

**THE EFFECTIVENESS OF INFORMATON AND
COMMUNICATION TECHNOLOGY ON STUDENT'S DATA
MANAGEMENT IN PUBLIC INSTITUTIONS: A CASE STUDY
OF THE UNIVERSITY OF BENIN**

BY

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UNIVERSITY OF BENIN
BENIN CITY**

OCTOBER,2024

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**BEING A RESEARCH PROJECT SUBMITTED TO THE
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THE AWARD OF BACHELOR OF SCIENCE (B.SC) DEGREE
IN PUBLIC ADMINISTRATION**

OCTOBER, 2025

CERTIFICATION

We the undersigned hereby certify that this is an original research essay and was carried out by ITOYA JOY OSEMUDIAMEN and was considered adequate in scope and quality in partial fulfillment of the requirement for the award of Bachelor of Science (B.SC) degree in public administration, University of Benin, Benin City.

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DEDICATION

This research WORK is dedicated to God Almighty for his guidance and protection throughout my stay in school and also to my parents Mr. and Mrs. Okouhe and all my siblings for their unending support.

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ABSTRACT

Public institutions are experiencing environments that are not only changing rapidly, but in particular, are increasingly subject to sudden irregularities. Furthermore, the administrative work of various public institutions is print-based. Various documents are kept in the form of records. These records provide information on the past and present data of the students. The public institutions cannot perform administrative duties with accurate, timely, sufficient and relevant information. The deficiencies associated with storage, preservation and retrieval process are very cumbersome. Consequently, alternative methods provided by Information and Communication Technology (ICT) is imperative. Premised on this observation, the objectives of this study were to understand how the utilization of Information and Communication Technology (ICT) has impacted the management of students' data creation, storage and retrieval in the University of Benin, and to comprehend the factors that have constrained the application of Information and Communication Technology (ICT) in the management of students' data. The survey research design was adopted in carrying out the study with administered questionnaires, and chi-square was used to analyze the data gotten from the field.

From this, the researcher deduced that there is a positive relationship between the application of Information and Communication Technology (ICT) and efficient management of students' data. The university administrators should ensure the utilization of Information and Communication Technology (ICT) in the management of students' data and measures should be put in place for the training of staff and the availability of computer devices in order to ensure efficiency in the management of students' data.

CHAPTER ONE

INTRODUCTION

1.1. BACKGROUND OF THE STUDY

Information and Communication Technology is described as the gathering, processing, storing, or retrieval of information. A more general term, ICT emphasizes the role of communication in modern Information Technology, in the transmission and transfer of information from place to place and over a distance.

According to Achimugu et al (2010), the internet has emerged as a major driving force of this dynamic development of Information and Communication Technology which has impacted positively in virtually every sector. ICT has been foundational for improving productivity, efficiency, and effectiveness in activities.

The field of education have been affected positively by ICT. The adoption of ICT in education spans through from preschool (Lu, 2015) to higher educational institutions (Pavel, Fruth, and Neasou, 2014; Tara and Jashi, 2012). Higher education institutions across the world have been adopting ICT teaching and learning technologies in an effort to create an environment where both students and their instructors can engage in collaborative learning and gain access to information (Albirin, 2006).

Information and Communication Technology (ICT) in this age has come to stay and its impacts can be seen in its use in day to day activities, in which the public

institutions in Nigeria are no exemption. Over the years, activities in public institutions in Nigeria have been undertaken manually with little utilization of Information and Communication Technology, and this to an extent has slowed down efficiency in management, especially in student's data.

Information Technology is a powerful force in today's global world. The advent of computers and Information Technology (IT) has been perhaps the single massive drive impacting institutions and organizations during past few decades.

In the opinion of Newhouse (2002), ICT typically refers to computer technologies but strictly speaking should also include other technologies used for the collection, storage, manipulation, and communication of information.

There has been so much mismanagement of students' data in public institutions which has led to misplacement and displacement of students' records, especially academic and bio data. Although this is getting tackled, as the effect of the emergence of ICT is telling on public institutions positively, there is still so much work to be done. Organizations cannot perform administrative duties without accurate, timely, sufficient, and relevant information. The deficiencies linked with storage accountability is very burdensome, as a result, alternative approaches provided by ICT becomes paramount.

The governance and management of tertiary institutions is primarily saddled with administrative services, as such the success of its governance is dependent on the

effectiveness of its administration (ADE 2012; Hernard & Mitherle, 2010). Administrative services in higher institutions take care of various activities in areas such as accounts, management of students' data and general administration. These administrative works are found to have enhanced greatly under the utilization of ICT. It is obvious that Information and Communication Technology (ICT) is a tool that enhances administrative activities of public tertiary institutions. ICT often comes with a promise to improve public administration in terms of efficiency (Lee and Perry, 2002). Information and Communication Technology (ICT) might have some success in the administrative management of students' enrollment, and few changes to students' data management, the impacts have obviously not adequately captured and needs improvement.

This research shall explore the effectiveness of ICT in students' data management in the University of Benin, Edo state, Nigeria, which has a functional ICT unit that handles data, as a case study.

1.2 Statement of the Problem

Information and communication Technology is an indispensable part of this rapidly modernizing world, and as a result, its application makes institutions more efficient, thereby giving existence to a diversity of tools, to improve and make the functions of staff easier.

The state of Information management before the introduction of computers were very poor, in the sense that most work were done manually. The public institution is saddled with the responsibility of the efficient, effective, and result – oriented management of students’ data, and this would be greatly achieved with the use of Information and Communication Technology. However, some workers feel threatened by the use of ICT, believing that their jobs would be taken over, therefore, being very antagonistic, and unenthusiastic about the introduction and utilization of ICT for duties, especially as it relates with students’ data. On the contrary, with ICT, administrative duties, especially management of students’ data in institutions have become a whole lot easier, and has brought transformation and efficiency in the way many management tasks are handled, with numerous positive effects.

In essence, the University of Benin has been known to embrace the importance of ICT and has therefore put in place fundamental devices to cause a level of consciousness staff but the problem is, to what extent have these programs and devices influenced the management of students’ data effectively?

The main purpose of this research is to examine the effectiveness of Information and Communication Technology on students’ data management in University of Benin.

1.3 Objectives of the Study

The objectives of the study are:

1. to determine the effectiveness of ICT on students' data management in Nigerian public institutions.
2. to analyze the factors hindering it and how can it be tackled
3. to explore better ways of deploying ICT as a viable instrument for managing students' data in the University of Benin
4. to evaluate the factors hindering the effectiveness of ICT on students' data management
5. exhibit benefits of ICT for storing, processing, manipulating, and transferring data efficiently with the use of ICT.

1.4 Research Questions

1. To what extent has ICT been utilized in students data management?
2. How effective and efficient is the use of ICT resources in ease of access of students' data in the University of Benin?
3. Do the staff of the University of Benin have the required knowledge and skills in using ICT resources?
4. What are the factors militating against the application of ICT on students' data management in the University of Benin.

1.5 Research Hypothesis

For the purpose of this work the following hypothesis will be tested.

H_R¹: There is a significant relationship between ICT application and efficient students' data management among the staffs of the University of Benin.

H_O¹: There is no significant relationship between ICT application and efficient students' data management among the staffs of the University of Benin.

H_R²: There is a significant relationship between effective ICT programmes and efficient students' data management in the University of Benin.

1.6. Scope of the Study

From the research title, this research work is limited to the impact of Information and Communication Technology on students' data in the Universities, to ensure effectiveness and efficiency, using the University of Benin, as a case study.

The University of Benin is an institution where there are sets of data such as staff, management, and students' profile are available in its depots, which for efficient utilization, has to be computerized, totally.

This study seeks to cover the effect of ICT in the gathering, storing, utilizing, and managing students' data in the University of Benin.

1.7 Significance of the Study

This study should be of great importance to the management and university administrators of University of Benin helping them to appreciate the usefulness of ICT in management so as to come up with efficiency and effectiveness.

The findings and recommendation of this study should be of essence to the members of staff in the records department of the University of Benin and other public institutions on the utilization of ICT to aid efficient management of students' data.

This study is expected to provide a basis for comprehensive information on ICT procurement and application in the University of Benin. The output of this study will serve as a blueprint for universities, researchers, and students, to chart the right course of action for the use of ICT in efficiently handling students' data.

The study bears value from theoretical to empirical perspective. The study will enhance the literature on Information and Communication Technology (ICT), as well as its effect on efficient management, application in an institution, to know how computerization of students' data quickens the process of management request in an institution, and how the application of computers will be able to provide adequate storage.

The researcher hopes that the results of the study may be useful to future researchers with interests in examining further the effects of ICT on students' data management. This should lead to the generation of new ideas of better implementation of ICT into record keeping process.

1.8 Definition of Key Terms

Information and communication Technology (ICT)

ICT is a general term that describes the process of creating, modifying, storage, transmission of information, in varied formats, between humans and machines alike globally, using several different electronic technologies, to achieve an outcome (be it recreational, or otherwise).

Efficiency

Efficiency could be described as using the least amount of input to achieve the highest amount of output.

The core of efficiency is the extent to which an activity achieves its goals whilst minimizing resource usage.

Management

Management could be seen as the utilization of resources - human, material, financial, physical - to achieve organizational objectives.

Management is the organization and coordination of the activities of a business in order to achieve defined objectives.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Computers are seen to have the potential to make a significant contribution to the teaching, learning, and administration in schools. An extensive amount of investment that has gone into introducing information and communication technology (ICT) into public institutions including hardware, software, networking, and staff development will be considered worthwhile if there is evidence that it has made a commensurate impact on school performance and effectiveness (Condie *et al.*, 2007).

The use of information technology in educational management has rapidly increased due to its efficiency and effectiveness. Public institution administrators who used to spend large amount of time in solving complex allocation problems (e.g., staff and student allocation, resource allocation, timetabling) and monitoring the school operations have now better options due to enhanced technology. Information technologies facilitate the decentralization of work tasks and their coordination in an interactive network of communication in real time (Castells, 1996). They allow for greater flexibility and networking that emphasizes interdependence, interaction, and constant adaptation to an ever-changing environment (Castells, 2001).

