

**CHALLENGES FACED BY THE STUDENTS IN THE USE OF ICTs
IN UNIVERSITY TEACHING AND LEARNING: A CASE STUDY
OF TANGAZA COLLEGE, NAIROBI-KENYA**

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DECLARATION

This is to declare that this project is my original work and it has not been presented to any other university for any academic credit. No part of this project is allowed to be reproduced without the permission of the author or Marist International University College.

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Head of Department: **DR. JAPHETH ORIGA.**

DEDICATION

I dedicate this project to my late beloved Father Sylvester Aguma, my lovely Mother Mrs. Theresa Aguma and to my brothers and sisters, and to all Marist families.

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I wish to use this opportunity to express my deep gratitude to God Almighty, for the gift of my life and all He has done for me, especially for giving me the grace to complete my studies successfully. To Him be highest glory.

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ABSTRACT

The speedy growth in information and communication technologies (ICTs) in the recent past and its integration in the process of teaching and learning presents to modern university students some challenges. Right now, this new invention is placing new demands on both lecturers and students of our time. ICTs have provided many opportunities for those in educational system to expand their worldview and equip the learners with life-long ICT skills. For this reason, ICTs are playing a major role in the future planning of institutions of higher learning. However, we cannot deny the fact that ICTs are also posing some challenges to the university students in our modern era. This is because the inclusion of ICT technologies in education came up recently in the university system of teaching and learning. Both lecturers and students who were used to old systems of teaching and learning are now finding it difficult to cope with these new inventions.

The main purpose of this study is to establish the challenges faced by the students in the use of ICT resources in university teaching and learning: a case study of Tangaza College. The study was guided by the following three research objectives:

- To establish how the availability and accessibility of ICT resources in Tangaza College cause challenges to the students.
- To establish how laid down policies in the use of ICTs in Tangaza College create challenges to the students.
- To establish how lecturers' use of ICTs in Tangaza College pose challenges to the students

Some of the challenges that students face in the use of ICTs in teaching and learning at Tangaza College were discussed in this study. Forty (40) students and six (6) lecturers were selected using simple random sampling and they responded to the questionnaires that were made up of both close-ended and open-ended questions. The researcher used a survey design in the collection of data and it was statistically analyzed using Statistical Package For Social Sciences (SPSS) computer programme.

The findings of the study reveal that there is inadequate supply of ICT resources which poses challenges for both lectures and students. From the data collected, both lecturers and students expressed their concern that there is a great need to increase the number of ICT resources in the College. On the other hand, it seems there are no clear functional policies known by both lecturers and students, in the use of ICT resources. According to the data available, most lectures and students expressed their views, that they were not involved in the making of the policies. The management was encouraged to involve both lecturers and students in the making of such policies, since they are the key players in the process of teaching and learning. The lecturers' use of ICTs also poses challenges for the students. This is because some lectures are not willing to embrace the new ICT resources in teaching and learning, and they are also not undergoing regular in-service training which was to help them to cope with the constant changes in ICT technologies.

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ABBREVIATIONS AND ACRONYMS

- BEFA:** Basic Education For All
- CAI:** Computer-Assisted Instruction
- CBT:** Computer-Based Training
- CD-ROM:** Compact Disc, Read-Only-Memory
- CWSFA:** Core Work Skills For All
- DVD:** Digital Video Disc (This is used in recording audio-visual images).
- EFA:** Education For All
- E-Government:** Electronic Government (The use of ICTs in all government sectors).
- E-learning:** Electronic-learning
- E-mail:** Electronic mail
- ICT:** Information Communication Technology
- IT:** Information Technology
- ITU:** International Telecommunication Union
- KIE:** Kenya Institution of Education
- KIF:** Kenya ICT Federation (This is a body that regulates the use of ICTs in Kenya).
- LLFA:** Lifelong Learning For All
- MIDI:** Musical Instrument Digital Interface
- MIUC:** Marist International University College
- NGO:** Non-Governmental Organizations
- NRC :** National Research Council
- PDF:** Portable Document Format
- SPSS:** Statistical Package for Social Sciences (This is computer software that is used for data analysis).
- TCP:** Telecommunication Protocol
- TV:** Television
- UNBCDD :** United Nations' Broadband Commission for Digital Development

CHAPTER ONE

1.0 Introduction

1.1 Background to the study

The invention of computers, internet services, e-learning and all related ICT tools in the 19th Century are said to have transformed the whole idea of teaching and learning in many institutions of higher learning. The whole world is now regarded as one village because of the introduction and adoption of information and communication technology or technologies (ICTs) in various professions of life. In many universities, ICT usage has made it easier for both students and lecturers to have access to up-to-date detailed information in different areas of their interests. The internet services which are of different search engines, for example- Google scholar, Netscape, Ask Reeves, among others, have continued to assist lecturers and students in embarking upon their various research and academic activities (Ogula & Onsongo, 2009).

ICTs can be discussed in various ways, such as ICT in health institutions, in education, in libraries, in specific subjects like Sciences, English, Mathematics, sociology, among others. Wee and Bakar (2006), on the integration of information and communication technology tools in teaching and learning, states that ICT is the most important topic that is always discussed in all educational sectors in recent years worldwide. This is an indication that the use of ICTs in all aspects of life is now becoming part and parcel of day-to-day life in our society. This is very practical and workable in most developed countries unlike third world countries.

According to the report of European Commission of September, 2003, on the definition of ICTs, the importance of ICTs (e-learning) and other aspects of life (especially

education) is not only strongly on the technology itself but also on its ability to make available information and communication to people in various countries of the world, both developed and underdeveloped countries. The importance of ICT has made many countries including United Nations to establish various organizations which were charged with the responsibilities of promoting the use of ICTs especially in education. This is aimed at bridging the gap between technological “have” and “have not” that is, to break the digital divide between developed and third world countries. Internationally, the United Nations are actively promoting ICTs for development as a means of bridging the digital divide. This dream has not been fully materialized in most developing countries, like Africa and especially in Kenya (<http://searchciomidmarket.techtarget.com/definition/ICT>).

Ogula *et al.* (2009), affirms that the introduction of e-learning (Electronic Learning), where students are able to have access to course content, e-books, carry out their assignments and make further researches online to widen their knowledge is well developed in Western countries and these days it is gradually gaining a wide acceptance in other parts of the world especially in Africa. Distance or virtual learning, a system which allows people (students) to study in foreign and even local universities without being physically present there, have been developed and enhanced, and this makes academic pursuits all over the world a more interactive and fulfilling one. Students can now have access to up-to-date educational resources and at the same time have meaningful interactions and share their views with other students around the globe (Bower, 2001).

In order to embrace and boost the new trends in our society today many countries in Africa (especially Kenya) have introduced in their educational systems (especially in universities) computer literacy courses and other ICT related skills. This has been prompted by the idea of making teaching and learning process more interactive and learner-centred which is considered globally as the best approach to teaching and learning process (Ogula *et al* 2009).

We cannot fully discuss the development in ICTs without bringing our attention to the issue of change. The philosophers say “change is permanent.” This means that our world continues to evolve. Every day, new and sophisticated ICT tools are being developed to replace the old and outdated ones. This has both financial and skills implications. It is growing at a faster rate in terms of technological improvement. Students especially those in developing world may not be finding it easy to cope except when they are properly guided (Yoon, Ho & Hedberg, 2005).

Previously we used to have a system of teaching method whereby the teacher is believed to possess absolute knowledge of the content or curriculum that he/she wants to deliver. But with the development and improvement in information and communication technologies (ICTs), learners’ need and development are at the centre of teaching and learning process. Through the adoption of ICTs in education learners are equipped with the skills on “how to do it themselves.” That is to say, they are able to get the information that they are looking for, using computers and internet services, and other ICT tools. Students are said to learn best when they are actively constructing new knowledge themselves rather than passively acquiring knowledge. The integration of ICTs in

teaching and learning is more advanced in the first world countries than in third world countries (Yoon *et al.*, 2005).

In our society today, the number of lecturers who make use of ICTs as tools in the process of teaching and learning is growing every day but not without some challenges. Information and communication technologies help the students to think and learn in a new and stimulating ways. Lecturers use ICTs for different purposes such as carrying out learning instructions in specialized courses like- Mathematics, Biometric, Phonology, and Linear Algebra, among others. Special computer programs designed for such courses are used and it helps the students to understand the concepts of the subjects that are taught in a stimulating ways. For this reason, it is very important for all educational institutions to reconsider the adoption of ICTs in the university teaching and learning. The students are also encouraged to make good use of computer and all other related ICT tools in preparing their research reports, class assignments and project write ups. Here, the use of internet, to get the current information in their various areas of specialization or research topics can be of greater help to them. Through internet services, what is happening in one corner of the world can easily be accessed in another part of the universe (Ogula *et al.*, 2009).

Power point presentation is a computer software which helps the lecturers to put together point by point the major aspects of a topic that they are presenting in the classroom. It is worthy to note here that power point presentation is very helpful when dealing with a large number of students in a given classroom. Another vital role that ICTs play in teaching and learning is e-learning (electronic learning) academic programmes. In e-learning lecturers can design more interactive courses online where students all over the

world can engage themselves in online learning. E-learning and virtual universities are said to be gaining popularity in higher institutions of learning in Africa (Ogula et al, 2009). The benefits of the ICTs in teaching and learning can never be over emphasized. It has got to do with practical skills acquisition. What we perceive with our eyes (graphics and audio-visuals) is said to have a long lasting effect or impression and it creates a real life experience that can boost students' learning ability.

