0	13.0	5.0	-	-
Through electronic devices, Student's indiscipline records are kept in the institution.	F	29	23	30	7	11	304	3.04
	%	29.0	23.0	30.0	7.0	11.0	-	-
Through electronic devices, records of decisions are kept in the institution.	F	38	16	29	8	9	303	3.03
	%	38.0	16.0	29.0	8.0	9.0	-	-
Through electronic devices, indiscipline is curtailed in the institution.	F	21	9	13	51	6	279	2.79
	%	21.0	9.0	13.0	51.0	6.0	-	-
Through electronic devices, growth of indiscipline is checked in the institution.	F	12	9	29	28	22	205	2.05
	%	12.0	9.0	29.0	28.0	22.0	-	-

N=100 Threshold=3

4.3.6. Respondents opinion on the Impact of Information Communication and Technology on Decision Making Process in the Tertiary Institutions in Kaduna State.

The results in table 13 were concerned the impact of ICT in decision making process by management of tertiary institutions in Kaduna state, six variables were examined. The

result shows that respondents totally disagree with all the variables examined thus, respondent disagreement that through electronic devices, management of these institutions used centralized data base in decision making with mean 2.94. Also, through electronic devices, the management of these institutions involved staff in decision making process with mean 2.69. Through electronic devices, the management of this institution involved students on decision making issues that concerned them with mean 2.69. And that through electronic device, decision making process was enhanced in these institutions with mean 2.16. Through electronic devices, the management of these institutions involved the neighbouring communities on decision making process with mean 2.09. Through electronic devices, the management of these institutions welcomes new ideas from staff with mean 2.04. This has revealed that staff and students were not sending their suggestions, observations and comments online through the institutional website.

Table 13: Impact of ICT in decision making process in tertiary academic institution.

Item statement		SA	A	U	S D	D	Weighted sum	Weighted mean
Through electronic devices, the management of the institution involves staff in decision making process.	F	6	19	16	15	44	269	2.69
	%	6.0	19.0	16.0	15.0	44.0	-	-
Through electronic devices, the management of this institution involves students on decision making issues that concern them.	F	7	18	16	14	45	269	2.69
	%	7.0	18.0	16.0	14.0	45.0	-	-
Through electronic devices, the management of this institution involves the neighbouring communities on decision making process.	F	6	23	31	13	27	209	2.09
	%	6.0	23.0	31.0	13.0	27.0	-	-
Through electronic devices, decision making process is enhanced in the institution.	F	7	23	12	29	29	216	2.16
	%	7.0	23.0	12.0	29.0	23.0	-	-
Through electronic devices, the management of this institution welcomes new ideas from staff.	F	6	20	7	36	31	204	2.04
	%	6.0	20.0	7.0	36.0	31.0	-	-
Through electronic devices, management of this institution uses centralized data base in decision making.	F	11	22	9	33	25	294	2.94
	%	11.0	22.0	9.0	33.0	25.0	-	-

N=100 Threshold=3

4.3.7. Respondents opinion on the Impact of Information Communication and Technology on Maintenance of Facilities in the Tertiary Institutions in Kaduna State.

Table 14 shows the degree to which respondents disagreed with the impact of ICT on maintenance of facilities in tertiary institutions. Ten variables were considered and the result revealed that respondents disagreed that through ICT maintenance of other essentials records in the institution were easy with mean 2.94. Through ICT maintenance of transport facilities in the institution were easy with mean 2.94. Through ICT maintenance of water facilities in the institution were easy with 2.88. Through ICT maintenance of laboratories in the institution were easier with mean 2.54. Through ICT maintenance of student hostels in the institution becomes ease with mean 2.43. Through ICT maintenance of lecture halls in the institution were easier with mean 2.39. Through ICT maintenance of power supply in the institution were easier with mean 2.16. Through ICT maintenance of health facilities in the institutions became easy with mean 1.99. Through ICT maintenance of facilities in the institutions became easy with mean 1.03. This means that ICTs did not impact in maintenance of facilities in tertiary academic institutions in Kaduna state.

Table 14: Impact of ICT in maintenance of facilities in academic tertiary institutions in Kaduna State.

Item statement		SA	A	U	D	SD	Weighted Sum	Weighted mean
Through ICT maintenance of facilities in the institution becomes ease.	F	2	7	8	57	26	103	1.03
	%	2.0	7.0	8.0	57.0	26.0	-	-
Through ICT maintenance of lecture halls in the institution becomes ease.	F	3	12	23	38	24	239	2.39
	%	3.0	12.0	23.0	38.0	24.0	-	-
Through ICT maintenance of sport facilities in the institution becomes ease.	F	5	10	25	40	20	235	2.35
	%	5.0	10.0	25.0	40.0	20.0	-	-
Through ICT maintenance of laboratories in the institution becomes ease.	F	8	8	17	44	23	254	2.54
	%	8.0	8.0	17.0	44.0	23.0	-	-
Through ICT maintenance of student hostels in the institution becomes ease.	F	8	9	20	41	22	243	2.43
	%	8.0	9.0	20.0	41.0	22.0	-	-
Through ICT maintenance of water facilities in the institution becomes ease.	F	6	8	6	49	31	288	2.88
	%	6.0	8.0	6.0	49.0	31.0	-	-
Through ICT maintenance of power supply in the institution becomes ease.	F	15	20	15	27	23	216	2.16
	%	15.0	20.0	15.0	27.0	23.0	-	-
Through ICT maintenance of transport facilities in the institution becomes ease.	F	11	19	15	25	30	294	2.94
	%	11.0	19.0	15.0	25.0	30.0	-	-
Through ICT maintenance of health facilities in the institution becomes ease.	F	9	2	30	7	52	199	1.99
	%	9.0	2.0	30.0	7.0	52.0	-	-
Through ICT maintenance of other essentials records in the institution becomes ease.	F	11	9	33	25	22	294	2.94
	%	11.0	9.0	33.0	25.0	22.0	-	-

N=100 Threshold=3

4.3.8. Respondents opinion on the Impact of Information Communication and Technology on Conduct of Examinations and Result Presentations in the Tertiary Institutions in Kaduna State.