The most initial school administrative computer applications started its development in the late 1970s. In the early 1980s, several loose, non-integrated clerical and administrative applications were developed but these applications limited the possibilities for management support as the relationships among data could not be analyzed (Visscher, 1996a). During the initial stages the main purpose of software development and usage was to improve the efficiency of school office activities. The use of computers and technologies in educational institutes was mainly to store student and personnel data (Carnoy, 2004). The value of ICT was recognized during the integration stages. As a result, many projects were initiated by the governments in many developed countries that provided the stimulus to enter a higher development stage. These projects were directed toward the production of better school information systems which meant increased school efficiency and effectiveness. The focus was the development of a standard system for as many public institutions as possible with maximum flexibility. The professional approach to systems design was not widespread at this time (Visscher, 1996a). In the 1990s, the emphasis on using ICT to collect educational data and to improve the administration of educational systems began to increase in the developing countries. Visscher (1996b) believes that ICT can provide administrators and lecturers with the information required for informed planning, policy-making, and evaluation.

2.2 Theoretical Framework

2.2.1 ICT theoretical model

Rajeev Singh (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 can empower the governing bodies to administer the progress of the education plan in the whole country and serve various stakeholders in a much better manner. According to (Christiana Maki, 2008), administrative subsystems include Personnel administration, student administration, resources administration, financial administration and general administration. Ulf Fredriksson and Elżbieta Gajek (2009) mentioned that Communication and general administration are the two main areas in which ICT is used in the management of education institutions. It is evident from the above that administrative activities in a higher education institution consists of student administration, staff and resources administration, communication and general administration According to Hossein 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 Kumar and Arun Kumar (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 Suri (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 concluded by providing a conceptual model for implementing a good technical system. 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). Ashish Kumar and Arun 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.

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 below:

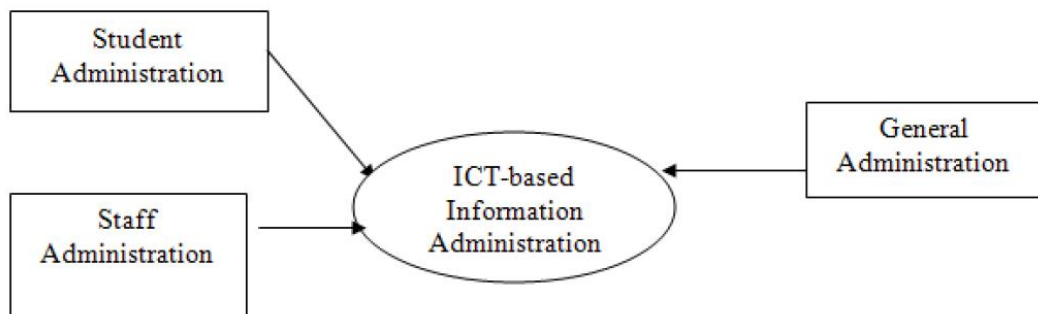


Figure 1: Theoretical model for Information administration

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 (Christiana Maki, 2008). 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 (Thomas Kwaku Obeng 2004).

Staff administration includes recruitment and work allotment of faculty and staff in the institution, their attendance and leave management, and performance

appraisal. This also includes relevant communication to and from the institutions and among peers. Staff administration done through Information and communication technology (ICT) helps in processing of voluminous records in a quick, meticulous, and impeccable manner thereby making data retrieval easier (Thomas Kwaku Obeng 2004).

A very important part of Information administration is general administration of higher education institutions which includes the various day-to-day activities of the entire system. It is evident that the integration of ICT into general administration has brought increased efficiency and optimal resource utilization (Hasan et al. 2007). The various items classified under this category include usage of electronic media for scheduling of halls and other resources, fee payment, and handling internal and external examination activities in coordination with the faculty members, all day to-day activities, intra and inter communication etc.

2.2.2 Management theories

A highly critical view of the evolution of management theories may describe it as a proliferation of studies, otherwise viewed as ‘theoretical diarrhea’. In the United States of America, organizational researchers identified two groups of researchers, those interested in people without organizations and the other interested in organizations without people (Bass and Barrat, 1976). Building on this, most major management theories can be broadly grouped (though simplistic) in either

the scientific, classical or neo-classical school of thoughts. Each group can then be broadly assigned to Bass's simplistic definition organizations without people (scientific theories) and people without organizations (classical and neo-classical) respectively. It is within these broad categories that this article will chart the evolution of management theories. It is interesting to note that though most of these theories have their limitations, they have all continued to co-exist today in one form or the other globally.

Scientific Management Theories: Frederick Taylor (1911) identified various features that are important in the management of the organization with the intent to minimize management by rule of thumb and replace it with timed observations leading to the one best practice. In his view, work at the time was awkward and inefficient and managers were expected to instruct while employees perform duties as allocated within the organization. This encouraged the breaking up of tasks in the organization into sub-tasks and also helped to optimize the performance of tasks. To motivate performance, managers were encouraged to motivate employees through financial rewards and ensure sustenance through systematic and continuous training of workers in the best practice to increase productivity and work performance.

From an economic point of view, Taylorism was an outstanding success and yielded significant improvements in productivity particularly in the industrial era

(Wren and Bedeian, 2009). Also alongside Taylor's work in the 1920s was Frank and Lillian Gilbreth's motion study. This study arose from the need to reduce motions from bricklaying at a construction site; The Gilbreths succeeded in reducing the motions from 18 to 4 and then proposed each worker focus on own work, prepare for the next level and train successors (Redding, 1994). Today, some of Taylor's and Gilbreth's postulations are still globally relevant in the area of quality control especially in production based and very large manufacturing organizations around the world.

Classical Management Theories: The major proponents of classical management are Fayol's (1949) and Weber's (1922). The respective founders of Administrative & Bureaucracy theory, each school of thought developed sequentially and tended towards addressing limitations in the scientific management theory.

In contrast to the purely scientific examination of work and organizations conducted by Taylor (1911), Henri Fayol's administrative theory proposed that every organization had six functions: technical; commercial; financial; security; accounting; and managerial. He believed managers had five principal roles:

- (i) Forecast and plan - as an act of anticipating the future and act accordingly
- (ii) Organize - develop institutional resources both material and human

- (iii) Command - keeping institutions actions and processes running
- (iv) Coordinate - aligning and harmonizing group efforts, and
- (v) Control - ensuring all activities above are performed in accordance with appropriate rules and procedures.

He further identified 14 general principles of management to go along with the management's five principles: division of work; unity of direction; authority and responsibility; discipline; unity of command; subordination of individual interest to general interest; personnel remuneration; centralization; scalar chain of authority; order; equity; stability of tenure of personnel; initiative; and teamwork. Today, most organizations still practice the principles identified by Fayol because it encapsulates personal effort and team dynamics, though there is less practice of the 'unity of command' as most employees now tend to report to more than one supervisor (Wren and Bedeian,2009).

Bureaucracy Theory: Developed by German socialist, Max Weber. He argued that all organizations are structured bureaucratically and all higher positions supervise and control the lower positions (Weber, 1922). In his theory, there is a clear chain of command within organizations that supports control. In addition, he encouraged the evolution of specialization through division of labour, this way employees only carry out functions they are skilled to perform. Decisions and

performance rewards are based on competence and merit and depersonalized relationships are encouraged to ensure objectivity.

The major limitation in the application of the bureaucracy is the lack of flexibility, especially with regards to multi-tasking and teamwork which is important in today's knowledge based era. Though Weber's theory considers the humanity of workers, the effectiveness of the theory at its highest form would result in an impersonal organization without human interaction or subjectivity. Though criticized for the lack of flexibility in their original ideas, the classical theories have clear benefits in practice today, including increased production and effective management of organizational resources (Olum, 2004).

Neo-Classical Management & Human Behaviour Theories: Gradually, management scholars had begun to move away from viewing employees as no more than extension of machines to considering human behavior and social needs of employees. By the early 1920's Elton Mayo disproved Taylor's suggestion that science informs the highest productivity and rejected the idea that individuals were no more than extensions of machines to be controlled. He was able to determine through a series of experiments known as the Hawthorne experiments (1927- 1932) that work performance was more dependent on working conditions and attitudes than economic factors (Olum, 2004).

He went further to suggest that increased attention to the human dimension of work impacts productivity. In contrast to the classical theorists that proposed control and reducing individual autonomy; the neo-classicals focused more on gaining a better understanding of human behavior at work, such as motivation, conflict, expectations, and group dynamics to achieve improved productivity.

This new concepts from Mayo gave rise to more modern management theories including the Systems, Contingency, Theory X & Y and Team-Building theory (Redding, 1994; Olum, 2004). The growing need to integrate theories as they evolved to deal with varying conditions was greatly required and some of the more popular human behaviour theories that will be examined later in this study are described briefly below;

- **The Contingency theory:** Proposes that when managers make decisions, they must consider all aspects of the situation and act on those aspects that are critical to the prevailing situation. This theory claims there is no best way to organize a corporation or make decisions. It can be defined simply as the ‘it depends’ approach, where a lot of variables in the workplace may influence decisions (Pindur, Rogers and Kim, 1995).
- **The Teambuilding Theory:** Emphasizes quality circles, best practices and continuous improvement. The foundation is built on teamwork and it also prescribes the flattening of management pyramid, building consensus

at all levels and reducing levels of hierarchy to increase motivation, creativity and work performance.

Behavioural Scientists in the social sciences with backgrounds in sociology, psychology and anthropology, relied on sophisticated research methods to explain what motivates employees at work. These researchers built the platform for new management theory ideas and a major focus was the adjustment of the employee's complex character within the workplace (Stoner, Freeman and Gilbert, 2004). Overall, theorists like Abraham Maslow, Douglas McGregor, Frederick Herzberg, Rensis Likert, David McClelland and Chris Argyris emphasized informal relationships, communication, uniqueness of individuals and motivation, rather than monetary incentives (Mullins, 2011).