If the whole idea of integrating ICTs in educational systems is to equip the learner (students) with skills to survive in a technological growing world (present and future) and also to expand his knowledge and worldview, his basic needs, challenges and perceptions about embracing this new trend (ICTs) has to be given a favourable consideration. The reason is that nowadays the emphasis is on the learner in the process of teaching and learning. Brandes and Ginnis, (1990), affirms that a vision of student-centred school is where students, teachers and managers are responsible, and also where everyone is empowered to reach his/her potential in a holistically healthy environment. This approach is learner-centred. According to National Research Council of U.S., learner-centred environments are those that pay a close and careful attention to the knowledge, attitudes and beliefs that learners usually bring with them to the classroom environment and activities. To investigate or evaluate about learners attitudes especially now that ICT tools are being utilized adequately in the process of teaching and learning is very important. This is to determine how effective its adoption and integration has been (Tinio, 2000-2002).

There are many benefits in the use of ICTs in education but it is very important to note that there are also a number of challenges that are facing the students of universities

today especially in developing countries. Universities in Africa for instance are supposed to take the lead in making sure that Africans (students) participate fully in the ICT revolution but on the contrary they are not able to do this due to poorly developed ICT infrastructures in most African Universities (Sife, Lwoga, & Sanga, 2007). Some of the challenges are:

- Technical support,
- Administrative support,
- Staff development,
- Inadequate funds,
- Awareness and attitude of students towards ICTs,
- Lack of clear policy in the use of ICTs,
- Lack of ICT infrastructures,
- Lack of systematic approach to ICT implementation, among others (Sife, *et al*, 2007). These are some of the challenges that are making things difficult for the students to access ICT resources.

1.2. Statement of the Problem

The use of ICTs in teaching and learning process at the university level is becoming an academic culture worldwide, but it has not been fully utilized, especially in some developing countries, like Kenya. At the Tangaza College, Nairobi, Kenya, there are a number of challenges that are facing the students in the use of ICTs in teaching and learning. This might be as a result of number of challenges that are found in the use of ICT resources.

This study therefore investigates some challenges faced by the students of Tangaza College in the use of ICT in university teaching and learning.

1.3. Research Objectives

The focus of the research is to study and also analyze challenges faced by the students in the adoption and use of ICTs in university teaching and learning at the Tangaza College.

Below are the main objectives of this study:

1. To establish how the availability and accessibility of ICT resources in Tangaza College cause challenges to the students.
2. To establish how laid down policies in the use of ICTs in Tangaza College create challenges to the students.
3. To establish how lecturers' use of ICTs in Tangaza College pose challenges to the students.

1.4. Research Questions

1. To what extent does the availability and accessibility of ICT resources cause challenges to the students?
2. To what extent do the laid down policies in the use of ICTs create challenges to the students?
3. To what extent does the lectures' use of ICTs in Tangaza College pose challenges to the students?

1.5. The Significance of the study

This study seeks to examine the challenges that the students of Tangaza College face in the use of ICT tools in teaching and learning process. Studying about ICTs and their

importance in education is likely to inspire positive attitude in those students who may tend to see these modern technologies in teaching and learning as opposed to traditional methods.

Discovering such challenges and possibly providing solutions on how to tackle them will encourage the students to begin to take interest in ICTs and appreciate them with right attitudes as powerful tools in teaching and learning in our modern society. This is because; it makes available up-to-date information for their academic activities and equips them with lifelong skills which will be useful for them in their future careers. Lecturers are at the forefront of teaching and learning process in the universities and they require proper knowledge (technical-know-how) and right attitude to be able to motivate the students. This study aims at investigating how the lecturers make use of ICTs in the Tangaza College.

By conducting a survey on the students of Tangaza College as a sample, this study aims at identifying key challenges of ICTs in teaching and learning process and make proper suggestions on how to remedy such challenges. The results of its findings will be beneficial to all other institutions of higher learning (universities and tertiary institutions), lecturers, students, administrators, and government policy makers. This will encourage the students, lecturers and administrators and the policy makers to collaborate in their various capacities to bring about improved teaching and learning process using modern technologies (ICTs).

1.6. Scope of the Study

ICT tools in education are very many today, it ranges from software to hardware, such as web-base training, online learning in higher institutions, internet services, intranet, World

Wide Web computers, satellite systems, photocopiers, scanners, Compact Discs(CDs), Digital Versatile Discs (DVDs) Video conferencing, mobile technologies, power point, Televisions, radios, among others (Kwanya, 2009). This study, however, focused on some challenges faced by the students of Tangaza College when ICTs are used in the process of teaching and learning. It also investigated how the availability and accessibility of ICT resources cause challenges to the students. Finally, it established whether there are policies on how to use ICTs at Tangaza College in the process of teaching and learning.

1.7. Delimitations of study

The study was specifically conducted at Tangaza College using open-ended and closed-ended questionnaire, and it sampled students (40) and lecturers (6) from the college who responded adequately to the question items. This means that it was not all the students and lecturers of Tangaza College who were involved in the study. The challenges of the students are very many but this study was based on ICTs challenges.

1.8. Limitations of the study

Limitations, according to Kombo and Tromp (2006), are the challenges that are encountered by the researcher before or during the research. This study was based on the challenges faced by the students in the use of ICTs in university teaching and learning. There are many institutions around Nairobi, but the researcher thought it proper to select Tangaza College, situated at Karen-Nairobi, for this study due to particular information he was interested in. The researcher only used the school due to lack of time, distance, management of large data and the amount of money that was involved. Questionnaire that were administered were not returned on time by some lecturers and students.

CHAPTER TWO

LITERATURE REVIEW

2.0. Introduction

This chapter is based on the review of the related literature. It is centered on what other people have said on the use of ICTs in the university teaching and learning. It also looks at the challenges that are faced in the use of ICTs in education ranging from global perspectives to Africa and then to obstacles facing Kenya as a nation and universities (students) in particular. It also explored Kenyan policy on ICTs.

The chapter is divided into the following sub-sections: definitions of ICTs, The global importance of ICTs on education and developments, The global importance of internet, Global challenges of ICTs, Worldwide ICT use in education, Challenges of ICTs in Africa, Challenges Faced by East Africa, Challenges faced by Kenya as a nation, some factors hindering the wide spread use of ICTs in Kenya, Challenges faced by the lecturers, Challenges faced by the students, ICT policy in Kenya and Challenges of ICT policy in Kenya. All these collectively pose challenges to the students in the use of ICTs in university teaching and learning.

2.1. Definitions of ICTs

ICT is defined as a diverse set of technological tools and resources that are used to communicate, and to create, disseminate, store and manage information. It is the study of technologies that are used to handle information and aid communication (Wee *et al*, 2006). Information technology (IT) on the one hand refers to a wide varieties of tools which are meant to store, process and exchange information and it ranges from computers and modems to scanners and digital cameras (Oldknow & Taylor, 2003). Information

and communication technology in the last ten years according Oldknow *et al.*, (2003), in an educational context of England and other countries of the world refers to those IT equipment that are available for educational use and also a set of associated skills which all the learners (students) and teachers need to acquire in the process of teaching and learning. These days more emphasis is being laid on new ICT resources that are being developed everyday but not much has been said or done on how to take care of the learners' needs that are at the centre of teaching and learning.

Students, especially those in developing countries are said to be finding it difficult to cope in the university teaching and learning due to lack of basic knowledge on ICT use. There is still digital divide among developed and developing nations. Africa is still far behind in terms of digital world.

The ICTs resources in education are fully developed in most advanced countries, but here in Africa, especially in Kenyan system, the government is still struggling to meet up with the demands of ICTs in teaching and learning (Murelli, 2002). This shows that there is still a lot to be done in terms of ICT infrastructures, adoption and its implementation in school system especially in the university teaching and learning process, and the students are disadvantaged in this situation.

2.2. The global importance of ICTs on education and developments

The importance of ICTs in education and other aspects of life are not strongly on the technology itself but on its ability to make available information and communication to people in various countries, both developed and underdeveloped ones. The importance of ICTs has made many countries including United Nations to establish various

organizations which were charged with the responsibilities of promoting the use of ICTs especially in education. This is aimed at bridging the gap between technological “have” and “have not” that is, to break the digital divide between developed and third world countries. There is still digital divide between advanced and developing countries. Many developing nations are still finding it difficult to break this gap due to economic problems (<http://searchciomidmarket.techtarget.com/definition/ICT>).

The importance of ICTs in our society today can never be over emphasized. This is because they are being utilized globally to disseminate information from one corner of the world to another. Murelli (2002) affirms that we are now living in a global society. The transformation of the world into a global village is said to have intensified a sense of some revolutionary changes in concrete and social infrastructures. All aspects of life including education are experiencing some significant changes due to the arrival and adoption of ICTs in those areas. Both developed and developing countries are reaping its fruits.

The coming of the new information and communication technologies is taking the lead in the process of globalization. Nowadays distance is no longer an important factor to be considered when dealing with interaction and collaboration in the development of the various economic and social activities. With the globalization of ICTs it is possible now to create new types of organizations which have the capacity to influence business efficiency in firms, government and sector organizations, educational institutions and also the quality of life that the citizens of countries live. The evolution of ICTs and their adoption in all countries of the world will definitely make it easy for countries to have access to information and also to up-to-date knowledge from anywhere in the world, from

computer system and from mobile phones. Murelli, (2002) further asserts that students of various categories all over the world are presently benefitting from ICT services but when we consider the situation of things in the continent of Africa as third world countries, the growth of ICTs in education is still lagging behind.

According to Kwanya (2009) and Onunga *et al.*, (2005), the following are some of the examples of global importance of ICTs in our world today:

2.2.1. Education

Internet has opened new era for education. It has been observed that research and communication tools have made it easier for these new technologies to support both formal and informal education at various levels. Presently, we have electronic learning, distance learning and virtual universities which are all educational activities running on the web (internet) (Kwanya, 2009).

Onunga and Shah (2005) affirms that computer aided instruction (CAI) is where students are taught with the assistance of computer, and computer based Training (CBT) deals with learning about computer and software, and also learning about other subjects. According to them, it is meant to equip the learners with the ability to discover new things on their own and equip them with lifelong skills. Virtual universities use satellite technology and internet to provide quality educational content worldwide at affordable cost. And many world-class professors from various universities all over the world deliver their classes or lessons from studio classroom. Most courses and seminars are offered through satellite on the large screen projectors, television monitors or computers. In this practice students can communicate with lecturer by using fax, phone and e-mail.