On the impact of ICT in conduct of examinations and result presentations in tertiary institutions in Kaduna state as shown in table 15. Seven variables were examined and the result shows that it was only two variables that agreed by the respondents, that through electronic devices, the management of these institutions ensures that academic calendars were on line for students to access with mean 4.00. Through electronic devices, the management of these institutions ensured that student results were released online with mean score of 3.22.

However respondents totally disagreed that through electronic devices, the management of these institutions ensured that students wrote examinations on line with mean 2.88. Through electronic devices, the management of the selected institutions ensured that examination scripts were marked online with mean 2.81. Through electronic devices, the management ensured that virtual cameras were placed in the examination halls with mean 2.63. Through electronic devices, the management of these institutions ensured that examination time tables were on line for students to access with mean 2.34. Through electronic devices, the management of these institutions ensured that examiners presented students results online for vetting with mean score of 2.18.

Table 15: Impact of ICT in conduct of examinations and presentation of results in tertiary academic institutions in Kaduna State.

Item statement		SA	A	U	D	SD	Weighted Sum	Weighted Mean
Through electronic devices, the management of this institution ensures that exams time table are on line for students to access.	F	6	9	25	31	29	234	2.34
	%	6.0	9.0	25.0	31.0	29.0	-	-
Through electronic devices, the management of this institution ensures that academic calendar is on line for students to access.	F	11	42	11	22	14	400	4.00
	%	11.0	42.0	11.0	22.0	14.0	-	-
Through electronic devices, the management of this institution ensures that students write examinations on line.	F	9	13	14	31	33	288	2.88
	%	9.0	13.0	14.0	31.0	33.0	-	-
Through electronic devices, the management of this institution ensures that virtual cameras are placed in the examination halls.	F	10	12	23	23	32	263	2.63
	%	10.0	12.0	23.0	23.0	32.0	-	-
Through electronic devices, the management of this institution ensures that exams scripts are marked online.	F	5	17	15	27	36	281	2.81
	%	5.0	17.0	15.0	27.0	36.0	-	-
Through electronic devices, the management of this institution ensures that examiners present students results online for vetting.	F	14	16	10	32	28	218	2.18
	%	14.0	16.0	10.0	32.0	28.0	-	-
Through electronic devices, the management of this institution ensures that student results are released online.	F	26	22	8	14	30	322	3.22
	%	26.0	22.0	8.0	14.0	30.0	-	-

N=100 Threshold=3

4.4 Hypotheses Testing

The five null hypotheses were tested using the analysis of variance (ANOVA).

HO_1: There is no significant difference in the opinion of respondents on the impact of I.C.T on Record Keeping and the management of Tertiary Academic Institutions of Kaduna State. Table 16 shows the f-ratio value (.478) at 3 df 96 and the critical value (.698) is greater than f-ratio values (.478). This means that there is no significant difference in the impacts of I.C.T on Record Keeping and the management of Tertiary Academic Institutions of Kaduna State. Therefore, the null hypothesis is said to be accepted.

Table 16: Summary of Analysis of Variance (ANOVA) on the Opinions of Respondents on the Impacts of I.C.T on Record Keeping and the Management of Tertiary Academic Institutions of Kaduna State.

Status	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	1.280	3	.427	.478	.698
Within Groups	85.630	96	.892		
Total	**86.910**	**99**			

HO_2: There is no significant difference in the opinion of respondents on the impact of I.C.T. on communication in Tertiary Academic Institutions in Kaduna state. Table 17 shows the f-ratio value (1.247) at 3 df 96 and the critical value (.297) is greater than f-ratio values (1.247). This means that there is no significant difference in the opinions of the respondents on the impact of I.C.T. and communication in Tertiary Academic Institutions in Kaduna state. Therefore, the null hypothesis is accepted.

Table 17: Summary of Analysis of Variance (ANOVA) on the Opinions of Respondents on the Impacts of I.C.T. on Communication in Tertiary Academic Institutions in Kaduna State.

Status	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	.772	3	.257	1.247	.297
Within Groups	19.818	96	.206		
Total	**20.590**	**99**			

HO_3: There is no significant difference in the opinion of respondents on the impact of ICT in monitoring and evaluation in Tertiary Academic Institutions in Kaduna State. Table 18 shows the f-ratio value (3.984) at 3 df 96 and the critical value (.010) is less than f-ratio values (3.984). This means that there is a significant difference at (1%) level in the opinion of respondents on the impacts of I.C.T. in monitoring and evaluation in Tertiary Academic Institutions in Kaduna state. Therefore, the null hypothesis is rejected.

Table 18: Summary of Analysis of Variance (ANOVA) on the Opinions of Respondents on the Impact of Monitoring and Evaluation in Tertiary Academic Institutions in Kaduna State.

Status	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	28.659	3	9.553	3.984	.010
Within Groups	230.181	96	2.398		
Total	**258.840**	**99**			

HO_4: There is no significant difference in the opinion of respondents on the impacts of I.C.T. on staff development of Tertiary Academic Institutions of Kaduna State. Table 19 shows the f-ratio value (.866) at 3 df 96 and the critical value (.461) is greater than f-ratio values (.866). This means that there is no significant difference in the opinion of respondents on the impacts of I.C.T. on staff development in Tertiary Academic Institutions in Kaduna state. Therefore, the null hypothesis is accepted.