2.3 ICT Policies and its Implementation in Nigeria

Nigeria started implementing its ICT policy in April 2001 after the Federal Executive Council approved it by establishing the National Information Technology Development Agency (NITDA), the implementing body. The policy empowers NITDA to enter into strategic alliances and joint ventures and to collaborate with the private sector to realize the specifics of the country's vision of, "making Nigeria an IT capable country in Africa and a key player in the

information society by the year 2005 through using IT as an engine for sustainable development and global competitiveness.” This vision is yet to be fulfilled. Outlined below are some of the objectives of Nigeria’s ICT policy:

1. To ensure that ICT resources are readily available to promote efficient national development
2. To guarantee that the country benefits maximally, and contributes meaningfully, by providing the global solutions to the challenges of the Information Age.
3. To empower Nigerians to participate in software and ICT development
4. To encourage local production and manufacture of ICT components in a competitive manner
5. To establish and develop ICT infrastructure and maximise its use nationwide
6. To empower the youth with ICT skills and prepare them for global competitiveness
7. To integrate ICT into the mainstream of education and training
8. To create ICT awareness and ensure universal access in promoting ICT diffusion in all sectors of national life.

9. To create an enabling environment and facilitate private sector (national and multinational) investment in the ICT sector. (Matthew, Joro, and Manasseh, 2015)

2.4 The Need for ICT in Higher Education

ICT application and use will prove beneficial in improving Nigeria's educational system and gives student a better education. A technologically-advanced workforce will lead to ICT growth in Nigeria, with the potential to improve military technology and telecommunications, media communications, and skilled ICT professionals who will be well-equipped to solve IT problems in Nigeria and other parts of the world. New instructional techniques that use ICTs provide a different modality of instruments. For the student, ICT use allows for increased individualization of learning. In schools where new technologies are used, students have access to tools that adjust to their attention span and provide valuable and immediate feedback for literacy enhancement which is currently not fully implemented in the Nigerian school system.

The ability to use computers effectively has become an essential part of everyone's education. Skills such as bookkeeping, clerical and administrative work, stocktaking, and so forth, now constitute a set of computerized practices that form the core IT skills package: spreadsheets, word processors, and database

(Reffell and Whitworth, 2010). The demand for computer/ICT literacy is increasing in Nigeria, because employees realize that computers and other ICT facilities can enhance efficiency. On the other hand, employees have also realized that computers can be a threat to their jobs, and the only way to enhance job security is to become computer literate. With the high demand for computer literacy, the teaching and learning of these skills is a concern among professionals. This is also true of other ICT components. Improved education is essential to the creation of effective human capital in any country. The need for ICT in Nigerian schools cannot be overemphasized. In this technology-driven age, everyone requires ICT competence to survive. Organizations are finding it very necessary to train and re-train their employees to establish or increase their knowledge of computers and other ICT facilities. This calls for early acquisition of ICT skills by students.

Christiana Maki (2008) state that technology can be used right from student's administration to various resource administration in an education institution.

Information communication technologies can also be employed in student's administration and can hence end up improving on efficiency within an educational institution. Rajeev Singh (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 can empower the governing body to administer the progress of the education plan in the whole country and serve various stakeholders in a much better manner. Christina Maki (2008) notes that administrative subsystems to which information technologies can be employed include personal administration, student's administration, resources administration, financial administration and general administration.

These information communication technologies can also be used to manage information dissemination hence enhancing proper management in universities. It is quite notable that when the right information is being used to manage operations, positive results are likely to be achieved. Under this Zain (2004), notes that innovations in information handling technology have created new opportunities to improve the accuracy and availability of information.

Robyler *et al.* (2005), states that the use of appropriate information technologies could improve the overall environment and operational efficiency of higher education institutions and hence end up improving the following functional areas which include inventory control, allocation of resources, fiscal management, communications, personnel services and students records.

2.5 Issues in ICT Application in Nigerian Educational System

There are developments in the Nigerian education sector which indicate some level of ICT application in the Nigerian schools. The Federal Government of

Nigeria, in the National Policy on Education (Federal Republic of Nigeria, 2010), recognizes the prominent role of ICTs in the modern world, and has integrated ICTs into education in Nigeria. To actualize this goal, the document states that government will provide basic infrastructure and training at the primary school. At the basic school, computer education has been made a pre-vocational elective, and is a vocational infrastructure and training for the integration of ICTs in the school system.

It should be noted that 2004 was not the first attempt the Nigerian government made to introduce computer education in schools. In 1988, the Nigerian government enacted a policy on computer education. The plan was to establish pilot schools and diffuse computer education innovation first to all secondary and tertiary schools, and then to primary schools. Unfortunately, the project did not really take off beyond the distribution and installation of personal computers (Okebukola, 2007; cited by Aduwa-Ogiegbaen and Iyamu, 2008).

Okebukola (2007), cited by Aduwa-Ogiegbaen and Iyamu (2008), concludes that the computer is not part of classroom technology in more than 90 percent of Nigerian public schools. This implies that the chalkboard and textbook continue to dominate classroom activities in most Nigerian schools. The Federal Ministry of Education has launched an ICT-driven project known as School Net (Federal Republic of Nigeria, 2010), which was intended to equip all schools in Nigeria

with computers and communications technologies. In June 2003, at the African Summit of the World Economic Forum held in Durban, South Africa, the New Partnership for African Development (NEPAD) launched the e-Schools elective at the senior secondary school. It is also the intention of government to provide necessary Initiative, intended to equip all African high schools with ICT equipment including computers, radio and television sets, phones and fax machines, communication equipment, scanners, digital cameras, and copiers, among other things. It is also meant to connect African students to the Internet. The NEPAD capacity-building initiative will be executed over a ten-year period, with the high school component being completed in the first five years. Three phases are envisaged, with fifteen to twenty countries in each phase. The phases are to be staggered, and an estimated 600,100 schools are expected to benefit. The aim of the initiative is to impart ICT skills to young Africans schools, and to harness ICT to improve, enrich, and expand education in African countries.

The Nigerian Federal Government has commissioned a mobile Internet unit (MIU) operated by the Nigerian National Information Technology Development Agency (NITDA). The MIU is a locally-made bus that has been converted into a mobile training and cyber center. Its interior has ten workstations, all networked and connected to the Internet. The MIU is also equipped with printers, photocopiers, and a number of multimedia facilities. Internet is provided via VSAT with a 1.2m dish mounted on the roof of the bus. It is also equipped with a small electric

generator to ensure regular power supply. The MIU takes the Internet to places areas and various primary and high schools. The number of buses is so small; however, that most rural areas and schools have not yet been covered. Although efforts have been made to ensure that ICTs are available and used in Nigerian schools, the level of uptake is still low.

NEPAD has scored the level of African continent students' experience with ICTs and their proficiency in using them very low. Fifty-five percent of students within the continent, including Nigeria, Algeria, Burkina Faso, Cameroon, Republic of Congo, Egypt, Gabon, Lesotho, Mali, Mauritius, Mozambique, Rwanda, Senegal, South Africa, and Uganda (who are participating in the first phase of the NEPAD e-Schools initiative), stated they had no experience at all in using computers. Other findings included that the typical African school environment provides neither opportunity nor training in using ICTS, and that 75 percent of responding teachers have no or very limited experience and expertise regarding ICT educational applications.

Okwudishu (2005) discovered that the unavailability of some ICT components in schools hampers teachers' use of ICTs. Lack of adequate search skills and of access points in the schools were reported as factors inhibiting the use of the Internet by school teachers. The absence of ICT equipment in most Nigerian

schools leads students to resort to cybercafés for Internet access. Most cybercafé clients in Nigeria are students.

The ICT revolution is yet to attain that critical mass required for it to register the necessary impact in the teaching, student, and civilian population nationwide. While some schools could be said to be in the vanguard, the majority of Nigeria's universities, polytechnics, nursing and midwifery schools, and colleges of education lack computers. Many of the lecturers in these public institutions have to go to commercial cyber cafés before they can have access to a computer. The private universities are better off since the majority of them, for example the ABTI-American University of Nigeria (AAUN), has 24-hour Internet connectivity on campus, and each student is provided a laptop with the cost factored into the fee structure. The AAUN fee is beyond the means of most Nigerians. The activities of NITDA, ETF, School Net Nigeria, and other stakeholders, as well as the partnerships with CISCO and Microsoft, should gradually move the nation towards the realization of its ICT vision as network operators and software developers take advantage of the opportunities offered to acquire essential expertise and technology in their areas of endeavor to help initiate generalized Internet usage. It is then that e-learning and ICT application to education in general may come of age in Nigerian schools.

There are many forces and factors that pose as challenges and problems to inhibit effective diffusion of ICTs in African universities. Jagboro (2003) reported the reasons for low level of utilization of internet by university students:

- Low level of connectivity (internet/computer outlet);
- The high cost of cyber café facilities; lack of substantial online learning resources;
- Faculty compensation for teaching online;
- Inadequate funds;
- Facilities; and
- Faculty's unwillingness to use ICTs for lack of skill on the part of staff and students.

Some inhibitors identified for investigation at Uniport by Okorie, Agabi and Uche (2005) included lack of computer or ICT center, inadequate facilities/equipment at the ICT center, irregular power supply, absence of alternative source of power supply, lack of computer knowledge, expensive nature of ICT facilities, and lack of willpower by management to embrace ICT-revolution. Drawing from the developmental reports of notable bodies, like the G8 DOT Force (2001), United Nations ICT task force (2004), and UNPAN (2005), the authors have adapted a theoretical model used somewhere to describe the problems faced by developing societies in spreading ICT-based initiatives in highlighting the challenges facing African universities in massive adoption of ICTs.

Three broad categories of factors are identified as being responsible for the low level of ICTs adoption and application in Nigerian universities – infrastructural inhibitors, institutional factors and human capital problems (Ifinedo, 2007).

Infrastructural problems are in the nature of poor Internet access and low bandwidth, high cost of ICT services, lack of investments in ICT, and poor power generation. Nigeria have poor Internet access (CLI, 2001; Ifinedo, 2005). Investments in the telecommunications sector used to be very low in Nigeria, but it is encouraging to note improvements in this direction. Internet access and computers are costly and hence outside the reach of the common man. There is also a near permanent problem of inadequate and irregular power generation.