These are all beautiful ideas from (Onunga *et al.*, 2005) but it is not constantly practicable in most developing countries that are always experiencing poor internet connectivity at high prize.

ICTs have also facilitated easy access to research and other learning materials, like online libraries. ICT tools have assisted the interaction that goes between learners and other learners, between teachers and learners, and between teachers and other teachers worldwide (Jaffer, Ng'ambi & Czerniewicz, 2007). Through the integration of ICTs systems in education distance learning, virtual learning and e-learning have been made available for the students (Kwanya, 2009).

2.2.2 Communication

The communication that goes from one person to another seems to be one of the major beneficiaries of ICT revolution. Previously we used to have systems like: writing letters, face to face meetings and diaries, but in recent times mobile phones, computer, internet, extranets, intranets, e-mail, Usenets, blogs, discussion boards, chat rooms and forums have made easier instant sharing of ideas and information at faster, cheaper, convenient and very efficient rates and manners. This is possible in most advanced countries and not in developing ones. Kwanya (2009) states that the inventions of ICTs have enabled the improved capture, organization, classification, processing, storage, use, dissemination and disposal of information both locally and globally.

2.2.3 Transportation systems

There are three areas that ICTs are being utilized in transportation systems. They are air traffic control, shipping control and automatic traffic control (Onunga *et al.*, 2005).

Many ICT tools are presently being used to assist different processes in transportation such as monitoring of freight, navigation of maritime vessels and logistical support to transport operations (Kwanya, 2009). This is to ensure smooth running and accident free in transportation.

2.2.4. Business

Kwanya, (2009) in his views affirms that these new ICT technologies are also making a great impact in the world of business. They have created an online global marketplace where goods and services are always available and the transactions occur electronically. The introduction of electronic commerce and mobile phone commerce has changed the ways that modern people transact their businesses. Money can easily be transferred from one place to another with proper documentation. ICTs assist business people in stock control, banking services, stock exchange, marketing and advertizing, accounting for transactions, payroll, and insurance, among others (Onunga *et al.*, 2005).

2.2.5. E-Government

Government of nations of the world nowadays makes use of ICTs to transact government business. It enables the governments to digitally offer services, make more efficient their operations and facilitate collaboration among their workers and the general public. Kwanya, (2009) observed that this system of e-government was first introduced by Bill Clinton, the formal president of United States of America in 1998-1999. Today many countries of the world have introduced ICTs in their system of government.

2.2.6. Entertainment

The entertainment industries are not left out in the revolution of ICTs. Kwanya, (2009) asserts that ICTs have enabled the development of new tools which the industries can now use to create more different digital effects in entertainment. Some of the examples include: digital equipment with high precision for TV and radio, digital recording equipment which have high definition and noise reduction. Other ones are industries' standards and protocols, such as Musical Instrument Digital Interface (MIDI), and games, among others. With the aid of ICTs people can now create, circulate, market, control and show entertainment products unlike before. General public can have access to podcast, games, internet radio, music download, WebTV for their entertainments.

2.3. Global importance of internet

The internet is basically a global network of networks that connects many computers and other ICT tools to facilitate fast, convenient and reliable information sharing (Kwanya, 2009). There are so many uses of internet in our global society today. Internet as one of the ICT tools enables students to carry out their research and even have virtual learning online. According to Mburu & Chemwa (2004) internet as a word may be broken into two words, *inter* and *net*, and this implies that there is an interconnection of networks which work together to transmit information from one system to another. Internet makes possible for millions of computers from various organizations and people around globe to communicate information and share resources. Murelli (2002) affirms that internet as a new medium which is now spreading very fast in almost all the countries of the world makes information available which can be accessed for different purposes, for instance:

in business, education, health institutions, politics and social relationships, research, among others.

Beautiful things have been said about the internet but we should not forget the fact that internet is fully developed in Europe and not in Africa, and more importantly in Kenya where the government is still making effort to bring ICTs up to the world standard. This poses challenges to the university students who are beginning to understand its importance in teaching and learning.

2.4. Global challenges of ICTs

Tinio (2000-2002), on the use of ICTs in education, affirms that according to the International Labour Organization, the following are the definition of education– “Basic education for all,” “Core work skills for all,” and “Lifelong learning For All.” The implication of the above statements is that education should equip the learners (students) with all those skills that will enable them to cater for present and prepare them for future in a fast growing technological world. In some universities especially those in developing world, the provision of ICT tools is not yet adequate and some students do not have prior knowledge and skills of ICT usages before joining the university, and this poses a great challenge to them.

In our world today the information and communication technology continues to evolve. The 21st Century saw the outburst cry of many countries in the West and those in developing countries to expand their educational opportunities for the learners through the use of ICT tools which includes radio and television, recent digital technologies such as –computers and internet services, among others, which have been considered by the

United Nations as powerful tools for educational change and reform in 21st Century. It is not all the institutions worldwide that can afford to provide and maintain ICT infrastructures (Tinio, 2000-2002).

2.5. Worldwide ICTs use in education

According Resnick (2001-2002), the good news in ICT usages in education is that in the nearest future, the cost of computation will definitely make digital technologies accessible and affordable to almost everyone in all parts of the world, beginning from the inner city neighborhoods in the United States to rural villages in developing nations (Africa). These new information and communication technologies have the ability to transform what people learn throughout their lives. In the same way that the advances in biotechnologies brought about the “green revolution” in agriculture, new digital technologies that we have today are likely to make possible a “learning revolution” in education.

On the other hand, the negative news of ICTs in education is that while the new digital technologies make a learning revolution possible in Europe, they certainly do not guarantee its success in underdeveloped countries (Murelli, 2002). This is because early results are not encouraging. In different places where new ICT tools are being used in education, the technologies are used simply to strengthen old-fashioned approaches to learning. Even as scientific and technological advances are transforming agriculture, medicine, and industry, ideas about approaches to teaching and learning remain largely unchanged. The reason being that most people who are used to the old systems of teaching and learning still feel reluctant in adopting and integrating ICT tools as modern way of teaching and learning. On the other hand, there are no global ICT policies on

education which will guide everyone in the use of ICTs. This is said to pose some challenges to the students of the universities especially those in Africa.

The development in the use of ICTs in advanced countries, especially in education, is at a faster rate. Students over there (Europe) are greatly utilizing ICT tools in their academic activities than those in the third world countries. This is because there is a well established system of ICT usages in education in all advanced countries of the world (Resnick, 2001-2002).

2.6. Challenges of ICT in Africa

Ahmed and Nwagwu (2006), states that many African Countries are said to have wrestled with the prolonged political challenges. This includes: autocratic military regimes and other forms of undemocratic governments, “dignified” level of bureaucratic corruption and mismanagement of public funds. These and many others pose a great challenge to the development of ICT infrastructures in most African Countries. Foreign based investors are not so sure about what will happen to their capital if they invest their wealth in universities in Africa. In addition to the issues that have got to do with the security of investment and continuity of initiatives in Africa, the capability of individuals (students) to buy the educational services that are coming from the universities in the developed countries may be limited.

According to Murelli (2002), there are many strategic challenges and serious concern that electronic resources are inaccessible in most African Countries due to low wealth of the Developing Countries. This is because they simply do not have the technological infrastructure to receive and distribute ICT tools effectively. There are some key issues

which have to be considered at the Higher Institutions of Learning and they include regulatory challenges of the telecommunications and ICT policies, human resource development aspect, and the problem of quality assurance, among others. In a digitally networked world, the opportunity cost and risk for a developing country which is lacking sophisticated ICT capabilities and means of useful interaction with the global economy/education could be broad, and this will lead to the issue of growth and development being gravely affected (www.sidint.org/development).

Many advanced nations are not willing to invest their money in Africa for fear of losing it. This kind of attitude has continued to pose challenges to the students in the third world countries unlike their counterparts in developed nations.

2.7. Challenges Faced by East Africa.

Recently, United Nations' Broadband Commission for Digital Development (UNBCDD) endorsed global targets for broadband access. The report by Shahonya (2011) shows that broadband access in East Africa is still very low compared to the speed that is available in the developed world. So, this approval on broadband access, setting of goals and affordability of internet services came at a time when East Africa as a whole needed to do something drastic. In the UN Commission meeting which took place in Geneva, (2011) the International Telecommunication Union (ITU) encourages all Countries to have a national broadband plan or strategy which will bring about the inclusion of their broadband in the universal access. Their targets is that by the year 2015, forty per cent (40%) of households in developing Countries will have internet access in their homes, broadband should be affordable, and finally to get people on-line, with an expected

internet penetration of 50 per cent in developing countries and sixty per cent (60%) worldwide.

When sub-marine cables had not arrived at the Coastline of East Africa as a region for example; Kenya, Tanzania, Burundi Rwanda and Uganda relied only on satellite connectivity for the provision of internet access. This has many disadvantages coming from bandwidth availability, speed, cost and uptake. These problems continue to distance the region from the digital world. Some years back, United Nations have come up with such beautiful ideas on how to improve the poor conditions of the developing world without seeing it fully implemented. Developing Countries, like East Africa Countries, if left on their own, may lack adequate funds to embark upon such big project (Shahonya, 2011).

The coming of Information and communication Technology (ICT) has practically revolutionized every aspects of life, and is being embraced by business enterprises like marketing, banking, tourism, medicine, architecture and law, among others, in the region. The impact of ICT across the past two or three decades in Eastern Africa, like Kenya, Rwanda, Uganda, Tanzania and Burundi has been massive, but when one looks at the educational sector in all these countries, ICTs usages has not reached the level that we have in the Developed Countries. This is because internet service providers in the region of East Africa still complain about the high costs that come with international connectivity and in some places of the region, especially rural areas; there is lack of networks services. The gap of digital divide between the East African Countries and Europe is still very wide. Despite the availability of sub-marine cables and ICT

infrastructures in the region, the broadband access in the region is still nothing to compare with those in Asia and Europe (Shahonya, 2011).