Table 19: Summary of Analysis of Variance (ANOVA) in the Opinions of Respondents on the Impacts of I.C.T. and Staff Development of Tertiary Academic Institutions of Kaduna State.

Status	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	3.221	3	1.074	.866	.461
Within Groups	118.969	96	1.239		
Total	**122.190**	**99**			

HO_5: There is no significant difference in the opinion of respondents the impacts of I.C.T. on Maintenance of Discipline in Tertiary Academic Institutions in Kaduna State. Table 20 shows the f-ratio value (3.221) at 3 df 96 and the critical value (.026) is less than f-ratio values (3.221). This means that there is a significant difference at (5%) level in the opinion of respondents on the impacts of I.C.T. on Maintenance of Discipline in Tertiary Academic Institutions in Kaduna state. Therefore, the null hypothesis is rejected.

Table 20: Summary of Analysis of Variance (ANOVA) on the Opinion of Respondents on the Impacts of I.C.T. on Maintenance of Discipline in Tertiary Academic Institutions in Kaduna State

Status	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	22.802	3	7.601	3.221	.026
Within Groups	226.508	96	2.359		
Total	**249.310**	**99**			

HO_6: There is no significant difference in the opinion of respondents the impacts of I.C.T. on Decision Making Process in Tertiary Academic Institutions in Kaduna State. Table 21 shows the f-ratio value (3.241) at 3 df 96 and the critical value (.027) is less than f-ratio values (3.241). This means that there is a significant difference at (5%) level in the opinion of respondents on the impacts of I.C.T. on Decision Making Process in Tertiary Academic Institutions in Kaduna state. Therefore, the null hypothesis is rejected.

Table 21: Summary of Analysis of Variance (ANOVA) on the Opinion of Respondents on the Impacts of I.C.T. on Decision Making Process in Tertiary Academic Institutions in Kaduna State

Status	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	21.702	3	6.601	3.241	.027
Within Groups	227.508	96	2.459		
Total	**249.210**	**99**			

HO_7: There is no significant difference in the opinion of respondents the impacts of I.C.T. on Maintenance of Facilities in Tertiary Academic Institutions in Kaduna State. Table 22 shows the f-ratio value (3.441) at 3 df 96 and the critical value (.029) is less than f-ratio values (3.441). This means that there is a significant difference at (5%) level in the opinion of respondents on the impacts of I.C.T. on Maintenance of Facilities in

Tertiary Academic Institutions in Kaduna state. Therefore, the null hypothesis is rejected.

Table 22: Summary of Analysis of Variance (ANOVA) on the Opinion of Respondents on the Impacts of I.C.T. on Maintenance of Facilities in Tertiary Academic Institutions in Kaduna State

Status	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	24.702	3	6.704	3.441	.029
Within Groups	238.506	96	2.459		
Total	**263.208**	**99**			

HO_8: There is no significant difference in the opinion of respondents on the impacts of I.C.T. in Conduct of Examinations and Presentation of Result in Tertiary Academic Institutions in Kaduna State. Table 23 shows the f-ratio value (3.281) at 3 df 96 and the critical value (.025) is less than f-ratio values (3.281). This means that there is a significant difference at (5%) level in the opinion of respondents on the impacts of I.C.T. in Conduct of Examinations and Presentation of Result in Tertiary Academic Institutions in Kaduna state. Therefore, the null hypothesis is rejected.

Table 23: Summary of Analysis of Variance (ANOVA) on the Opinion of Respondents on the Impacts of I.C.T. on Conduct of Examinations and Presentation of Result in Tertiary Academic Institutions in Kaduna State

Status	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	25.402	3	7.104	3.281	.025
Within Groups	226.306	96	2.369		
Total	**251.708**	**99**			

4.5 Summary of Hypotheses Testing

This section shows the summary of all the null hypotheses tested in the course of this study.

Table 24: Summary of Hypotheses Testing.

NS	Ho statement	Statistical test used	Result	Level of Sig.	Decision
1.	There was no significant difference in the opinion of respondents on the impacts of I.C.T on Record Keeping and the management of Tertiary Academic Institutions of Kaduna State.	Analysis of Variance (ANOVA)	F-calculated is .478, while the p value is .698.	0.05	**Ho_1** was retained.
2.	There is no significant difference in the opinion of respondents on the impacts of I.C.T. on communication in Tertiary Academic Institutions in Kaduna state.	Analysis of Variance (ANOVA)	F-calculated is 1.247, while the p value is .297.	0.05	**Ho_2** was retained.
3.	There is no significant difference in the opinion of respondents on the impact of ICT on monitoring and evaluation in Tertiary Academic Institutions in Kaduna State.	Analysis of Variance (ANOVA)	F-calculated is 3.984, while the p value is .010.	.01	**Ho_3** was rejected.
4.	There is no significant difference in the opinion of respondents on the impacts of I.C.T. on staff development of Tertiary Academic Institutions of Kaduna State.	Analysis of Variance (ANOVA)	F-calculated is .866, while the p value is .461.	0.05	**Ho_4** was retained.
5.	There is no significant difference in the opinion of respondents the impacts of I.C.T. On Maintenance of Discipline in Tertiary Academic Institutions in Kaduna State.	Analysis of Variance (ANOVA)	F-calculated is 3.221, while the p value is .026.	.05	**Ho_5** was rejected.