Institutional problems consist in awareness problems, resistance and organizational factors. Nigeria, in itself, lack the necessary expertise to manage innovations and changes, including effective implementation of ICT-enabled education (NForG, 2004; Ololube, 2006). The report by the Commonwealth Learning International suggests that administrators in Nigerian universities are either unfamiliar with the use of ICT in education or are unwilling to change from the status quo (Bolaniran & Ademola, 2004). Also, complete lack of awareness regarding the use of ICT in higher education and resistance to change from the traditional teaching-learning methods to a more innovative, technology-based methods by both students and faculty are powerful challenges.

Human capital problems arise from poverty, low literacy levels and poor IT skills and technical ability. As one of the countries of Africa with per capita income of less than US\$1.00 per day, it means that the average citizen is poor and so cannot use ICT products maximally especially those related to education. Procuring Internet access, owning a personal computer, subscribing to a telephone line or owning one is beyond the reach of the average Nigerian (Ifinedo, 2006; G8 DOT Force, 2001). There is a general low literacy rate for the region and very low levels of IT skills and technical ability amongst university staff and students in Nigeria. The poor funding pattern of education by the governments (federal, states, local governments) makes it more difficult for higher educational institutions to train skilled IT professionals to match the current ICT needs.

2.6 Relationship between ICT and student data management in Universities

According to Chinyemba and Ngulube (2005), proper records management could help universities to manage their information, efficiently fulfill their mandate, protect them from litigation, preserve their corporate memory, and foster accountability and good governance.

Krishnaveni and Meenakumari (2010) in their study on the Usage of ICT for Information Administration in Higher education Institutions stated that enhancing the usage of ICT on these functional areas and especially for general

administration will enable enhancement of overall information administration in higher education institutions in the realm of global competitive environment. Their study could serve as a base for education planners and public institutions to deploy Technology-based administration in higher education institutions.

Kasozi (2012) stated that ICT and records management have a strong degree of commonality and many complementary skills. ICT and record management are both concerned with the creation, storage, accessibility and security of digital information. However, where ICT assists in engineering and maintaining systems to manage an organization's information assets, the focus of records management is protecting, classifying and maintaining the authenticity of records (a subset of information) so that they remain accessible and function as evidence of the business conducted for as long as they are required to be kept. The ultimate aim of records management and ICT is to support, protect and enable the business of the organization in a cost-effective manner now and in the future. Records management needs to rely on the technical capability of ICT, particularly in relation to the management of digital records. ICT decisions and actions regarding formats, systems and storage solutions can have significant impacts on the ability to capture records, and to protect their authenticity and longevity. ICT can draw on the expertise of the records managers to ensure the right information is being captured as records are classified in a way that promotes their retrieval while protecting their sensitivities, and records are only kept for as long as they are

required to meet legal and business requirements and community expectations. Advice from record keeping professionals in relation to these areas can help ICT professionals to reduce storage space and redirect dwindling resources to areas of need. In many public sector organizations, however ICT and recordkeeping professionals fail to recognize growing commonalities and opportunities for cooperation and continue to work independently. Some have openly hostile and combative relationships, often based on a mutual lack of understanding and sometimes exacerbated by physical separation in different programs and/or locations.

2.7 Challenges faced in student data management in Universities

Mazikana (1996) puts it that records are indispensable tools for determining the quantity and mix of human and material resources in an organization. Olangboye (2004) goes on to state the importance of records as facilitation of continuity of administration through provision of information needed by ex-students for higher education, admission or job placement, provision of data for planning and decision making by school heads, ministries of education and other education contributions.

A review of literature on the challenges associated with the management of student's academic records in higher institutions revealed some of the following challenges:

- Increased population numbers of students, Propoola (1999) and Iwhiwhu (2005) have noted that the appreciable increase in population numbers create more data and lack of practical automated tools to manage records, pose problems in state universities.
- Limited skills by records personnel. It can be noted that there is a problem of limited skills possessed by records personnel. Iguodala (1998) believes that personnel (secretaries and filing clerks) who maintain the registry systems with filing cabinets containing the paper evidence of university business are inadequate and in fact ignorant of their responsibilities.
- Absence of operational guidelines and regulations. Egwunyenga (2005) notes that in some universities, there is lack of record manuals and filing guidelines which leads to loss of information.

Egwunyenga (2005) further states that there exists inadequate computer terminals which has made the retrieval and maintenance of records difficult coupled with lack of appreciation by management and staff.

According to Matthew, Joro, and Manasseh (2015), ICT helped to advance western and Asian countries, while African countries still experience a lag in its implementation, and this continue to widen the digital and knowledge divides.

The following are challenges facing effective ICT application in Nigeria:

1. Lack of Qualified Personnel

The demand for ICT personnel in managing students' data has been tremendous and the number of administrators who are well-trained to utilize ICT cannot meet the demand. There are more administrators willing to be taught computing skills than there are personnel to transfer the skills.

2. Lack of Computers

Computers are still very expensive and despite spirited efforts by the government agencies, NGO, corporate organizations and individuals to donate computers to as many public institutions as possible, there still remain a big percentage of public institution unable to purchase computers for use by administrators.

3. Lack of Electricity

Many public institutions are still not yet connected to electricity; Nigeria being a developing country, the government has not been able to connect all parts of the country to the national electricity grid. Consequently those public institutions that fall under such areas are left handicapped and may not be able to fully utilize ICT.

4. Computers are still expensive in Nigeria

In a country with high rate of inflation, majority of the individuals and public institutions cannot afford to buy computers. While a good number of public institutions have benefited from donated used computers, they have not been adequately equipped with the same on maintenance and repair, hence its very

common to see public institutions full of broken down computers, some repairable and some not. This has actually been a major problem.

5. Lack of Internet or Slow Connectivity

Most schools are not able to connect all administrators to the World Wide Web, due to the high costs involved in the connectivity. On average, it may cost approximately ₦52,000 per month to connect to about 15 computers on a bandwidth of 128/64kbps. This is considered as very expensive for a very slow speed.

2.8 Effects of Information and Communication Technology (ICT) on the society

McLeod (1996), in her review of a document management strategy report, states that the most important success factors for DM (document management) systems, almost irrespective of business sector, included faster task completion, improving quality and reducing costs, the least significant being meeting statutory requirements, improving document security and improving cash flow.

According to Mphalene (2005), the effective utilization of ICT has produced some of the following benefits:

For the organization:

- Work is done more quickly;

- Completing a task requires less effort;
- Quality of processes and their outcomes is improved:
- Cash flow is improved; and
- Compliance with laws and regulations is achieved and demonstrated

For individual users:

- Information available when required;
- Greater quality, efficiency and effectiveness at work (processes are better, easier and quicker)
- Less blame and dissention when looking for lost information; and
- Evidence is available for what they were asked to do and what they did.

For society as a whole:

- Organizational processes are open and can be understood and monitored;
- Institutions comply with laws and regulations;
- Quality of life is improved; and
- The historical record is accessible and reliable

ICT provides student support services such as course outlines, digitally recorded classroom material, discussion groups, laboratory manuals and lab assignments,

lecture notes, live lectures for later viewing and re-viewing, links to course specific websites, online tutorials, supplementary readings, and virtual office hours for teacher-student consultations. Virtual libraries are a particular boon to students as they cut down on costs of acquiring expensive textbooks, journals and reference material. Tools are available on the Internet to assist both teachers and students to manage writing assignments to detect and avoid the pitfalls of plagiarism and copyright violations. ICT improve the quality and the quantity of educational provision. Introducing ICT systems for teaching in developing countries has to consider about high opportunity cost of installation, investments in hardware and software's and in human skills and training. Technology-facilitated learning has proven to be quite expensive in all areas of consideration, infrastructure, course development and course delivery (Ulka and Joshi, 2012).

Yusuf (2005b) argues that the ability of modern organization to attain its set goals and the decision-making efficacy of contemporary managers is no longer dependent on just the quality of the manager, but more importantly is a function of the quality of information channels feeding and transmitting their actions. The Association of African Universities (2001) has observed somewhere that as a complex organization, the universities are required to handle large volume of data which they must process speedily in order to provide information for management decision-making as well as meeting the information requirements of the various,

clientele – students, parents, alumni, government, information community, the general public.

Okoli (2007) 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).

Information and Communication Technology (ICT) 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. ICT implies both the technique, the process, as well as the structure concerned with systemic, accurate and speedy organization and control of relevant signals, data or messages from the different parts and environment of an activity unit, through appropriate collection, editing, analysis, display, storage and retrieval of signals or messages through electronic devices, in manners that would be useful for management decision-making (Emetarom, 2001). ICT is therefore an integral

part of the management process and its potential capacity in university administration will go a long way in ensuring institutional effectiveness. Computer-base 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. Thus, a computerized Information system is a system that provides each manager with all the information he needs for decisions, when he needs it, and the form that aids his understanding and stimulates action.

In a study on application of information and communication technologies in the management of public and private universities in Nigeria, Okorie, Agabi and Uche (2005) found that public universities exhibited moderate capacity for adopting modernized information management, while private universities demonstrated a high capacity of ICTs adoption in the variables investigated. The level of ICTs application was also investigated. The areas of application were students' and personnel record management; students' academic records; staff personnel records; teaching, research and publication; financial records management; and services management. Results showed that public universities have low level of application of ICTs in all areas examined, except in students' personnel records, research and publication; while private universities have moderate level of application of ICTs in all areas examined. Nwafor (2005) investigated the types of ICTs available for university administration in Rivers

State. His respondents consisted of 253 senior non-academic administrators from university of Port-Harcourt and Rivers State university of Science and Technology. There was no significant difference between the opinions of senior non-academic administrators at UNIPORT and their counterparts at RUST on the type of ICTs available for university administration in Rivers State. The ICTs available at the two institutions were: mainframe computer; mini-computer; micro-computer; word processing computer, basic website; fax; teleconferencing; internet; intranet; and e-mail. It was recommended that the two institutions should acquire large IT-Systems (mainframe computers) for economy, increased speed of information processing and a greater capacity to adapt university administration to changes in the super-highway of new information technology.