2.8. Challenges faced by Kenya as a nation

According to a survey carried out in Kenya by Apoyo (2009), on ICT, only 12.5 percent of Kenya's landmass has access to internet services or connections, while 15 percent of the geographical region is found to lack voice services. The implication of these findings is that majority of people living in such locations in the country of Kenya have no network coverage which indicates that those in these geographical areas may find it very difficult to communicate with the rest of citizens in other parts of the country. On the other hand, it has also been observed in the same survey that only 893 sub-locations in Kenya had access to internet services. This means that 25 million Kenyans are said to have access to mobile phones while 4.7 million make use of internet. This study reveals government's effort to bridge the gap of digital divide. Considerable landmass of the country lack internet access.

If Kenya as a Country is still finding it difficult to implement and harmonize her policy in terms of providing and maintaining ICT tools and services, Tangaza Collage as one of the Institutions in the Country is likely to have a share in these challenges. Some students who are coming from these ICTs deprived areas may not have enough knowledge on how to use ICTs before joining Higher Institutions and this makes it difficult for them to embrace and utilize ICTs very well in their academic pursuits (Apoyo, 2009).

Going by the observation made by Apoyo (2009), we can say that a lot is still to be done in terms of adoption and integration of ICTs in University teaching and learning, especially in Kenyan Universities. Despite all the efforts that the government and other

None Governmental Organizations (NGOs) are making to break the monotony of digital divide, there are still some challenges in the use of ICTs in University teaching and learning.

2.9. Some factors hindering the wide spread use of ICT in Kenya

According to Kwanya (2009) there are so many factors which have contributed to the slow widespread of ICTs in Kenya. Below are some of them:

2.9.1. Illiteracy

For any citizen of this country to be able to make use of ICT he/she must be able to read and write. It has been observed that about 30% of the populations of adults in Kenya are illiterates. This makes it very difficult for them to make judicious use of ICTs. ICTs as new inventions require knowledge and skills which most people in Kenya do not have (Kwanya, 2009).

2.9.2. Socio-cultural factors

Socio-cultural factors deals with the issues like: gender, age, social class, economic status which give way to inaccessibility of ICTs, lack of awareness of and finally, the inability to afford the ICT services. Women and youth who are said to be the majority belong to these groups and generally they are at disadvantage of using ICT effectively.

2.9.3. High costs of providing ICTs

Kwanya (2009) states that when we talk of purchasing, accessing and maintaining ICT services and equipment, it is beyond the reach of many Kenyans. This is because of the huge amount of money that is involved. About 56% of the population of Kenya lives in

abject poverty and for this reason ICTs services have been considered as less important since many families that are struggling to get their daily bread (food) could not afford it.

2.9.4. Inadequate ICT legislation

Before the year 2006, Kenya as a Country was not having any concrete legislation which will regulate the use of ICTs. As a result of this gap, an ICT policy was drafted in the same year but the studies have shown that this too is not helping the situation (Kwanya, 2009).

2.9.5. Nearness of ICT services

ICTs and all other related services are said to be concentrated in mainly in urban areas, leaving out those who are in the rural environments. Such people will never have access to ICT services, and when they join Universities in urban areas, they will not find it easy.

2.9.6. Shortage of infrastructures

Basic infrastructures like electricity and telephone services which will make the use of ICTs effective, have not reached most places in Kenya. About 80% which is the majority of Kenyans live in the areas where such amenities are not available or they are in pitiable conditions.

The above observations have continued to jeopardize the wide spread and proper utilization of ICTs in Kenya (Kwanya, 2009).

2.10. Challenges faced by the lecturers

A survey conducted by Amutabi, (2004) in Ogula *et al*, (2009), on the use of ICT in Kenyan Universities, shows that some lecturers resist the use of ICTs in University teaching and learning due to the following reasons:

- The lecturers are not familiar with the new technologies and besides it requires additional time and effort for its proper use.
- Poor internet connectivity and limited access in some universities are other contributory factors.
- Shortage of well trained technicians to maintain ICT tools, and also inadequate power supply in some parts of the Country.
- Poorly developed University websites, and some lecturers even see it as a threat to their professional role in the traditional method of teaching and learning.
- In some Universities, their computers are very old which makes it very difficult for them to run newly developed sophisticated software.

These are some of the challenges that ICT in education pose to the lecturers who are now under the pressure to make use of ICT tools in University teaching and learning. If the lecturers are not well equipped in terms of ICT integration in teaching and learning process, students who will be under them will definitely suffer the consequences. They will not be properly integrated in the use of ICTs in education (Ogula *et al*, 2009).

2.11. Challenges faced by the students

Other challenges in adopting ICTs in University teaching and learning are students' competence and attitude in the use of ICT tools which are against the traditional methods of teaching and learning. Some students did not have enough knowledge on the use of ICTs before joining Higher Institutions of teaching and learning and this makes it difficult for them to bring positive attitude with them and utilize very well ICT tools in their academic pursuits (Ogula *et al*, 2009).

Provision of adequate ICT tools is also a big challenge to most Educational Institutions. Students are more than available ICT tools. There is also lack of clear policy on the use of ICTs in the Universities and this makes the whole process lose its focus. ICTs are new inventions and the adoption of them in the University teaching and learning opposes the traditional methods. It is strange to most students in developing Countries especially in Africa. Sometimes, due to lack of clear policy on the use of ICTs in education, the needs and perceptions of the students who are at the centre of teaching and learning are not adequately taken care of. For this reason, there is an urgent need to re-consider their needs and attitudes in adoption of ICTs in teaching and learning process at the university level. This study investigates how the use of ICT in university teaching and learning at the Tangaza College creates challenges to the students (Ogula *et al*, 2009).

2.12. Challenges faced by the students as a result of availability and accessibility

Lwoga and Sanga (2007) affirms that despite all the progress that have been made in universities in Africa in terms of implementing ICTs in the processes of teaching and learning, Some Universities are still facing a lot of challenges in undertaking such a process. Below are some of these challenges:

2.12.1. Lack of systematic approach to ICT implementation

The whole idea of adoption and Integration of ICTs in education is something that has to be clearly defined at the very beginning. However, this does not seem to be the case in many Institutions of Higher Learning in developing Countries (Africa). This is because most of them have welcomed the idea of ICT integration process without first of all putting in place clear plans or policies that will give them direction (Lwoga *et al*. (2007).

The diversity and competing interests of different stakeholders in the institution should all be recognized when developing ICT policies and a strategic plan of any given institution. Below are some of the issues that require attention when dealing with the implementation of ICT tools:

- (i) ICT resources that are already there in the institutions.
- (ii) Number of staff and students in each department and the way in which it grows.
- (iii) Academic management process, for instance: curriculum development, assessment methods and administration.
- (iv) Staff development in the new technologies. Lwoga *et al.*, (2007) made the above observations.

2.12.2. Awareness and attitude towards ICTs

It is important for all those that are involved in providing ICTs in various Institutions of Higher Learning to know the existing ICT facilities and services and their importance in relation to the functions they perform. According to Tusubira and Mulira (2004), there is a cloudy knowledge about what ICTs are all about among some students. Some are referring to them (ICTs) as advanced technologies which require a lot of money and also advanced skills for the users. Lack of awareness goes hand in hand with attitude. When people have positive and right attitude towards the use of ICTs, it will be widely recognized as a necessary condition for its effective implementation. Awareness and attitude pose a problem when those who are to use ICTs have little knowledge.

2.12.3. Administrative support

Administrative support is very important to the successful integration of ICTs into teaching and learning processes. Administrators should be able to provide certain conditions that will favour ICT implementation, take for instance, ICT policy, incentives and resources. The commitment and interest of the top management and other stakeholders of institutions at every level is the most important factor which will lead to a successful implementation of ICTs (Lwoga *et al.* 2007).

According to Cameron and Ulrich (1986), as quoted in Lwoga *et al* (2007) a transformational leadership has got to do with the leadership which involves a process of fundamental change and it requires institutions to adapt to changes that are brought about by the development in information society. Dwyer *et al* (1997) in Lwoga *et al*, 2007) also laid more emphasis on the fact that for the integration of ICTs to be efficient and sustainable, administrators of institutions themselves must have all the required skills in the use of ICT in education, and also have a wide understanding of the technical, pedagogical, administrative, financial, and social dimensions of ICTs in education which will enable them to cope with the challenges faced by the students in the use of ICTs. As far as administrative support is concerned, most institutions in Africa are still facing a lot of challenges.

2.12.4. Inadequate funds

Financial capability is the main key factor to the successful implementation and integration of ICTs in education. It is certain that those countries with higher financial resource bases are likely to have a good chances than those with limited resources in

terms of getting the benefits offered by ICTs in University teaching and learning. When the Institutions are not able to fund ICT resources it will definitely affect the students who are at the centre of teaching and learning. (<http://ijedict.dec.uwi.edu/viewarticle.php?id=246>)

2.12.5. Staff development

Lecturers are the ones who take the lead in use of ICTs in the university teaching and learning. For this to be efficient the management of institutions should be able to give its staff up-to-date training in line with the changes that are taking place every day in the ICT development. Where such initiative is lacking the implementation of ICTs in teaching and learning process the students may face a lot of difficulties (Lwoga *et al.* (2007).

2.12.6. Technical support

This has got to do with installation, maintenance, network administration and security. These are all very important aspects as far as the implementation and integration of ICT in educational system is concerned. Most of the time, technical support is not available, which means that trainers or students of the universities may require some basic troubleshooting skills to overcome technical problems when using ICTs. However, in most of the developing Countries like Kenya there are very few technical experts to implement and maintain ICTs (Bakari *et al.*, 2001). Fitting strategies should be put in place to make sure that integration of ICTs in teaching and learning process is incorporated with the employment, training, and retaining of the number of staff that are required.