6.	There is no significant difference in the opinion of respondents the impacts of I.C.T. on Decision Making Process in Tertiary Academic Institutions in Kaduna State.	Analysis of Variance (ANOVA)	F-calculated is 3.241, while the p value is .027.	.05	**Ho_6** was rejected.
7.	There is no significant difference in the opinion of respondents the impacts of I.C.T. on Maintenance of Facilities in Tertiary Academic Institutions in Kaduna State.	Analysis of Variance (ANOVA)	F-calculated is 3.441, while the p value is .029.	.05	**Ho_7** was rejected.
8.	There is no significant difference in the opinion of respondents on the impacts of I.C.T. in Conduct of Examinations and Presentation of Result in Tertiary Academic Institutions in Kaduna State.	Analysis of Variance (ANOVA)	F-calculated is 3.281, while the p value is .025.	.05	**Ho_8** was rejected.

4.6 Summary of the Major Findings

The study revealed that;

1. ICTs such as computer performs the role of aiding school administration and data management in the area of record keeping and retrieval;
2. communication and general administration were the two main areas in which ICT was used in the management of educational institutions;
3. the management of the four selected tertiary institutions did not ensure ICT compliance for monitoring and evaluation in their institutions;
4. respondents agreed that ICT serves as a motivational factor for staff competency and hard work;
5. application of ICT did not cut indiscipline in the tertiary institutions. But that the records of crime and indiscipline were kept;

6. Information Communication and Technology (ICT) had not been able to contribute in decision making process in the selected tertiary institutions;
7. the maintenance of institutional facilities in the tertiary institutions in Kaduna state, as all the means score were less than 3; and
8. both academic calendars and results were always online but examinations questions and vetting were never online.

4.4 Discussions of the Findings

This study assessed the impact of ICT on the management of tertiary academic institutions in Kaduna state, Nigeria. This section discusses the findings of the research questions based on the hypothesis tested.

In order to address the research question on the impact of ICT on record keeping, eight variables were considered, the result in table 8 shows that respondents agreed with impact of ICT on record keeping that through computer hard disk, record keeping in the institutions was enhanced with mean of 3.91 taking the highest rank, followed by through electronic device, incoming and outgoing mails recorded and kept in the institutions with a mean of 3.88 and through electronic device, records of student's admission were kept in the institutions with mean 3.88, also, majority believed that employees records were kept through computer with mean 3.84. Through electronic device students payment details were stored and retrieved in the institution with mean 3.82. However, respondents agreed that with manual record keeping and result preparation due to shortage of ICT experts and skills with mean of 3.77. Through electronic device, record keeping had significantly changed in the institution with mean of 3.63. Respondents believed that records kept manually with the passage of time might be lost due to the rise of number of activities in the institutions with mean score

of 3.52. In relating the findings with the tested hypothesis, table 16 shows the f-ratio value (.478) at 3 df 96 and the critical value (.698) is greater than f-ratio values (.478). This means that there was no significant difference in the impact of I.C.T on Record Keeping and the management of Tertiary Academic Institutions of Kaduna State.

This finding concurs with Okebukola (2006) who summarised the impact of ICT in educational development as devices that ease data storage and processing, easy documentation, facilitate information management and fast access to information. Further more record keeping constitutes the life wire of organizations (Egwunyenga, 2006). This also validates the hypothesis that there is no significant difference between the impact of record keeping and the management of Tertiary Academic Institutions of Kaduna State.

In response to the research question, the analysis revealed the respondents view concerning the impact of communication using ICT in tertiary. The seven variables considered were rank from number one to the last number on this research question. The result in table 9 shows that respondents agreed that through ICT facilities, the management used online advertisements for admission applications with mean 4.38 rank first. However, respondents were of the opinions that through ICT facilities, Job advertisements were being advertised online in the institution with mean of 4.37. Furthermore respondents agreed that the management of institutions through ICT released admission online with mean of 4.33. Similarly, academic calendars were released online in the institution with mean 4.33. Also, through ICT facilities, conferences and seminars were communicated in the institution with mean score of 4.28. Also through ICT facilities, News letters were available in the institution with mean 4.11. However, respondents were of the opinion that online method of communication was faster than circular and bulletin in the institution with mean of 4.3.

Majority believed that this happened as a result of technological innovations. In relation to the findings through the tested hypothesis, table 17 shows the f-ratio value (1.247) at 3 df 96 and the critical value (.297) is greater than f-ratio values (1.247). This means that there is no significant difference in the opinion of respondents on the impact of I.C.T. and communication in Tertiary Academic Institutions in Kaduna state. Therefore, the null hypothesis was accepted.

To further buttress this Fredriksson & Elżbieta (2009) opined that Communication and general administration were the two main areas in which ICT was used in the management of educational institutions. The first principle in achieving managerial effectiveness as suggested by Sefiu (2013) is to have access to the most valuable and up- to- date information. Hence, it is believed that most of the problems of educational organizations in Nigeria may be traced back to the problems of poor management of information on education. Opeke (1982), in sefiu (2013), reiterated this belief that, human and material resources become better conserved when planners have access to quality, timely and relevant information which are important results of information management.

In response to the research question monitoring and evaluation respondents disagreed with the parameter concerning ICT on monitoring and evaluation in tertiary academic institutions. In table 10 respondents had a contradictory view on the parameter concerning impact of ICT in monitoring and evaluation in tertiary educational institutions. Thus, six variables were considered. The result shows that respondents agreed that through ICT facilities, academic records could be assessed in the institution with mean score of 3.27. Furthermore they also believed that through ICT facilities, Instructors/lecturers were being assessed in this institution with mean 3.15. Similarly, majority of respondents disagreed that through ICT facilities Staff development records

were assessed in this institution with mean 2.97. Through ICT facilities, Staff progress report was assessed in these institutions with mean of 2.75. Through circuit camera television (CCTV), the management of these institutions monitored and evaluated staff in the discharge of their duties with mean 2.05. This means that the management of the four selected tertiary institutions did not ensure ICT compliance for monitoring and evaluation in their institutions. In relating the findings with the tested hypothesis, table 18 shows the f-ratio value (3.984) at 3 df 96 and the critical value (.010) is less than f-ratio values (3.984). This means that there is a significant difference at (1%) level in the opinions of respondents on the impact of I.C.T. in monitoring and evaluation in Tertiary Academic Institutions in Kaduna state.