2.9 Conclusion

The overall review of literature indicates a very positive impact of ICT use in the area of educational management. Administrative staff and lecturers' skills in working with ICT have developed significantly over the years and they are using ICT to support a range of administrative activities at both class and school level. This is supported by Madiha Shah (2013) who reported that managing information in public institutions using ICT have greatly improved over the last two decades and most of these institutions incorporate several important functions required by school administration; however, every institution has its own specific

needs. Further studies are needed to explore the areas of improvement in ICT application as most of the existing systems are not developed according to the site-based needs. As Fulmer (1995) suggests that in order for ICT to be utilized effectively, it should be designed through an inductive process that includes stakeholders from all levels of the public institution in order that faculties will take ownership of the system and actually use it.

CHAPTER THREE

RESEARCH METHODOLOGY

This chapter elaborated on the methods and procedures that were employed in this research. These were discussed under the following headings: Research design, Study population, Sample size and sampling procedure/techniques, Instrument for data collection, Validity and Reliability of the instrument, Method of data collection and Method of data analysis.

3.1 Research Design

The study employed qualitative research design. It involved action officers, information technology managers, course advisers and exams and records staff of the University of Benin, Benin City, Edo State, Nigeria. Self-administered questionnaires were used to collect data. The study also involved an observation

of the physical setup of ICT infrastructure where possible. It also involved a review of literature related to the subject.

3.2 Study Population

The University of Benin, is made up of faculties and departments that house both academic and nonacademic staff. Being an academic institution is made up 11 faculties, 3 schools, and 1 college.

Also with the service units, which could also be called nonacademic departments, amounting to 15 as well; from which 3 departments were selected to be used for the research, namely: ICT, bursary, and exams and records.

The study comprises of the members of non-academic staff of the University of Benin with a population of 5,386 (source: office of the bursar, university of Benin).The population comprised of internal records users and established records officers in the academic registry department.

3.3 Sampling Procedure/Technique

Kothari (2004) defines a sample as part of the population which is deliberately selected for the purpose of investigating the properties of the parent population. Stratified random sampling technique was employed in gathering data for the study where the sample population is selected from three departments was selected using this method, with every staff given equal opportunity to make total

sample for the research and through the means of a simple random selection, the total sample staff was selected from each department. The researcher strongly believes that this technique aided the choice of sample from only those involved in the use and implementation of the use of ICT in the management of students' data.

3.4 Sampling Size

The sample size of this study is 162, drawn and selected from three departments in the University of Benin (as seen in the table below). 30% of the number of staff was selected from each department constituting the total sample of 162 staff.

Table 1: Showing the population and the sample size

Department	Staff	Sample Size	Percentage (%)
Bursary	350	105	30
ICT	70	21	30
Exams & records	120	36	30
Total	540	162	30

3.5 Data Collection Instrument

The instrument for the research will be a self-structured questionnaire. Questions will be carefully crafted, sequenced and constructed in a bid to get an in depth information that is useful and relevant to the study. Respondents will be non-academic staffs of the University of Benin from Exams and Records, ICT Department, and Bursary Department.

3.6 Data Collection Methods

Kothari (2004) defines data collection methods as techniques employed in gathering of information for research operations. Primary and secondary data were employed to gather the relevant data and the following are some of the methods that were used.

Questionnaire: This involved using a predetermined set of questions designed to collect information from a respondent on the subject under study. The researcher believes that the use of this tool can be useful in exploratory studies in which various dimensions and facts of a problem are examined, but in which hypothesis are not posed and tested (Kothari, 2004). Closed-ended questionnaires were used.

3.7 Data Analysis and Presentation

Statistical techniques were employed to test the hypothesis resulting from selected variables. Principal among the technique is simple percentage and chi-square.

CHAPTER FOUR

DATA ANALYSIS AND INTERPRETATION AND DISCUSSION OF FINDINGS

4.1 Introduction

The major aim of this research study is to assess the utilization of ICT in students 'data management in public institutions. The questionnaire was designed to capture the demographic data of the respondents and their opinions with respect to the research question/statement, the questionnaire was divided into five (5) sections. Section A sought to obtain information on demographic details of respondent while sections B to E consisted of items measuring the respondents' perceptions to research questions/statement.

In all a total of one hundred and sixty-two (162) questionnaires were administered to staffs of Bursary, Examinations and Records and ICT departments in the University of Benin, Benin City, Edo state and one hundred and sixty (161) were retrieved, one (1) was wrongly filled.

The response are presented in tables and percentages which were used to illustrate the responses received.

$$\frac{\text{Number of Responses}}{\text{Total number of respondents}} \times \frac{100}{1}$$

In this chapter, the researcher presents and analyzes the data collected from field survey. Deduction/findings are also made.

Demographic Characteristics of Respondents

Figure 1.0: Bar Chart showing Sex Distribution of Respondents

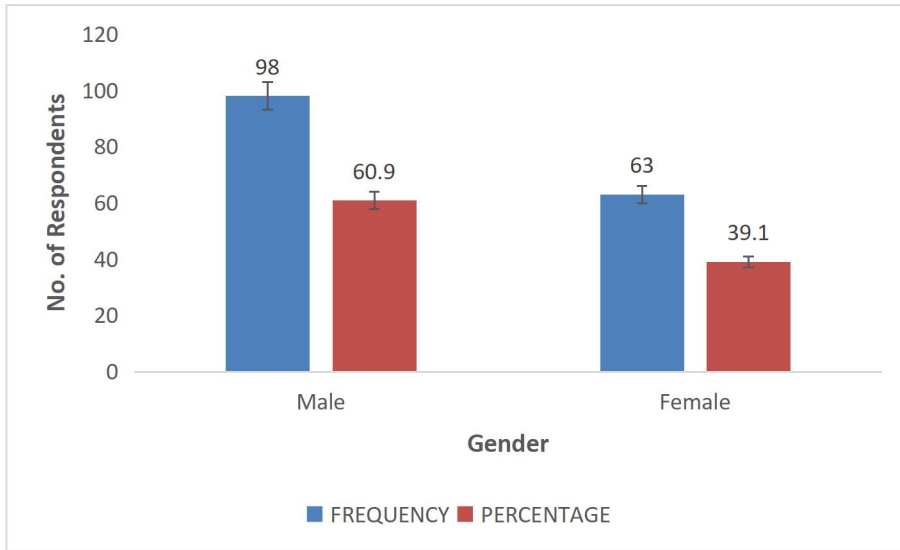


Table 1: Sex Distribution of Respondents

	Response	Frequency	Percentage
Gender	Male	98	60.9%
	Female	63	39.1%
	Total	161	100

Source: Fieldwork, 2025.

The table indicates that 60.9% of the total respondents are male and 39.1% are females. This shows that there are more male respondents.

Figure 2.0: Bar Chart showing Marital Status of Respondents

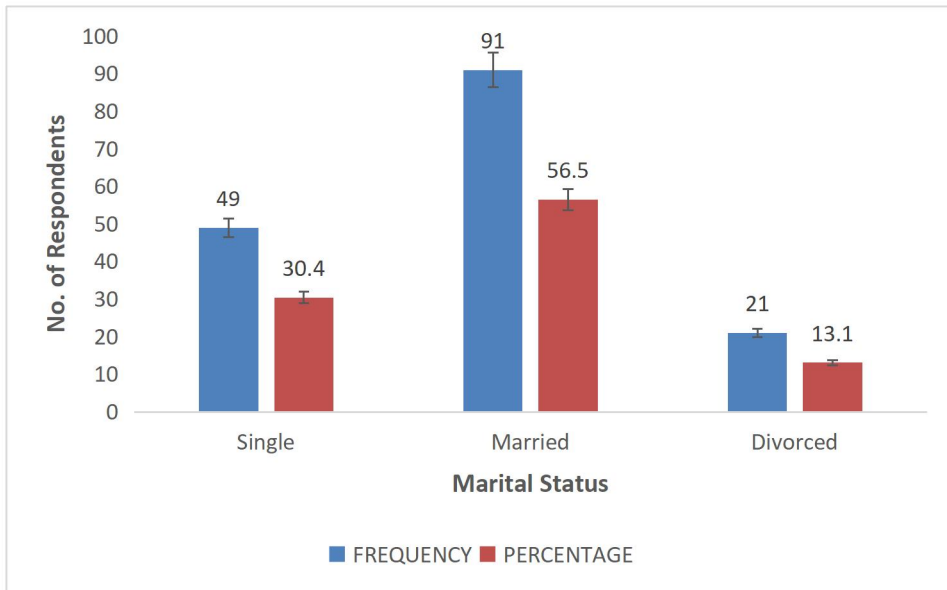


Table 2: Marital status of respondents

	Responses	Frequency	Percentage
Marital Status	Single	49	30.4%
	Married	91	56.5%
	Divorced	21	13.1%
	Total	161	100

Source: Fieldwork, 2025.

The marital status of the sample population shows that majority of the respondents' are married (56.5%), while 30.4% of the respondent with the other 13.1% divorced.

Figure 3.0: Bar Chart showing Age Group Distribution of Respondents

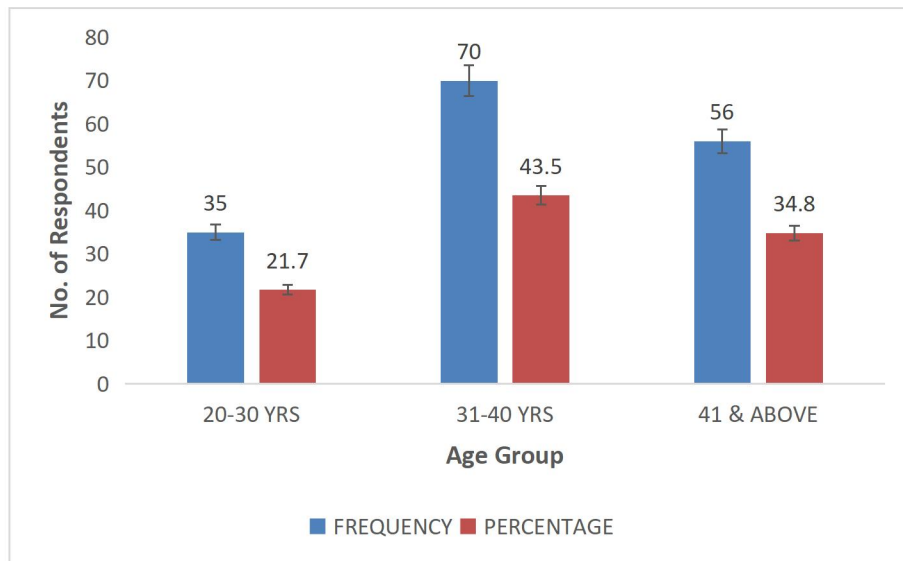


Table 3: Age Group Distribution of Respondents

Age Group	Responses	Frequency	Percentage

	20-30yrs	35	21.7%
	31-40yrs	70	43.5%
	41 and above	56	34.8%
	Total	161	100

Source: Fieldwork, 2025.