2.13. ICT policy in Kenya

Farrel, (2007) on ICTs in education in Kenya, states that Kenya as a country has made a very tremendous progress by putting together an ICT policy framework and also implementing strategy that will bring about the efficient utilization of ICT tools. Kenya promulgated National ICT policy in 2006 and the main aim is to improve the livelihoods of Kenyans by making sure that ICT services are available always and affordable as well. This policy covers three major aspects: telecommunications (telephone communications), broadcasting (radio and TV) and internet (Kwanya, 2009). It may be under national, regional or international and each level may have its own decision bodies. One of the objectives of this policy is to encourage the use of ICTs in schools, colleges, universities and other higher institutions of learning to improve the quality of teaching and learning as opposed to the traditional approach (<http://www.infodev.org>).

The challenge today is how far this policy has helped the students in the process of teaching and learning. What about other sectors? An evaluation of this policy indicates that many educational institutions in Kenya are still finding it quite challenging in terms of its provision and implementation (Kwanya, 2009).

The government of Kenya has to be commended for coming up with a policy on how to utilize ICT tools in Kenyan system of education. The question is not based on coming up with a policy but how far this policy has been implemented and sustained so as to achieve its desired results in the process of teaching and learning. Experience has shown that in most African countries, the students who are at the centre of teaching and learning are not adequately put into consideration while making such policies. For such policy to yield its aim, challenges that are facing the students in using these ICT tools must be addressed.

2.14. Challenges of ICT policy in Kenya

There are a good number of challenges that are facing the proper integration of ICTs in all sectors of life in Kenya, especially in education. Below are some of these challenges according Kwanya, (2009):

2.14.1. Mission/vision of the policy is too general

This means the policy did not identified some key areas where priority is to be given. Take for instance; we have e-commerce, e-learning, e-government, among others, which one is to be given first priority in terms of development? This has created a gap in the policy and that is why the use ICTs in the Universities is not taken serious.

2.14.2. Development process

The government is to be commended in her effort to involve other stakeholders in the development of this policy; nothing had been done to include the masses who are mostly the beneficiaries of ICTs. This makes the policy to be regarded as elitist policy. The main drivers for this were the government through the Ministry of Information and Communication, civil society through Kenya ICT Network, private sector through Kenya ICT Federation (KIF). Government is said not to be under any obligation of including the views of the general public or other stakeholders. This undoubtedly makes the policy undemocratic (Kwanya, 2009).

From every indication available, the Kenyan ICTs policy has not solved the problem of digital divide. There is still shortage of provision of infrastructures in the country and this weighs down the smooth running of ICTs in all sectors of life in the country.

2.15. Fiber Optic Communication System

According to Massa (2000), Optic fiber can be defined as a medium for transmitting information from one point to another in the form of light. Different from copper form of transmission of information, optic fiber is not electrical in nature. It is a fundamental optic fiber system which is made up of a transmitting device which converts an electrical signal into a light signal, an optical fiber cable that carries the light, and a receiver that accepts the light signal and converts it back into an electrical signal. The complexity of an optic fiber system can range from very simple (that is to say, local area network) to extremely sophisticated and expensive one (that is, long distance telephone or cable television trunking).

It was first developed in the 1970s; fiber-optic communication systems have revolutionized the telecommunication industries and have played a vital role in the inception of the Information Age. Because of its advantages over electrical transmission, optical fibers have largely replaced copper wire communications in core networks in the developed world. It facilitates the use of ICTs in our communication system.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.0. Introduction

According to Kothari (2004) research methodology is a way to systematically solve research problems. This means the procedure to be followed in order to solve research problems.

This chapter describes the research design and methodology that was used in this study. It includes the following: research design, the target population, description of the sample and the sampling procedure, the research instrument, data collection procedure, and data analysis procedures.

3.1. Research Design

Research design is considered as an arrangement of conditions for collecting and analyzing data and it aims at achieving the importance of the research purpose. Kombo and Tromp (2006) further defines it as the structure of research, the “glue” that is holding all the elements of research project together. Kothari (2003) in Kombo *et al.*, (2006) states that research design constitutes the basic design/plan (blueprint) for the collection, measurement and analysis of data.

In this study, descriptive survey design was used to conduct the research. According to Orodho (2003) as quoted by Kombo and Trompo (2006) descriptive survey is a method of collecting information by interviewing or by administering of questionnaire to a sampled population. This survey design that was used by the researcher is considered as the most suitable means for collecting data that is quantitative and also data that is qualitative. It was good in measuring the challenges that both staff and students of

Tangaza College face in the use of ICTs in university teaching and learning. Tangaza College as an Institution of Higher Learning, situated in the suburbs of the city of Nairobi has enough students that will provide all the suitable information that are required in the research.

3.2. Target Population

According to Kombo *et al.*, (2006) a population refers to a group of individuals, objects or items from which samples are taken for measurement. Singh (2007) shares the same view with kombo *et al.*, (2006). Khan, (2008) asserts that a population can be referred to as the whole from which a sample is drawn. Population is any group of people with common characteristics and of interest to the researcher (Singh, 2007). For the sake of this study, the target population was taken from Tangaza College lecturers (6) and students (40).

3.3. The Sample

Kombo and Tromp (2006) defines a sample as a set of people selected from a larger population for the purpose of a survey. This is the population that has been chosen from the larger population with the main aim of collecting information.

According to Singh (2007) sample refers to a finite part of a statistical population whose properties are studied in making estimates that concerns the entire population. When we are dealing with the population of human beings, sample can be defined as a set of target respondents which has been chosen from the larger population for the sake of a survey. It is also referred to as a small proportion of a population that will be used for a study (Singh, 2007). A sample is said to be very important for the researcher because it will

enable him to get the information that he is seeking for and make generalization. The reason for having a sample in any study is that it might be difficult for a researcher to carry out a study on the whole population.

In this study a sample of total number of forty six (46) individuals has been used by the researcher, from a population of one thousand two hundred and forty seven (1,247). Forty (40) were students from various porgrammes of different years and six (6) of them were lecturers from the same college.

3.4. Sampling Procedures

Orodho and Kombo, (2002) as quoted in Kombo *et al.*, (2006) defines sampling procedures as a process of selecting a number of individuals or objects from a population so that the population or group that has been chosen has all the characteristics that are found in the entire population. The term “sampling” means the selection of a part of group or the whole group with the purpose of collecting complete information, a specific plan to get sample from a given population (Khan, 2008). The researcher used a stratified random sampling technique. In this method, the population is divided into identical subgroups and then a given number of individuals are selected randomly from each subgroups of the population. The number selected from each subgroup was proportional to the number of individuals in the subgroup (Kombo *et al.*, 2006). The researcher made proper inferences using these procedures.

3.5. Description of Research Instruments

Kombo, *et al.*, (2006) states that research instruments are those tools that are used by the researcher to collect data in the process of a study. This has got to do with questionnaire,

interview schedules, observation, and focus group discussions. The type of research instrument that was used in this study by the researcher was questionnaire, for both lecturers and students.

3.6. Data Collection Procedures

Kombo, *et al.*, (2006) refers to the process of gathering of specific information which will be used in proving or refuting some facts. The researcher in this case must have a clear vision of the instruments to be used. In this study, data was collected from primary sources through the use of questionnaire, that is to say, it was collected directly from the respondents. The researcher obtained a permission letter from the Dean of students, Marist International University College, requesting the Dean of Students, Tangaza College to allow the researcher to collect data from the sampled Institution. The researcher administered the questionnaire personally to the respondents (lecturers and students).

3.7. Data analysis

Kombo and Tromp (2006) states that data analysis refers to examining the data that has been gathered or collected in a survey so as to make adequate deductions and inferences. This means that after the researcher had collected the questionnaire, he organized and grouped the responses according to the research questions he administered to the respondents. For this study the data collected was analyzed using frequency distribution tables and percentages, and to interpret the data, the researcher also used tables. SPSS, which means: Statistical Package for Social Sciences was also used in the process of analyzing the data. For this kind of data analysis SPSS is considered very useful and efficient.

CHAPTER FOUR

DATA ANALYSIS, FINDINGS AND DISCUSSIONS

4.1. Introduction

This chapter deals with the analysis of the data collected through questionnaire and the interpretation of the findings which were based on the research questions. The data collected were analyzed using descriptive statistics and presented in pie charts, graphs, tables and percentages. The discussions in this chapter were centred on the items included in the questionnaire for both the students and the lecturers. The main reason for the study was to investigate in detail the challenges faced by the students in the use of ICTs in University teaching and learning: A case study of Tangaza College, Nairobi.

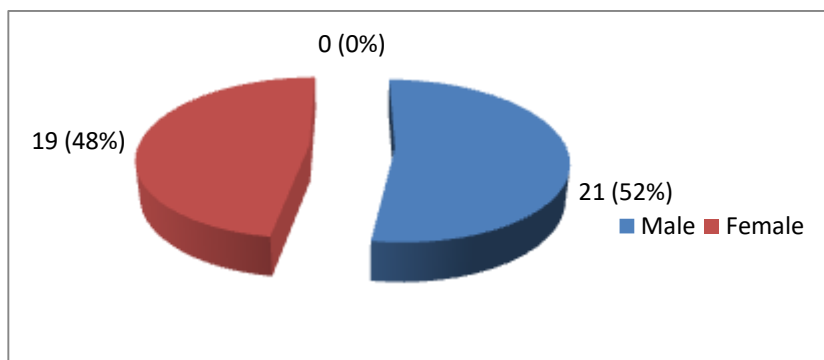
The analysis was done in two sections: section one deals with the students' background information, availability and accessibility of ICTs, policies in the use of ICTs, and how lecturers' use of ICT resources pose challenges to the students. On the other hand, section two presents lecturers' background information, availability and accessibility of ICTs, policies in the use of ICTs, and how lecturers' use of ICT resources pose challenges to the students. The reason for this separation is that the question items in both students and lecturers' questionnaire are not the same. The students responded to fifteen close-ended questions, while the lecturers answered fifteen close-ended questions and three open-ended questions. The samples in the study consisted of forty (40) students and six (6) lecturers of Tangaza College.