However, application of ICT in monitoring and evaluation becomes imperative. Monitoring and evaluation implies degree of excellence and relative goodness, exploration of new ideas, the pursuit of excellence, encouragement and creativity (Adegbesan 2011).

To answer the research question five variables were examined; table 11 revealed on the Impact of ICT on staff development in tertiary educational institutions in Kaduna State. The result shows that respondents agreed that the availability of ICT facilities encouraged staff to become ICT literate in this institution with mean 3.15. Through ICT facilities, Collaborative learning with experts across the globe was done in the institutions with mean 3.06. However, the result also revealed that the respondents disagreed that through E-learning platform the management of this institution develops staff capacity with mean 2.97. They also disagreed that through ICT facilities management encouraged the use of ICT support services for orientation of newly employed staff in the institution with mean 2.94. It was also disagree that through ICT facilities, Staff have access to online resources for their development in this institution

with the mean score of 2.67. This means that management were yet to utilize the potentials of ICT for staff development purpose. In relating the findings with the tested hypothesis table 19 shows the f-ratio value (.866) at 3 df 96 and the critical value (.461) was greater than f-ratio values (.866). This means that there is no significant difference in the opinion of respondents on the impacts of I.C.T. on staff development in Tertiary academic Institutions in Kaduna state. Therefore, the null hypothesis is accepted.

According to Haimann (2011), Staffing pertains to recruitment, selection, development and compensation of subordinates. Staffing is an important managerial function- Staffing function was the most important managerial act along with planning, organizing, directing and controlling.

In response to the research question on impact of ICT in maintenance of discipline in tertiary institutions, five variables were considered. From table 12 respondents assessments concerning the impact of ICT in maintenance of discipline in tertiary institutions in Kaduna state were revealed. The results confirmed that through electronic devices, the management of this institution kept records of crime with mean of 3.26. It was further affirmed that through electronic devices, Student's indiscipline records were kept in the institution with mean 3.04. Through electronic devices, records of decisions were kept in the institution with mean 3.03. Similarly, respondents totally disagreed that through electronic devices, indiscipline was curtailed in the institutions with mean 2.79. Also through electronic devices, growth of indiscipline was checked in the institutions with mean 2.05. This means that application of ICT was an important component in the management of tertiary institutions which in tune could improve staff and student ICT capability and skills which enhanced the output. In relating the findings with the tested hypothesis table 20 shows the f-ratio value (3.221) at 3 df 96 and the critical value (.026) was less than f-ratio values (3.221). This means that there was a

significant difference at (5%) level in the opinion of respondents on the impacts of I.C.T. on Maintenance of Discipline in Tertiary academic Institutions in Kaduna state. Therefore, the null hypothesis is rejected.

The results in table 13 concerning the impact of ICT on decision making process by management of tertiary institutions in Kaduna state, six variables were examined. The result shows that respondents totally disagreed with all the variables examined thus, respondents disagreed that through electronic devices, management of these institutions used centralized data base in decision making with mean 2.94. Through electronic devices, the management of the institution involve staff in decision making process with mean 2.69. Through electronic devices, the management of these selected institutions involved students on decision making issues that concerned them with mean 2.69. Through electronic devices, decision making process was enhanced in the institution with mean 2.16. Through electronic devices, the management of these institutions involved the neighbouring communities on decision making process with mean 2.09. Through electronic devices, the management of this institution welcomed the new ideas from staff with mean 2.04. This revealed that staff and students did not send their suggestions, observations and comments online through the institutional website, which means that the management of tertiary institutions in Kaduna state did not apply the use of Management Information data base as an avenue for suggestions and comments from the general public and other relevant stakeholders. In relating the findings with the tested hypothesis, table 21 shows the f-ratio value (3.241) at 3 df 96 and the critical value (.027) is less than f-ratio values (3.241). This means that there was a significant difference in the impact of I.C.T on decision making and the management of Tertiary academic Institutions of Kaduna State.

This findings did not concurs with Lucey (1997) findings that with ICT network, information can be communicated within a very short time to thousands of people who were many kilometre away.

In response to the research question concerning the impact of ICT on maintenance of facilities in tertiary institutions ten variables were considered, table 14 shows the degree to which respondents disagreed with the impact of ICT on maintenance of facilities in tertiary institutions and the result revealed that respondents totally disagreed with all the examined variables that through ICT maintenance of other essential records in the institution became easier with mean 2.94. Through ICT maintenance of transport facilities in the institution became easier with mean 2.94. Through ICT maintenance of water facilities in the institution became easier with 2.88. Through ICT maintenance of laboratories in the institution became easier with mean 2.54. Through ICT maintenance of students hostels in the institution became easier with mean 2.43. Through ICT maintenance of lecture halls in the institution became easier with the mean 2.39. Through ICT maintenance of power supply in the institution became easier with mean 2.16. Through ICT maintenance of health facilities in the institution became easier with mean 1.99. Through ICT maintenance of facilities in the institution became easier with mean 1.03. This means that ICTs did not impacted in maintenance of facilities in tertiary academic institutions in Kaduna State. In relating the findings with the tested hypothesis, table 22 shows the f-ratio value (3.441) at 3 df 96 and the critical value (.029) is less than f-ratio values (3.441). This means that there was a significant difference in the impact of I.C.T on maintenance of facilities in the management of Tertiary academic Institutions of Kaduna State.