The age group distribution of the sample population shows that majority of the respondents' fall within the age group of 31-40 years (43.5%), while 34.8% represent age group of 41 years and above, 21.7% for age group 20-30 years.

Figure 4.0: Bar Chart showing Educational Qualification of Respondents

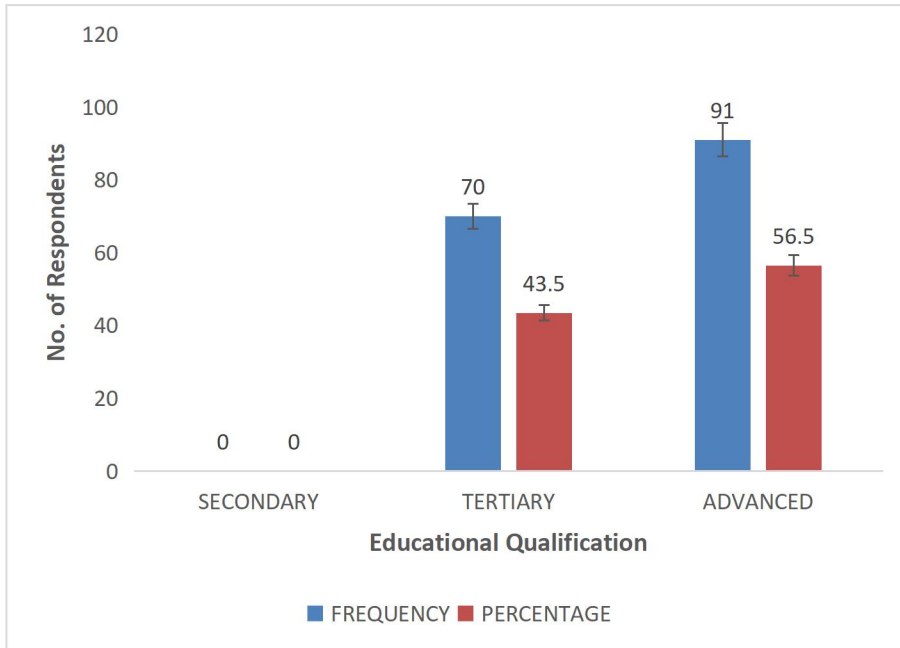


Table 4: Educational Qualification of Respondents

	Responses	Frequency	%
Educational Qualification	Secondary	0	0%
	Tertiary	70	43.5%
	Advanced	91	56.5%
	Total	161	100

Source: Fieldwork, 2025.

The analysis of findings as shown in table 4 reveals that 12.1% of the respondents had NCE, 29.3% of the respondents had BSC while 58.6% of the respondent had MSC/PHD degrees.

Figure 5: Bar Chart showing the Department of Respondents

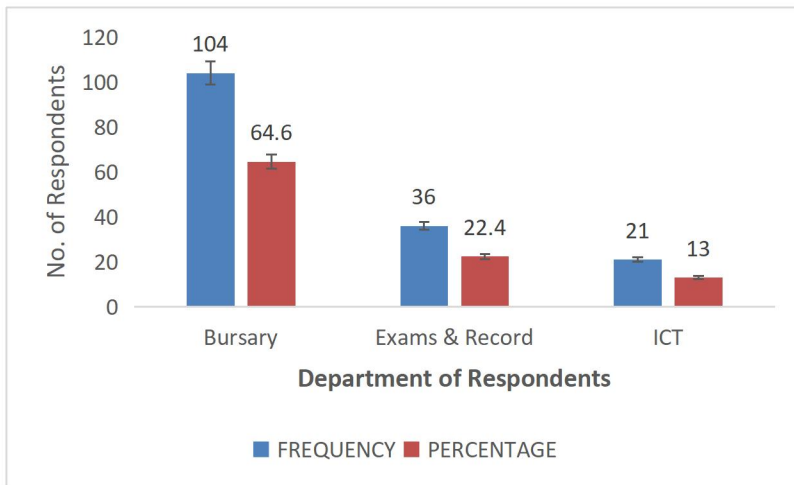


Table 5: Department Of Respondents

		Reponses	Frequency	Percentage
Department of Respondents	Bursary		104	64.6%
	Exams & Record		36	22.4%
	ICT		21	13.0%

	Total	161	100
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Source: Fieldwork, 2024.

The table above shows that 64.6% of the respondent were from the Bursary Department. Exams & Records had 22.4% and 13.0% were from the ICT department.

Figure 6.0: Bar Chart showing the Work Duration of Respondents

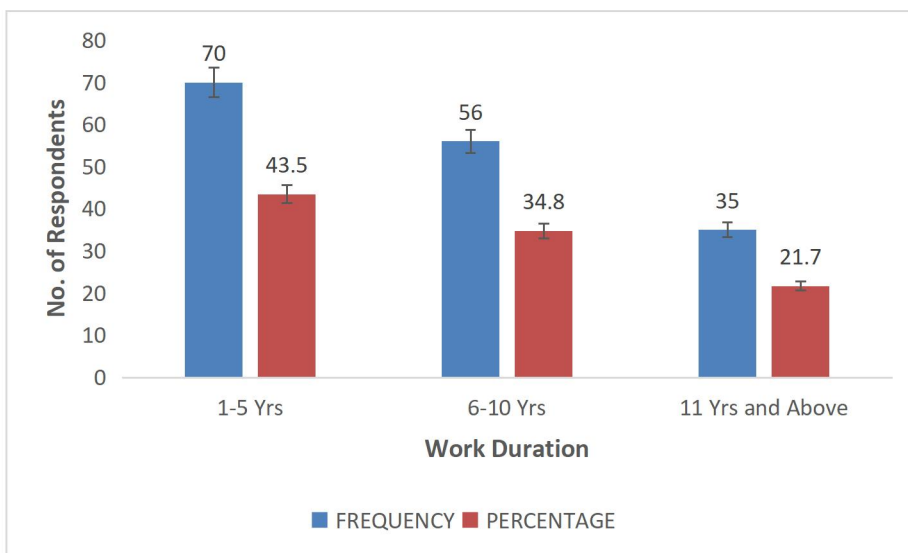


Table 6: Work Duration of Respondents

	Responses	Frequency	Percentage
Work Duration	1-5 Years	70	43.5%
	6-10 Years	56	34.8%
	11 Years and above	35	21.7%
	Total	161	100

Source: Fieldwork, 2025.

The findings shows that 34.8% of the respondents fall into 1-5 years of work duration, 34.8% and 21.7% fall under category of 6-10 years and 11 years and above of work duration respectively.

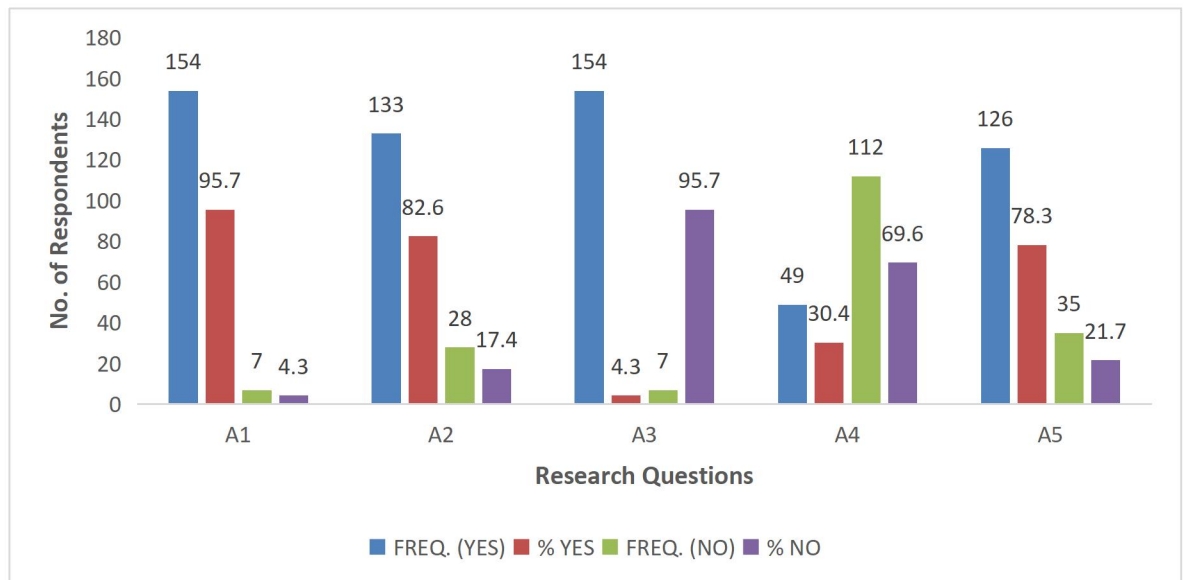
Table 7: Knowledge of ICT in Students' Data management in the University of Benin.

S/N	RESEARCH QUESTIONS	YES		NO	
		FREQ.	%	FREQ.	%
1.	Do you utilize computers in your department (A1)	154	95.7	7	4.3
2.	Is ICT being utilized in students' data management in your department (A2)	133	82.6	28	17.4
3.	Do you think the use of ICT can serve as an efficient and effective method in	154	95.7	7	4.3

	managing students' data (A3)				
4.	Traditional methods of managing students' data is still a preferred choice in your department (A4)	49	30.4	112	69.6
5.	Are there challenges in the utilization of ICT in managing students' data in your department (A5)	126	78.3	35	21.7

Source: Fieldwork, 2025.