4.2. Students Demographic Information

4.2.1. Gender of the Students

The study sought for information about the gender of the students which were meant to make available information on the challenges faced by the students in the use of ICT resources in the university teaching and learning. The responses are presented on the pie chart below.

Figure 4.1. Distribution of Students by Gender

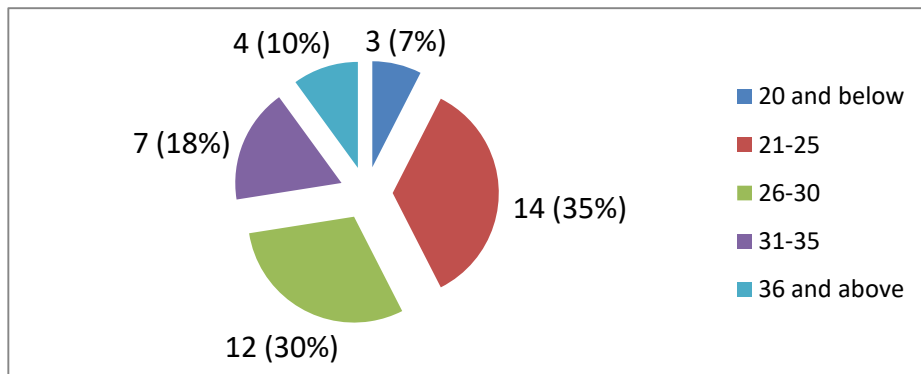


The pie chart above shows that the male respondents were 52%, while the female respondents were 48%. The data above indicates that the percentages of gender of both male and female students is almost the same. This means an almost equal representation of male and female students.

4.2.2. Age of Students

The information about the age of the students was sought by the researcher. This enabled the researcher to determine the age differences of the students. The pie chart below represents the value and percentages of the respondents.

Figure 4.2. Distribution of Students by Age

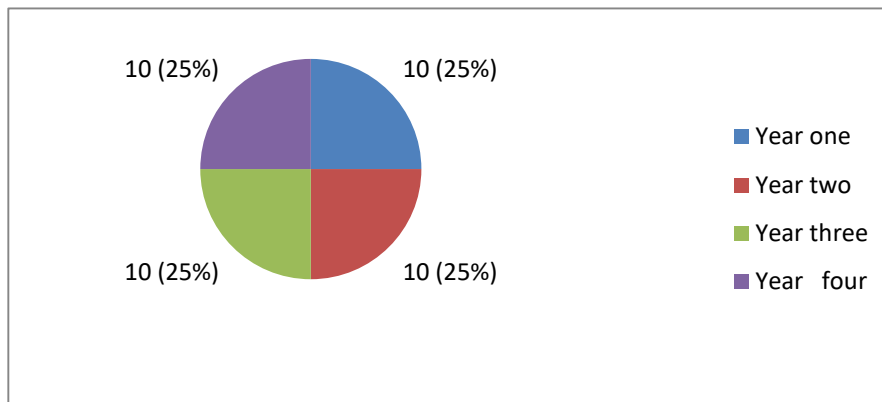


The Pie chart above shows that the number of students below the age of 20 were 7%; those between the age of 21-25 years were 35%; between 26-30 years were 30%; between 31- 35 years were 18%; and 36 years and above were 10%. The data above indicates that the majority of the students were 21 years and above. This implies that the population considered was a young population.

4.2.3. Students Year of study

The pie chart below presents various students' years of study. The researcher used questionnaire to gather the information from the students.

Figure 4.3. Distribution of Students according to year of study



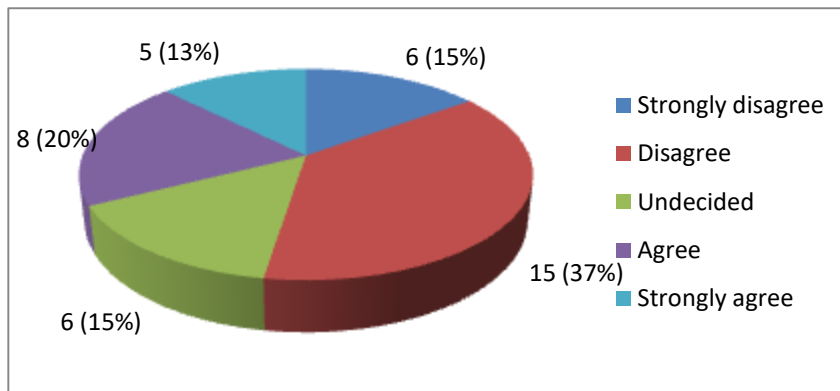
The pie chart 4.3, shows that 25% of those who responded are first year students, 25% are from second year, those in third year are 25%, while students in the fourth year are 25%. This means that there was equal representations across the target population.

4.3. AVAILABILITY AND ACCESSIBILITY OF ICTs.

4.3.1. The availability of computer

The researcher wanted to find out if the number of computers provided were enough according to the students. The pie chart below shows the students' responses.

Figure 4.4. Availability and accessibility of ICTs



The pie chart above indicates that 15% of the respondents strongly disagreed; 37% disagreed; 15% were undecided; 20% agreed with the statement; and 13% strongly agreed. This implies that the number of students who disagreed that there is enough computers are the majority, 52%, while those who agreed that the number of computers provided is enough are less with 33%. However, 15% of the respondents were undecided.

This findings shows that the availability and accessibility of ICT resources (computers) is not adequately taken care of. This is a big challenge to the students because it means

many students sharing the few available computers and the individual students may not have enough time to make good use of the ICT resources.

4.3.2. Effectiveness of ICT tools as supplement to traditional education.

The researcher sought to investigate the effectiveness of ICT tools over traditional way of teaching and learning. The frequency table below shows the responses of the students.

Table 4.1. Distribution of Students’ response on the statement “ICT tools are an effective supplement to traditional education.”

Response	Frequency	Percentage
Strongly disagree	2	5.0
Disagree	3	7.5
Undecided	4	10.0
Agree	16	40.0
Strongly agree	15	37.5
Total	40	100.0

Table 4.5 above shows that 5% of the students strongly disagreed that ICT tools are an effective supplement to traditional education, 7.5% disagreed, while 10% of the respondents were not decided, 40% agreed and 37.5% strongly agreed with the statement. From these findings, we can conclude that the great majority (77.5%) of the respondents are in agreement that ICT tools are an effective supplement to traditional education, while those who disagreed are 12.5%. This shows that the students of Tangaza College appreciate the use of ICTs in University teaching and learning as a supplement to traditional.

4.3.3. Use ICT of tools in all academic activities

This table below is about the use of ICT tools in all academic activities. The inclusion of ICTs in education is playing a very crucial role in the learning environments. The researcher examined the extent to which students utilize ICT resources in all their academic activities.

Table 4.2. Distribution of Students' response on the statement "I always use ICT tools in all my academic activities."

Response	Frequency	Percentage
Strongly disagree	7	17.5
Disagree	10	25.0
Undecided	9	22.5
Agree	8	20.0
Strongly agree	6	15.0
Total	40	100.0

Looking at the data above, the number of students that strongly disagreed with the statement above is 42.5%, 22.5% were undecided, while 35% agreed with the statement, that they use ICT tools in their academic activities. This means that larger number of the students were of the views that they do not always use ICT tools in all their academic activities. This finding implies that some students at Tangaza College are facing some challenges in the use of ICT resources in their academic activities. This may be as a result of inadequate ICT resources and lack of experience on how to use them.

4.3.4. Awareness of the importance of ICT tools in teaching and learning.

The researcher sought to find out whether the students were aware of the significance of ICTs in education or not. Questionnaire were distributed to the respondents who gave their responses according to the statement. Below is the table which shows their levels of agreement and disagreement.

Table 4.3. Distribution of Students' response on the statement "I am aware of the importance of ICT tools in teaching and learning."

Response	Frequency	Percentage
Strongly disagree	1	2.5
Disagree	4	10.0
Undecided	2	5.0
Agree	15	37.5
Strongly agree	18	45.0
Total	40	100.0

The data presented in the table above shows that 12.5% of the students disagreed with the statement that they are aware of the importance of ICT tools in teaching and learning, 5% are undecided, while 82. 5% agreed.

The finding here shows that 82.5% of the students knows the importance of ICT tools in our modern method of teaching and learning. It is a clear sign that Tangaza students are benefitting a lot from ICTs resources.

4.3.5: The availability of internet services

Here the researcher examined the availability of internet services within the college. He wanted to find out whether students always had internet services whenever they needed it. Below is the table representing students' levels of responses.

Table 4.4. Distribution of Students' response on the statement "I always have internet services whenever I want to use it within the college."

Response	Frequency	Percentage
Strongly disagree	6	15.0
Disagree	13	32.5
Undecided	8	20.0
Agree	10	25.0
Strongly agree	3	7.5
Total	40	100.0

The table above indicates that 47.5% of the students disagreed with the statement, 20% of them were undecided, and 32.5% agreed that they always have internet services whenever they wanted it within the College. Internet services are very vital in the academic life of University students. These days, many libraries across the globe are online. The finding here shows that the majority of the students did not have access to the internet services. This poses challenges to the students.

4.4. POLICIES IN THE USE OF ICTs

4.4.1. Policies in the use of ICT tools

Functional policies in the use of ICTs resources are very important in the process of teaching and learning. The researcher used the information in the table below to determine whether there are functional policies in the College or not.

Table 4.5. Distribution of Students’ response on the statement “I am aware of functional policies in the use of ICT tools in the college.”