To further validate the findings, Lucy (1997) opined that ICT technology is an organized combination of people, hardware, communication networks and data resources that collects, transfers and disseminates information in an organisation.

On the impact of ICT in the conduct of examinations and result presentations in academic tertiary institutions in Kaduna state as shown in table 15 Seven variables were examined and the result shows that only two variables were agreed on by the respondents, that through electronic devices, the management of the institutions ensured that academic calendar was on line for students to access with mean 4.00. Through electronic devices, the management of these institutions ensured that student's results were released online with mean score of 3.22.

However respondents totally disagreed that through electronic devices, the management of the institutions ensured that students wrote examinations on line with mean 2.88 score and that through electronic devices, the management of these institutions ensured that examination scripts were marked online with mean 2.81. Through electronic devices, the management of the selected institutions ensured that virtual cameras were placed in the examination halls with mean of 2.63. Also through electronic devices, the management of these institutions ensured that examination time tables were on line for students to access with mean 2.34. And through electronic devices, the management of these institutions ensured that examiners presented students results online for vetting with mean 2.18. In relating the findings with the tested hypothesis, table 23 shows the f-ratio value (3.281) at 3 df 96 and the critical value (.025) is less than f-ratio values (3.281). This means that there was a significant difference in the impact of I.C.T on the conduct of examinations and result presentations in the management of Tertiary academic Institutions of Kaduna State.

Various literature reviewed revealed that Information management is one part of overall administration of academic institutions which mainly covers the general and day-to-day operational activities. Hence, it could be concluded that Information administration cycle includes four major components namely, Student administration, Staff administration, and General administration. As such, the primary function of management is to take decisions leading to the achievement of organizational objectives. The types of decisions management takes will determine its information needs. However, the numerous crises in Nigerian tertiary institutions could have been prevented if Information Communication and Technology facilities are in place in the institutions (Faloye and Oparah 2007). Thus, Adedapo (2007) argued that school managers need effective management of activities with the use of computers and other Information Communication and technology equipment.

A study by Gumala (2005) reported that Spanish and Indian universities have been changing fast due to the development of new Information and Communication Technologies (ICT). He further mentioned that user satisfaction is a widely used measure of ICT success. According to OECS (2001) ICT is used in maintenance of students and staff records and for communication and document management. Ashish and Arun (2005) have found the positive perception towards the use of ICT in education. The study discovered that students of different universities reported the usage of ICT for communication and for on-line discussion forums.

ICT is considered to be one of the pillars upon which quality education for all can indeed become a reality, because of its unique capacity for bringing the world to even the most remote and disadvantaged of communities. ICT are now vital to support the business of educational institutions, and support the full academic lifecycle, in terms of learning and teaching from individuals students enquiries through to accreditation

and graduation and in terms of research from initial bid writing through to project delivery and dissemination.

Hossein (2008) opined that “Information and Communication technology provides several facilities and possibilities for educational administrators to discharge their tasks”. Therefore information and communication technology have changed the very nature of higher education, allowing information to be transferred, stored, retrieved, and processed by almost all who work, study or interact with a given institution.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This study assessed the impact of ICT on the management of tertiary academic institutions in Kaduna State, Nigeria. The advent of the ICT became possible for the management of educational research institutes to communicates, stored, managed; interact with staff, student and the general public instantaneously with feedback opportunities regardless of time and or distance.

5.2 Summary

In chapter one, background to the study, statement of the problem, research objectives, questions, significance and scope were discussed. The objectives of this research were to ascertain the impact of I.C.T. on record keeping, on communication, on quality, on staff development, on maintenance of discipline, on decision making process, on maintenance of facilities and on the conduct of Examinations and Presentation of Results in the tertiary educational institutions in Kaduna State.

In chapter two examination of relevant literature on the key variables were reviewed and the conceptual and corresponding theoretical framework were carried out, and a number of advantages of computer communication. First was the fast speed and accuracy in information transmitted due to the absence of other intervening media. The communication is between the sending and receiving computers. Second is the rapidity of information processing. ICT such as computer can process a huge amount of data in a microsecond. Thirdly, a large amount of data could be stored and processed across varying distances. Teleprocessing: A method of processing the data between one

computer and the other through the telephone lines is called Teleprocessing. The data being transmitted could be words, letters or numbers of programs.

Information Communication and Technology (ICT) facilitate faster decision making in the management, messages sent by hand, which has no guarantee of being delivered on time and no security of content could now be easily sent by e-mail, on line chat and even intercom. Thus allowing management to make decision on issues faster and pass the copies to each department through their email. Telecommunication has also helped in the productivity of staff in processing student results and transcripts. The issues of missing results, miss matched names and grades were eliminated by automation of the records. With identification code assigned to each student and staff, computer process information accurately. This has led to the development of database to keep file electronically which in turn makes it easier for the staff to manage the database and ensure the consistency of its data as rightly observed by Zambuk and Gital (2012).

The first principle in achieving managerial effectiveness as suggested by Sefiu (2013), is to have access to the most valuable and up- to- date information. Hence, it is believed that most of the problems of educational organizations in Nigeria may be traced back to the problems of poor management of information on education. Such problems can only be eliminated in our educational organizations through accurate and timely availability and use of information needed for planning to respond to situations such as adequacy of educational statistics.