Figure 7.0: Bar Chart showing the Knowledge of ICT in the Management OF Students’ Data in the University of Benin



Where A1 = Do you utilize computers in your department; A2 = Is ICT being utilized in the management of students’ data in your department; A3 = Do you think the use of ICT can serve as an efficient and effective method in managing students’ data; A4 = Traditional methods of managing students’ data is still a preferred choice in your department; Are there challenges in the utilization of ICT in managing students’ data in your department.

From the findings above, 95.7% (155) of the respondents utilize computers in their departments while the other 4.3% (7) did not. 82.6% (133) make use of ICT in the management of students’ data in their departments while 17.4% (28) of the respondents did not. 95.7% (154) of the respondents agree that the use of ICT is an efficient method of managing students’ data while 4.3% (7) did not.

Traditional methods of managing students' data was preferred by 30.4% (49) of the respondents while 69.6% (112) preferred for the use of ICT. 78.3% (126) of the respondents agree to the presence of challenges in students' data management in their departments while 21.7% (35) did not.

Table 8: Assessing the extent of ICT utilization in the management of students’ data in the University of Benin.

Question 1 - ICT is currently being utilized in the following										
		Freq	%	Freq	%	Freq	%	Freq	%	
S/N		SA		A		SD		D		TOTAL
1.	Creation of students’ data	77	47.8	77	47.8	0	0	7	4.3	161
2.	Storage of students’ data	84	52.2	70	43.5	0	0	7	4.3	161
3.	Use/Distribution of students’ data	56	34.8	77	47.8	7	4.3	21	13.1	161
4.	Retrieval of students’ data	49	30.4	91	56.5	0	0	21	13.1	161
Question 2 – The application of ICT in the management of students’ data is needed most in the...										
5.	Creation of students’ data	105	65.2	56	34.8	0	0	0	0	161
6.	Storage of students’ data	84	52.2	77	47.8	0	0	0	0	161
7.	Use/Distribution of students’ data	86	53.4	68	42.2	0	0	7	4.3	161
8.	Retrieval of students’ data	77	47.8	77	47.8	0	0	7	4.3	161
Question 3 – ICT has contributed to the management of students’ data in the following areas										
9.	Registration of students	77	47.8	70	43.5	7	4.3	7	4.3	161
10.	Initialization and Verification of students’ payment	105	65.2	49	30.4	0	0	7	4.3	161
11.	Management of students’ academic records	56	34.8	84	52.2	7	4.3	14	8.7	161
12.	Ensuring the authenticity of students’ records	70	43.5	70	43.5	14	8.7	7	4.3	161
13.	Allocation and Verification of students’ accommodation	63	39.1	98	60.9	0	0	0	0	161

Source: Fieldwork, 2025.

From the findings above, 47.8% (77) of the respondents are of the strongly agree that ICT is currently being utilized in the creation of student data, 47.8% (77) also agree. 4.3% (7) of the respondents disagree with the opinion saying that ICT is not currently utilized in the creation of student data.

52.2% (84) of the respondents are of the strong opinion that ICT is currently utilized in the storage of students' data, while 53.5% (70) also agree to that, 4.3% (7) of the respondents disagree with the opinion saying that ICT is not currently utilized in the storage of students' data.

34.8% (56) of the respondents are of the strong opinion that ICT is currently utilized in the use/distribution of students' data, while 47.8 % (77) also agree to that, 4.3% (7) of the respondents strongly disagree with the opinion saying that ICT is not currently utilized in the use/distribution of students' data, while 13.0% (21) also disagrees.

30.4% (49) of the respondents are of the strong opinion that ICT is currently utilized in the retrieval of students' data, while 56.5% (91) also agree to that, 13.1% (21) of the respondents disagree with the opinion saying that ICT is not currently utilized in the retrieval of students' data.

65.2% (105) of the respondents are of the strong opinion that the application ICT is needed most in the creation of students' data, while 34.8% (56) also agree to that. 52.2% (84) of the respondents are of the strong opinion that the application

ICT is needed most in the storage of students' data, while 47.8% (77) also agree to that.

53.4% (86) of the respondents are of the strong opinion that the application of ICT is needed most in the use/distribution of students' data, while 42.2% (68) also agree to that, 4.3% (7) of the respondents disagree with the opinion saying that the application of ICT is not needed in the use/distribution of students' data.

47.8% (77) of the respondents are of the strong opinion that the application of ICT is needed most in the retrieval of students' data, while 47.8% (77) also agree to that, 4.3% (7) of the respondents disagree with the opinion saying that the application of ICT is not needed in the retrieval of students' data.

47.8% (77) of the respondents are of the strong opinion that ICT has contributed to the management of students' data in the area of student registration, while 43.5% (70) also agree to that, 4.3% (7) of the respondents strongly disagree with the opinion saying that ICT has not contributed to the management of students' data in the area of student registration, while 4.3% (7) also disagrees.

65.2% (105) of the respondents are of the strong opinion that ICT has contributed to the management of students' data in the area of initialization and verification of student's payment, while 30.4% (49) also agree to that, 4.3% (7) of the respondents disagrees with the opinion saying that ICT has not contributed to the

management of students' data in the area of initializing and verifying students' payment.

34.8% (56) of the respondents are of the strong opinion that ICT has contributed to the management of students' data in the area of managing students' academic records, while 52.2% (84) also agree to that, 4.3% (7) of the respondents strongly disagree with the opinion saying that ICT has not contributed to the management of students' data in the area of managing students' academic records, while 8.7% (14) also disagrees.

43.5% (70) of the respondents are of the strong opinion that ICT has contributed to the management of students' data in the area of ensuring the authenticity of students' record, while 43.5% (70) also agree to that, 8.7% (14) of the respondents strongly disagree with the opinion saying that ICT has not contributed to the management of students' data in the area of ensuring the authenticity of students' records, while 4.3% (7) also disagrees.

39.1% (63) of the respondents are of the strong opinion that ICT has contributed to the management of students' data in the area of allocating and verifying students' accommodation, while 60.9% (98) also agree to that.

Table 9: Assessing the challenges facing the utilization of in the management of students' data in the University of Benin

S/N	VARIABLES	SA		A		SD		D		TOTAL
		Freq	%	Freq	%	Freq	%	Freq	%	
1.	Lack of ICT skills by management staff	60	37.3	52	32.3	21	13.0	28	17.4	161
2.	Lack of Electricity	66	41.0	67	41.6	14	8.7	14	8.7	161
3.	Inadequate Computers	77	47.8	56	34.8	7	4.3	21	13.1	161
4.	Insufficient data/information	63	39.1	63	39.1	14	8.7	21	13.1	161
5.	High cost of equipment maintenance	53	32.9	52	32.3	28	17.4	28	17.4	161

From the Table 9 above, 37.% (60) of the respondents are of the strong opinion that the lack of ICT skills by management staff is a challenge facing the utilization of ICT in the management of students' data, while 32.2% (52) also agree to that, 13.0% (21) of the respondents strongly disagree with the opinion saying that the lack of ICT skills by management staff is not a challenge facing the utilization of ICT in the management of students' data and 17.4% (28) disagrees.

41.0% (66) of the respondents are of the strong opinion that the lack of electricity is a challenge facing the utilization of ICT in the management of students' data, while 41.6% (67) also agree to that, 8.7% (14) of the respondents strongly disagree with the opinion saying that the lack of electricity is not a challenge facing the utilization of ICT in the management of students' data and 8.7% (14) disagrees.

47.8% (77) of the respondents are of the strong opinion that inadequate computers is a challenge facing the utilization of ICT in the management of students' data, while 34.8% (56) also agree to that, 4.3% (7) of the respondents strongly disagree with the opinion saying inadequate computers is not a challenge facing the utilization of ICT in the management of students' data and 13.1% (21) disagrees.

39.1% (63) of the respondents are of the strong opinion that insufficient data/information is a challenge facing the utilization of ICT in the management of

students' data, while 39.1% (63) also agree to that, 8.7% (14) of the respondents strongly disagree with the opinion saying that insufficient data/information is not a challenge facing the utilization of ICT in the management of students' data and 13.1% (21) disagrees.

32.9% (53) of the respondents are of the strong opinion that the high cost of equipment maintenance is a challenge facing the utilization of ICT in the management of students' data, while 32.3% (52) also agree to that, 17.4% (28) of the respondents strongly disagree with the opinion saying that the high cost of equipment maintenance is not a challenge facing the utilization of ICT in the management of students' data and 17.4% (28) disagrees.

Table 10: Recommendation on facilitating the utilization of ICT in the management of students' data.

S/N	VARIABLES	SA		A		SD		D		TOTAL
		Freq	%	Freq	%	Freq	%	Freq	%	
1.	Students should be involved in the use of ICT in the creation and management of their data	105	65.2	35	21.7	14	8.7	21	17.4	161
2.	Management staff should be trained on using ICT in managing students' data	112	69.6	49	30.4	0	0	0	0	161
3.	ICT applications should be developed based on institutional needs	119	73.9	56	34.8	0	0	0	0	161
4.	Digitization of students' data should be treated as priority	112	69.6	49	30.4	0	0	0	0	161

From the findings above, 65.2% (105) of the respondents are of the strong opinion that the students should be involved in the use of ICT in the creation and management of their data, while 21.7% (35) also agree to that, 8.7% (14) of the respondents strongly disagree with the opinion saying that the students should not be involved in the use of ICT in the creation and management of their data and 17.4% (21) disagree.

69.6% (112) of the respondents are of the strong opinion that management staff should be trained on using ICT in managing students' data, while 30.4% (49) also agree to that. 73.9% (119) of the respondents are of the strong opinion ICT applications should be developed based on institutional needs, while 34.8% (56) also agree to that. 69.6% (112) of the respondents are of the strong opinion ICT applications should be developed based on institutional needs, while 30.4% (49) also agree to that.

4.2 Hypothesis Testing

At the inception of this study, we formulated some hypothesis which were designed to act as guide to the conduct of this study. In this section, we shall attempt to test these hypotheses in order to give credence to our Assumptions about the problems under investigation.

Hypothesis One

For the purpose of this work the following hypothesis will be tested.