Response	Frequency	Percentage
Strongly disagree	6	15.0
Disagree	15	37.5
Undecided	7	17.5
Agree	7	17.5
Strongly agree	5	12.5
Total	40	100.0

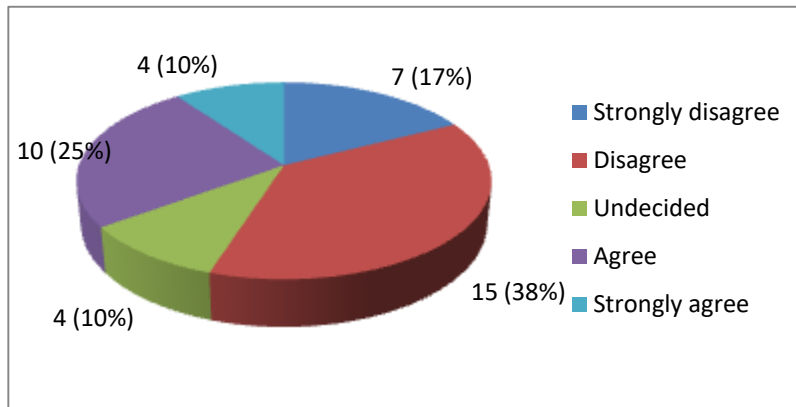
According to the figures presented above, 52.5% of the students disagreed with the statement above, 30% agreed, while 17.5% of them were undecided on whether there are functional policies in the use of ICTs at the College.

The findings indicate that the policies in the use of ICTs may be in existence but the majority of the students (52.5%) may not have been aware of the way they are operating. This is because most students expressed their views that they were not aware of any functional policies in the College. Their challenge here is that they will not be guided towards the right direction in achieving ICTs goals in education.

4.4.2: The implementation of ICTs policies

Making policies is one aspect while implementing them accordingly is another aspect which should go together with its formation. The researcher sought for information on ICTs policy implementation in the College.

Figure 4.5. Distribution of Students' response on the statement "The Policies are being implemented to suit the needs of fast growing ICT technologies."



The pie chart above presents the responses from the students which show that 55% of them disagreed with the statement, and while 10% were undecided, 35% agreed with the statement about the implementation of ICT policies in teaching and learning process.

The findings indicate that majority of the students (55%) were of the opinion that they were not aware of how these policies are being implemented to suit the fast growing ICT technologies in the College. For this reason we can make a conclusion that the functional policy implementation strategy in the College may not have been given a serious consideration. This may lead to students having the challenge of not receiving uniform training from their teachers.

4.4.3: The involvement of Students in making of the policies

In the process of teaching and learning today, the emphasis is no longer only on the teacher who was considered as possessing all knowledge. Learners are at the centre of

teaching and learning. As to whether the students' opinions were sought before making the policies, the researcher got the following responses.

Table 4.6. Distribution of Students' response on the statement "Students' opinions were sought before making the policies."

Response	Frequency	Percentage
Strongly disagree	13	32.5
Disagree	13	32.5
Undecided	10	25.0
Agree	3	7.5
Strongly agree	1	2.5
Total	40	100.0

The table above represents students' different levels of responses with regard to the statement. 65% of the students disagreed, 25% were undecided, while only 10% of them agreed. This means that most students (65%) indicated that students' opinions were not sought before making the ICT policies.

From the findings we can draw a conclusion that students were not consulted before the policies on ICT resources were made. This is manifested in the responses that the students gave. We can draw conclusion here that students will face the challenge of not being integrated in the decision making of what will benefit them, thereby imposing the policies on them.

4.4.4. Effective and efficient utilization of ICT tools

To determine the extent to which the policies are helping the students in the effective and efficient utilization of ICT tools, the researcher used questionnaire to gather information from the students. The table below shows how they responded.

Table 4.7. Distribution of Students' response on the statement "The Policies help me in the effective and efficient use of ICT tools."

Response	Frequency	Percentage
Strongly disagree	6	15.0
Disagree	12	30.0
Undecided	9	22.5
Agree	8	20.0
Strongly agree	5	12.5
Total	40	100.0

The table above indicates that 45% of the students disagreed, 22.5% were undecided, and 32.5% agreed with the statement; "the Policies help them in the effective and efficient use of ICT tools in their academic activities." According to this data, 45% of the students did not agree with the statement, 32% of them agreed.

The findings show that the policies are not helping the students to utilize ICT tools effectively and efficiently. This is because majority of the students were not of the opinion that the policies are helping them in the ICT usages. This may be caused by not having proper idea of existing policies in the college. Students may face challenge in terms of effective and efficient utilization of ICT tools, since they do not participate in the policies making process.

4.4.5. Adherence to ICTs policies

In order to find out whether the management is making sure these policies are strictly adhered to by all, the researcher sought information from the students to determine the levels of their agreement and disagreement.

Table 4.8. Distribution of Students' response on the statement "The management always ensures that these policies in the use of ICT tools are adhered to all the time."

Response	Frequency	Percentage
Strongly disagree	5	12.5
Disagree	13	32.5
Undecided	8	20.0
Agree	11	27.5
Strongly agree	3	7.5
Total	40	100.0

The tables above shows that 45% of the respondents disagreed with the statement, 20% were undecided, 35% of the respondents agreed. From this table it appears 45% of the students, which is high, disagreed with the statement, while those who agreed were 35%.

The findings shows that majority of the students have not witnessed how the Management is making effort to see that the policies are being adhered to by all. Therefore, we can conclude that students will face the challenge of feeling that they are not being supported by the Management.

4.5. HOW LECTURERS' USE OF ICT RESOURCES POSE CHALLENGES TO THE STUDENTS

4.5.1. Competency in the use of ICT resources

Skills in the use of ICT resources are very essential to all the lecturers of our time. This is because all educational systems these days advocates for the use of ICTs in the process of teaching and learning. The researcher sought to find out how competent the lecturers of Tangaza College are in terms of ICTs usages. The table depicts students' view points.

Table 4.9. Distribution of Students' response on the statement: "Most lecturers are competent in the use of ICT resources."

Response	Frequency	Percentage
Strongly disagree	4	10.0
Disagree	15	37.5
Undecided	10	25.0
Agree	9	22.5
Strongly agree	2	5.0
Total	40	100.0

The table above presents the Students' responses on the statement "Most Lecturers are competent in the use ICT resources." 47.5% of them disagreed, 25% were undecided, and 27.5% agreed with the statement. This shows that 47.5% of the Students failed to agree that most Lecturers are competent in the use of ICT resources in the process of teaching and learning.

From the findings above we make a conclusion that most Lecturers are not seen by the Students to be competent in the use of ICT resources. This was based on the information

provided by the Students who responded negatively to the statement. This will pose challenges for the Students with regard to being guided by the Lecturers who are not, according to Students, well equipped with up-to-date ICT skills.

4.5.2.: Attitude towards the use of ICT resources.

An attitude plays a major role in creating rapport between students and lecturers. For students to learn properly from their lecturers, there must be a positive mind on the side of lecturers in terms of their approach to the use of ICTs in teaching and learning process. The table below shows the levels of students' responses concerning lecturers' attitudes towards ICT technologies.

Table 4.10. Distribution of Students' response on the statement: "Most lecturers have positive attitude towards the use of ICT resources."

Response	Frequency	Percentage
Strongly disagree	2	5.0
Disagree	18	45.0
Undecided	4	10.0
Agree	13	32.5
Strongly agree	3	7.5
Total	40	100.0

In this table above, 50% of the students disagreed with the statement, 10% were undecided, while 40% of them agreed with the statement.

The findings show that most lecturers are still finding it difficult to embrace these new technologies in the process of teaching and learning. This might be caused by lack of training and inadequate time to prepare. This will pose challenges to students who are under pressure to use ICT resources in all their academic activities.

4.5.3: Most lecturers guide the students adequately on how to use ICT resources

Students require competent and understanding lectures that will be able to guide them adequately in the process of acquiring ICT skills. The table below indicates the responses of students about how the lecturers guide students in the use of ICT resources.

Table 4.11. Distribution of Students' response on the statement: "Most lecturers guide the students adequately on how to use ICT resources."

Response	Frequency	Percentage
Strongly disagree	4	10.0
Disagree	13	32.5
Undecided	10	25.0
Agree	11	27.5
Strongly agree	2	5.0
Total	40	100.0

In the table above 42.5% of the students disagreed with the statement 25% were undecided, while 32.5% agreed. The findings show that not all the lecturers guide the students adequately in the use of ICT resources, since the majority of them responded negatively. This will create challenge for the students who are faced with the age of ICT technologies. They will not know how to use ICTs properly.

4.5.4. Use of ICT Resources in the Classroom Presentations.

Many institutions are now under pressure to adopt the use of ICT resources in the classroom settings. This is because this new approach to process of teaching and learning equips the learner with life-long skills and create in him/her lasting experience. Below is

the table which represents how the students felt about the lecturers' use of ICTs in classroom presentations.

Table 4.12. Distribution of Students' response on the statement: "Most lecturers make use of ICT resources in classroom presentations."

Response	Frequency	Percentage
Strongly disagree	2	5.0
Disagree	16	40.0
Undecided	9	22.5
Agree	10	25.0
Strongly agree	3	7.5
Total	40	100.0

The table above shows the responses of the students to the statement. 45% of them disagreed, 22.5% were undecided, while 32.5% agreed with the statement.

The findings show that the total number of students who disagreed (45%) with the statement is more than those who agreed (32%). This shows that most lecturers may not be using ICT resources in their classroom presentations. The students who may likely be the future lecturers will find it difficult to use ICTs if they are not fully exposed to ICTs while studying at the University.

4.5.5. Giving lessons and receiving assignments online.

One of the main purposes of giving lessons and receiving assignments online is to help the students discover how to handle documents and make further research using internet. Nowadays some Universities have introduced online programmes (E-learning) whereby students do not need to go physically to the Universities they wish to study, but rather

carry out their studies online. The table below gives the information about how lecturers give lessons and also receive assignments online.