Opeke (1982), in sefiu (2013), reiterated this belief that, human and material resources become better conserved when planners have access to quality, timely and relevant information which are important results of information management. Thus, information management attempts to utilize the information resources of organizational members to full potential. Such an administrative stance is likely to improve the

planners' access to both quantitative and qualitative information as well as to improve the planners' ability to interact effectively with its environment- a situation that will assure that optimum decisions are made based on clear insights. It was concludes that Information Communication Technology is the current that keeps the organization rolling to progress.

Chapter three primarily dealt with the methodology employed in the study from research design, population, sampling techniques, instrument for data collection and method of data analysis. Thus questionnaire was used as instrument for data collection. A total of 100 respondents were sample from the four selected tertiary academic institution in Kaduna State Nigeria.

Chapter four presents and analyse the data collected and discussion with a view to answering the research questions. From the hypothesis testing three out of the eight hypotheses formulated based on the research questions were found to be significance, and five were rejected hypothesis.

5.3 Conclusions

This research principally assessed the impact of ICT on the management of tertiary academic institutions in Kaduna state, Nigeria. Based on the hypothesis tested it was found out that ICT has great impact on the smooth running of the academic tertiary institution ranges from record keeping and retrieval, communication, staff development, decision making and maintenance of facilities.

Thus, management could also be seen as the principle of administering an organization. The manager is responsible for whatever he achieves, be it success or failure. Every failure is a failure of a manager. Effective management therefore involves ensuring efficiency and effectiveness in the use of /the available human, physical and

financial resources together with the ability to combat any constraints that might hamper the achievement of the objectives.

In conclusion ICT is considered to be one of the pillars upon which quality education for all can indeed become a reality, because of its unique capacity for bringing the world to even the most remote and disadvantaged communities. ICT are now vital to support the business of academic institutions, and support the full academic lifecycle, in terms of learning and teaching from individuals students enquiries through to accreditation and graduation and in terms of research from initial bid writing through to project delivery and dissemination. It includes six main areas: pay roll and financial accounting, administration of student data, inventory management, personnel records maintenance, library systems and learning management systems.

Information and Communication technology provides several facilities and possibilities for academic administrators to do their tasks. There is a mention that communication and information systems have changed the very nature of higher education, allowing information to be transferred, stored, retrieved, and processed by almost all who work, study or interact with a given institution.

5.4 Recommendations

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

1. the management of academic tertiary institutions should strictly adhere to keeping records on computers for easy access;

2. management of academic tertiary institutions should encourage free flow of communication channels ie Button – Up communication approach. In other to allowed contributions on issues related to quality assurance from the staff, students and other stakeholders;

3. the management of academic tertiary institutions to ensure application of ICT for monitoring and evaluation in their institution through record keeping of staff, students and managements activities and events;

4. the management to encourage the application of ICT (such as computer) in examination conduct, marking and result released on-line. This will ensure timely release of students result and storage of data as well as ease staff work load;

5. management of tertiary institution to adopt Nigerian education policy which stressed the need for application of ICT in academic tertiary institution;

6. the management of tertiary institutions to encourage the use of ICT to serve as motivational factor for staff competency and hard work;

7. the management of academic tertiary institutions to encourage the application of ICT cut indiscipline; and

8. the management of academic tertiary institutions to use ICT to contribute in decision making process.

5.5 Contributions to knowledge

- The study was able to validate various literatures on the impact of ICT in the smooth running of all the activities ranging from record keeping and retrieval, communication, staff development, decision making and maintenance of facilities.
- Despite the contributions of ICT in improving teaching and learning in tertiary institutions, it was discovered that ICT does not impacted on monitoring and evaluation, conduct of examination and maintenance of facilities.

- The study further discovered that no virtual cameras placed in the exams hall to guide against examination malpractice in the academic tertiary institutions in Kaduna State.

5.6 Suggestions for Further Studies

Researches have proved that ICT has impact on the management of academic tertiary institutions. However, there is no adequate research to reveal the impact of ICT for management of tertiary institution in Kaduna state, Nigeria. Therefore researchers are suggested for further study in the following:

1. Population can be extended to cover all the tertiary academic institutions in Kaduna state, in other to determine the use of information communication technology to validate the findings.

2. There is need for a study of this nature to be conducted in all the political zones in the country Nigeria to determine the extent of information communication technology impact in examination conducts and marking online.

3. A study to evaluate the extent of implementation of Nigerian ICT policy in relation to educational development in the country.

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Apendix A

Department of Educational
Foundations and Curriculum
Faculty of Education,
Ahmadu Bello University, Zaria.

Dear Respondent,

QUESTIONNAIRE FOR ASSESSING THE IMPACT OF ICT ON THE MANAGEMENT OF TERTIARY EDUCATIONAL INSTITUTIONS IN KADUNA STATE, NIGERIA.

I am a master's candidate in the department of educational curriculum and planning, faculty of education, Ahmadu Bello University, Zaria, carrying out a study to **investigate the impact of ict on the management of tertiary educational institutions in Kaduna State, Nigeria** as part of requirements for the award of masters' degree in education. All the information supplied will be treated confidentially.

Please tick the appropriate spaces as provided in each of the items below. Tick the appropriate boxes where applicable.

Yours Sincerely,

Maryam Adamu

Apendix B

SECTION A:

BIO-DATA

1. Status: Dean of Faculty ( ) Head of Department ( ) Management Information System Director ( ) Faculty staff ( )

2. Sex: M ( ) F ( )

3. What is your age range: 31-35yrs ( ) 36-40yrs ( ) 41 - 45 ( ) 46 – 50 ( ) 51- 55 ( ) 56- 60 ( ) 61- 65 ( ) > 65 ( )

4. Working Experience: 0-5yrs ( ) 6 - 10 yrs ( ) 11-15yrs ( ) 16 - 20 ( ) above21 ( )

5. Qualification: NCE ( ) B.Ed ( ) PGD ( ) HND ( ) M. Ed ( )

Others specify----------

6. Institutions: University ( ) Polytechnic ( ) College of Education ( )

SECTION B: Impact of ICT on record keeping in tertiary educational institutions in Kaduna State.