H_R¹: There is a significant relationship between ICT application and efficient students' data management among the staffs of the University of Benin.

H_O¹: There is no significant relationship between ICT application and efficient students' data management among the staffs of the University of Benin.

$$\text{Chi-Square } (X^2), X^2 \sum = \frac{(fo - fe)^2}{Fe}$$

Where

X² = Chi-square symbol

F_o = Actual or frequency observed

F_e = Frequency expected

∑ = Summation

Decision Rule

At 0.05 level of significance the null hypothesis will be rejected if the computed X² is greater than the table value of X² is greater than the table value of X² at 4 degree of freedom.

TEST DATA: The data used to test this hypothesis was obtained from the responses of respondents to questions contained in the questionnaires.

Table 4.4: One-Way Classical

	Respondents		Fo – Fe	(Fo-Fe) ²	<u>(Fo– Fe)²</u>
	Fo	Fe			Fe
Strongly Agree	79	41	38	1444	35.2
Agree	65	40	25	625	15.6
Disagree	11	40	-29	841	21.0
Strongly Disagree	6	40	-34	1156	28.9
Total	161	161	0	3,858	100.7

Calculated Chi-Square (X^2) = 100.7

From the chi-square table the critical value of 3 degree of freedom (4-1) (2-1) is 7.82 the computed value of 100.7 is greater than the critical value of 7.82.

4.3 Discussion of Findings

The study observed that the utilization of ICT promoted efficiency in students' data management. This is evident from the respondents' point of view as large number of respondents agreed to it from the research carried out.

In table 8, it is seen that ICT is of major necessity, especially as it deals with students' data, as it ensures transparency and accountability. It is of the view that utilization of the ICT was a welcome means that could help reduce the

mismanagement of students' data by enhancing the use of ICT through availability of electricity, training staff on the necessary ICT skills, availability of sufficient information on the students, and provision of more computers. The use of traditional means of managing students' data allowed for misappropriation and mismanagement at all levels of the institutional system.

From the above findings, it is believed that this prevents students' data leakages in terms of data loss and mismanagement by staff of all students' management department.

From table 10, it can be seen that measures has to be taken to ensure that students' data are managed effectively and efficiently such as, the involvement of students in the creation and management of their data, training of staff on the utilization of ICT in managing students' data, development of ICT application based on institutional needs, and prioritization of the digitization of students' data.

Since the computer X^2 value is greater (100.7) than the table value of X^2 (7.82) at 5% level of significance and 3 degree of freedom we reject the null hypothesis which states that there is no significant relationship between ICT application and efficient management of students' data among the staffs of the University of Benin. Therefore, the alternate hypothesis which states that there is a significant relationship between ICT application and efficient students' data management among the staffs of the University of Benin.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATION

5.1 Summary of Findings

There has been so much mismanagement of students' data in public institutions which has led to misplacement and displacement of students' records, especially academic and bio data. Although this is getting tackled, as the effect of the emergence of ICT is telling on public institutions positively, there is still so much work to be done. Institutions cannot perform administrative duties without accurate, timely, sufficient, and relevant information. The deficiencies linked with storage accountability is very burdensome, as a result, alternative approaches provided by ICT becomes paramount.

The impact of ICT in the present-day education system have influenced educational practices to some extent and will increase considerably in future. ICT will become a powerful agent in transforming several educational practices. Persistent application and development of ICTs in the education system will have a strong influence on teaching learning process, accessibility of education, motivating learners, creating a congenial learning environment and improving academic performance.

From the research findings, it was discovered that the ICT does impact on the management of students' data in the area of students' registration, verification of

students' payments, ensuring authenticity of students' records and also storage of students' data.

ICT has greatly contributed towards the management of students' records in the area of records creation, use, distribution, storage and retrieval. However, the employment of ICT in the management of students' data was found to face challenges such as lack of electricity, lack of trained personnel, inadequate computers and insufficient data/information. It is of the view that inadequate computers and insufficient data/information are the two most pressing challenges facing the use of ICT as a method of managing students' data in the University of Benin. The lack of ICT skills by management staff also poses as a serious challenge. From the above findings, it is believed that providing management staff of public institutions with adequate computers and making sufficient student data available will facilitate the integration of ICT in managing students' data.

This report shows that there is still need to further integrate ICT in students' data management in the areas of students' data creation, use/distribution, storage and retrieval. Placing the digitization of students' data as a priority while training managerial staff on ICT skills will also accelerate the application of ICT in managing students' data. This study also revealed that students needs to be involved in the creation and management of their data as this will facilitate ease of data creation and allow for more updated records.

In managing students' data using ICT, most software being utilized has been observed to be generic and foreign thus they often do not meet institutional needs. The study also pointed the need to develop ICT applications based on institutional needs so as to cater for specific managerial issues.

5.2 Conclusion

Application of ICT has great influence on the administrative services/management of students' records in the universities. ICT produces effective, efficient and excellent services in university administration and management of students' records. Unfortunately, Nigerian universities are yet to take full benefits of these services. Necessary actions should be taken to ensure that impact of ICT is also felt in these activities, for maximum efficient delivery in the administrative services of Nigeria universities.

The overall conclusion of this study is that ICT has greatly contributed towards the management of students' data in University of Benin in the following areas which include registration of students, verification and ensuring the authenticity of students' records. It is worth noting that ICT has improved the management of students' records although there still exists problems such as lack of trained staff, inadequate computers, insufficient data/information and lack of electricity.

The study observed that the use of ICT in the management of students' data in public institutions has a positive impact in the overall performance of the

institution including faster methods of data creation, storage and retrieval. This is evident from the respondent's point of view as large number of respondent from the research carried out.

5.3 Recommendations

the following recommendations should be sought.

- Recruitment and training of more staff in the data management function using ICT. It was discovered that the number of workers needed to effectively manage the system are few hence a shortage in the number of employees needed to effectively manage the system. Therefore, there is a recommendation that more staff be recruited to manage the system is. These staff should however be equipped with more ICT data management skills.
- Development of ICT applications should be based on institutional needs. Currently most applications used in the management of students' data are foreign so they do not completely cater for the specific needs of the institution.
- Digitization of students' data should be treated as priority. This will accelerate ICT skill acquisition by management staff and will also create an urgency in the use of ICT in managing students' data.

- The government in conjunction with the institution administrators should run free and compulsory ICT trainings in order to provide practical and functional knowledge to staff in the departments of students' data management with good internet access.
- Government and other stakeholders should create special funds to enable universities improve their ICT capacity.
- The National universities Commission (NUC) should commence an urgent review on the means of managing students' data, with a view to compulsorily incorporate ICT usage as a standard for management.

The implementation of these recommendations is imperative because the world has gone digital, and the ICT is the in-thing in today's teaching, learning, research, management. It is indeed, the contention of this study that if the afore-mention recommendations are considered and implemented in quite a strategic holistic manner, the desired effects of the ICT to the quality of the management of students' data in the university of Benin would be an imperative achievement.

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APPENDIX
QUESTIONNAIRE

TOPIC: THE EFFECTIVENESS OF ICT IN THE EFFICIENT STUDENTS' DATA MANAGEMENT IN PUBLIC INSTITUTIONS: CASE STUDY OF UNIVERSITY OF BENIN.

I, **ITOYA JOY OSEMUDIAMEN**, final year student of public administration carrying out research on the above topic, am kindly requesting for your assistance in answering this questionnaire. Information obtained will be strictly used for educational purpose only.

Section A: Demographics

1. Gender: Male Female
2. Marital Status: Single Married Divorced
3. Age: 20–30 31-40 41 & Above
4. Educational Qualification: Secondary Tertiary Advanced
5. Are you computer literate? Yes No
6. Name of Department: Bursary Exams and Record ICT
7. For how long have you been in this department? 1-5 years 6-10 years
 5 years & above.

Section B: Knowledge of the use of ICT on students' data management in the University of Benin. (Please tick "YES" or "NO")

S/ N	VARIABLES	YES	NO
1.	Do you utilize computers in your department?		
2.	Is ICT being utilized in the management of students' data in your department?		
3.	Do you think the use of ICT can serve as an efficient and effective method in managing students' data in the University of Benin?		
4.	Traditional methods of managing students' data is still a preferred choice in your department?		
5.	Are there challenges in the utilization of ICT in managing students' data in your department?		

Section C: Assessing the extent of ICT utilization on students' data management in the University of Benin.

Strongly Agree (SA), Agree (A), Disagree (D), Strongly Disagree (SD)

Question 1 - ICT is currently being utilized in the following					
S/N		SA	A	SD	D
1.	Creation of students' data				
2.	Storage of students' data				

3.	Use/Distribution of students' data				
4.	Retrieval of students' data				
Question 2 – The application of ICT in students' data management is needed most in the...					
5.	Creation of students' data				
6.	Storage of students' data				
7.	Use/Distribution of students' data				
8.	Retrieval of students' data				
Question 3 – ICT has contributed to students' data management in the following areas					
9.	Registration of students				
10.	Initialization and Verification of students' payment				
11.	Management of students' academic records				
12.	Ensuring the authenticity of students' records				
13.	Allocation and Verification of students' accommodation				

Section C: Assessing the Challenges facing the utilization of ICT in student's data management in the University of Benin.

Strongly Agree (SA), Agree (A), Disagree (D), Strongly Disagree (SD)

Question 1 – The following are challenges facing the utilization of ICT in students’ data management.					
S/N		SA	A	SD	D
1.	Lack of ICT skills by management staff				
2.	Lack of Electricity				
3.	Inadequate Computers				
4.	Insufficient data/information				
5.	High cost of equipment maintenance				

Section D: Recommendation on facilitating the utilization of ICT in students’ data management.

Strongly Agree (SA), Agree (A), Disagree (D), Strongly Disagree (SD)

S/N	VARIABLES	SA	A	SD	D
1.	Students should be involved in the use of ICT in the creation and management of their data				
2.	Management staff should be trained on using ICT in managing students’ data.				
3.	ICT applications should be developed based on institutional needs				
4.	Digitization of students’ data should be treated as a priority				

THANK YOU VERY MUCH FOR YOUR TIME AND COOPERATION