		Strongly Agree	Agree	Undecided	Strongly Disagree	Disagree
1	Through electronic device, record keeping has significantly changed in the institution.					
2	Through computer hard disk, record keeping in the institution is enhanced.					
3	Through electronic device, incoming and outgoing mails are recorded and kept in the institution.					
4	Through electronic device, records of student's admission are kept in the institution.					
5	Through electronic device, employee records are kept in the institution.					
6	Through electronic device students payment details are stored and retrieved in the institution.					
7	Records kept manually with the passage of time might be lost due to the rise of number of activities in the institutions.					
8	Manual record keeping and preparation include lack of skills, and shortage of experts to use ICT in the institutions.					

SECTION C: Impact of ICT on communication in tertiary educational institutions in Kaduna State.

		Strongly Agree	Agree	Undecided	Strongly Disagree	Disagree
1	Through ICT facilities, the management uses online advertisement for admission applications.					
2	Through ICT facilities, the management of institution releases admission online.					
3	Through ICT facilities, Job advertisements are being advertised online in the institution.					
4	Online method of communication is faster than circular and bulletin in the institution.					
5	Through ICT facilities, Conferences and seminars are communicated in the institution.					
6	Through ICT facilities, News letters are available in the institution.					
7	Through ICT facilities, academic calendar are released in the institution.					

SECTION D: Impact of ICT on monitoring and evaluation in tertiary educational institutions in Kaduna State.

		Strongly Agree	Agree	Undecided	Strongly Disagree	Disagree
1	Evaluation system is being used in monitoring and evaluation of staff in tertiary educational institution.					
2	Through circuit camera television (CCTV), the management of this institution monitors and evaluates staff in the discharge of their duties.					
3	Through ICT facilities, Instructors/lecturers are being assessed in this institution.					
4	Through ICT facilities, Staff progress report is assessed in this institution.					
5	Through ICT facilities Staff development records are assessed in this institution.					
6	Through ICT facilities, academic records can be assessed in the institution.					

SECTION E: Impact of ICT on staff development in tertiary educational institutions in Kaduna State.

		Strongly Agree	Agree	Undecided	Strongly Disagree	Disagree
1	Through E-learning platform, the management of this institution develops staff.					
2	Through ICT facilities, Collaborative learning with experts across the globe is done in this institution.					
3	Through ICT facilities, Staff have access to online resources for their development in this institution.					
4	The availability of ICT facilities encourages staff to become ICT literate in this institution.					
5	Through ICT facilities, Management encourages the use of ICT support services for orientation of newly employed staff in the institution.					

SECTION F: Impact of ICT on maintenance of discipline in tertiary institutions in Kaduna State.

		Strongly Agree	Agree	Undecided	Strongly Disagree	Disagree
1	Through electronic devices, the management of this institution keeps records of crime.					
2	Through electronic devices, Student's indiscipline records are kept in the institution.					
3	Through electronic devices, records of decisions are kept in the institution.					
4	Through electronic devices, indiscipline is curtailed in the institution.					
5	Through electronic devices, growth of indiscipline is checked in the institution.					

SECTION G: Impact of ICT on decision making process by management of tertiary educational institutions in Kaduna State.

		Strongly Agree	Agree	Undecided	Strongly Disagree	Disagree
1	Through electronic devices, the management of the institution involves staff in decision making process.					
2	Through electronic devices, the management of this institution involves students on decision making issues that concern them.					
3	Through electronic devices, the management of this institution involves the neighbouring communities on decision making process.					
4	Through electronic devices, decision making process is enhanced in the institution.					
5	Through electronic devices, the management of this institution welcomes new ideas from staff.					
6	Through electronic devices, management of this institution uses centralized data base in decision making.					

SECTION H: Impact of ICT on maintenance of facilities in educational tertiary institutions in Kaduna State.

		Strongly Agree	Agree	Undecided	Strongly Disagree	Disagree
1	Through ICT maintenance of facilities in the institution becomes ease.					
2	Through ICT maintenance of lecture halls in the institution becomes ease.					
3	Through ICT maintenance of sport facilities in the institution becomes ease.					
4	Through ICT maintenance of laboratories in the institution becomes ease.					
5	Through ICT maintenance of student hostels in the institution becomes ease.					
6	Through ICT maintenance of water facilities in the institution becomes ease.					
7	Through ICT maintenance of power supply in the institution becomes ease.					
8	Through ICT maintenance of transport facilities in the institution becomes ease.					
9	Through ICT maintenance of health facilities in the institution becomes					

	ease.					
10	Through ICT maintenance of other essentials records in the institution becomes ease.					

SECTION I: Impact of ICT on conduct of examinations and presentation of result in tertiary educational institutions in Kaduna State.

		Strongly Agree	Agree	Undecided	Strongly Disagree	Disagree
1	Through electronic devices, the management of this institution ensures that exams time table are on line for students to access.					
2	Through electronic devices, the management of this institution ensures that academic calendar is on line for students to access.					
3	Through electronic devices, the management of this institution ensures that students write examinations on line.					
4	Through electronic devices, the management of this institution ensures that virtual cameras are placed in the examination halls.					
5	Through electronic devices, the management of this institution ensures that exams scripts are marked online.					
6	Through electronic devices, the management of this institution ensures that examiners present students results online for vetting.					
7	Through electronic devices, the management of this institution ensures that student results are released online.					