Table 4.13. Distribution of Students' response on the statement: "Most lecturers give lessons and receive assignments online."

Response	Frequency	Percentage
Strongly disagree	8	20.0
Disagree	13	32.5
Undecided	10	25.0
Agree	6	15.0
Strongly agree	3	7.5
Total	40	100.0

The table above shows that 42.5% of the students disagreed with the statement, 25% of them were undecided, while 22.5% agreed that they have observed lecturers giving lessons and receiving their assignments online.

According to the findings, most lecturers do not give lessons and receive assignments online. This is because majority of the students (42.5%) did not agree that most lecturers use online programmes to teach and receive class assignments. This will pose challenges especially for the students who may wish to continue their post-graduate courses through distance learning. .

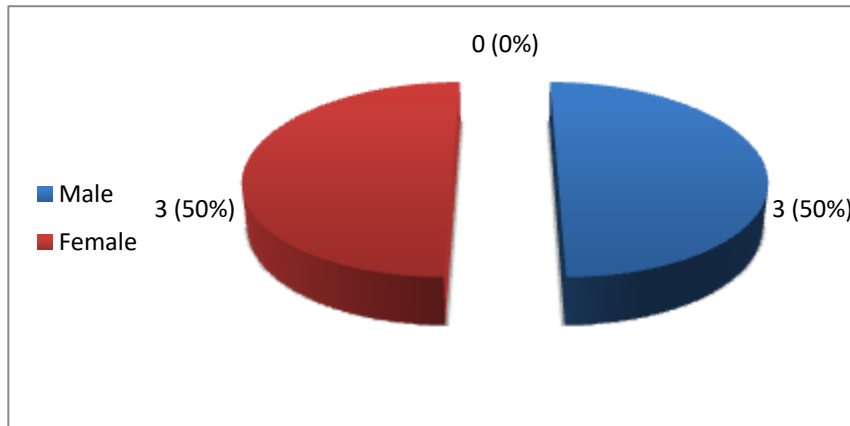
SECTION FOR LECTURERS

4.6. Demographic information about lecturers

4.6.1. Lecturers Gender

The consideration about the gender of the sampled leacturers was made and the researcher selected both male and female lecturers in this study. The pie chart below shows lecturers' gender.

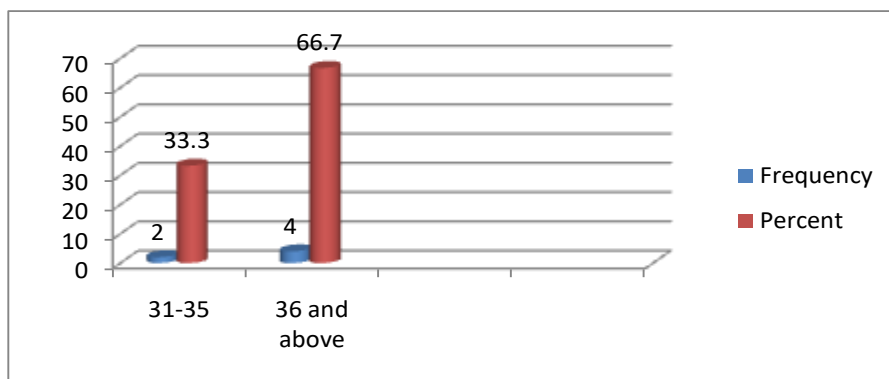
Figure 4.6. Distribution of lecturers by gender.



The pie chart above shows that 50% of them were male lecturers, while 50% also were female lecturers. This shows that the percentages of both male and female Lecturers used in this research work is equal.

4.6.2.: Lecturers' Age

Figure 4.7. Distribution of lecturers by Age



The above table shows the age brackets of the lecturers. 33.3% of them are in their thirties, that is, between 31-35 years, while 66.7% of the lecturers are under 36 years and above. The findings show that majority of the sampled lecturers are under 36 years and above and this shows that they have gained a lot of experiences in the process of teaching and learning at the university level.

4.6.3. Years of Teaching Experience for Lecturers at the University level.

The researcher sought for information about the years of lecturers in the College to determine their experiences in the process of teaching and learning at the University.

Table 4.14. Distribution of Lecturers according to their Years of Experience at University level.”

Response	Frequency	Percentage
1-4 years	1	16.7
5-10 years	4	66.7
20 years and above	1	16.7
Total	6	100.0

The table above shows that 16.7% of the lecturers is having between 1-4 years experience in the teaching and learning process, 66.7% were between 5-10 years, while 16.7% of them have experienced teaching and learning for 20 years and above.

This findings show that most lecturers who took part in the study are under 5-10 years of experience in the process of teaching and learning at the university level. It means that most of them have spent not less than five years in teaching profession.

4.7. AVAILABILITY AND ACCESSIBILITY OF ICTs.

4.7.1. Availability and accessibility of ICTs for class presentations.

For lecturers to make their class presentation successfully there must be adequate supply of up-to-date ICT resources. Below is the table which shows lecturers' responses with regard to whether they had enough ICT resources to make their class presentations or not.

Table 4.15. Distribution of lecturers' response on the statement: "I always have enough ICT resources to make my class presentations."

Response	Frequency	Percentage
Strongly disagree	0	00.0
Disagree	3	50.0
Undecided	1	16.7
Agree	2	33.3
Strongly agree	0	00.0
Total	6	100.0

50% of the lecturers who responded disagreed that they had enough ICT tools to make their class presentations, 16.7% were undecided, while 33.3% agreed with the statement. In these findings 50% which is the majority of the lecturers disagreed with the statement. This shows that most lecturers did not have enough ICT resources to make their class presentations. The challenge that the students will face here is unavailability and accessibility of ICT resources, since the lecturers will not be able to introduce them to ICT technologies. They will not be fully equipped with ICT skills.

4.7.2.: The university website is well developed.

The importance of internet in our educational systems today can never be over emphasized. This is because education these days is going online and institutions of higher learning are being encouraged to embrace and utilize these new technologies. This table below presents the responses of the lecturers about the website of the College.

Table 4.16. Distribution of Lecturer’s response on the statement: “The university website is well developed and I use it efficiently.”

Response	Frequency	Percentage
Strongly disagree	1	16.7
Disagree	2	33.3
Undecided	1	16.7
Agree	0	00.0
Strongly agree	2	33.3
Total	6	100.0

The table above presents the responses of the lecturers on the statement above. 50% of the lecturers disagreed, 16.7% was undecided, while 33.3% of them agreed with the statement.

The findings here indicate that majority of the lecturers are not using the website efficiently. This may be caused by lecturers' lack of experience, unwillingness to embrace the new system of teaching and learning, and poorly developed website.

4.7.3. Constant maintenance on the ICT resources.

In order to keep the ICT resources functioning always there must be regular maintenance on them. This will enable the lecturers to continue using ICT resources always. The researcher wanted to find out whether there is constant maintenance on the existing ICT resources that lecturers use. The information gathered is presented in the table below.

Table 4.17. Distribution of lecturers' response on the statement: "There is constant maintenance on the ICT resources that I use."

Response	Frequency	Percentage
Strongly disagree	0	00.0
Disagree	2	33.3
Undecided	2	33.3
Agree	0	00.0
Strongly agree	2	33.3
Total	6	100.0

From the above table, 33.3% of the lecturers disagreed, 33.3%, were undecided, while those who agreed with the statement were 33.3%. This means that those who agreed and those who disagreed have the same percentage.

The findings indicate that there is maintenance on the ICT resources but it is not under regular basis. In this type of situation, lecturers may find it very difficult to work efficiently using ICT resources. If there is no constant maintenance on the existing ICTs, the students will face a lot of challenges.

4.7.4. Availability of internet services.

The availability of internet services in the College is vital to both lecturers and students. It makes academic experiences memorable and this is because it helps the Lecturers and Students to carry out further research in their academic activities. Lecturers' responses on the availability of internet services are represented in the table below.

Table 4.18. Distribution of lecturers' response on the statement: "Internet services are always available for me to use in carrying out further research."

Response	Frequency	Percentage
Strongly disagree	1	16.7
Disagree	2	33.3
Undecided	0	00.0
Agree	2	33.3
Strongly agree	1	16.7
Total	6	100.0

In this table, 50% of the lecturers disagreed, and 50% also agreed with the statement on the availability of internet services in the College

The findings show that the percentages of their responses were (50%-50%). This indicates that internet services are available but it may not be functioning properly always. This will definitely affect both lecturers and the students who are supposed to make use of the internet services daily.

4.7.5. Constant power supply.

Power supply and the use ICTs are inseparable. This is because without electricity, ICT resources will not function. For this reason it is very important to have power always. The table below represents researcher's investigation on the consistency of power supply.

Table 4.19. Distribution of lecturers' response on the statement: "There is constant power supply which enables me to use ICT resources always."

Response	Frequency	Percentage
Strongly disagree	0	00.0
Disagree	0	00.0
Undecided	1	16.7
Agree	3	50.0
Strongly agree	2	33.3
Total	6	100.0

The information above shows that 83.3% of the lecturers agreed that there is constant power supply in the College, while 16.7% were undecided.

The findings indicate that 83.3% of the lecturers agreed that there was constant power supply in the college, while only 16.7% of them were undecided. Therefore we can conclude here that there is constant power supply in the College. This will make things easy for both lecturers and students in terms using available ICT resources.

4.7.6.. Trained technicians.

Most of the ICTs softwares (hardwares) are vulnerable to the constant attacks of virus on them and they can easily get damaged at any time. For this reason the researcher wanted to know if there are constant trained technicians to repair the damaged ones. The responses of the lecturers are presented in the table below.

Table 4.20. Distribution of lecturers’ response on the statement: “There are always trained technicians to assist me whenever I experience technical problems in ICTs.”

Response	Frequency	Percentage
Strongly disagree	1	16.7
Disagree	2	33.3
Undecided	1	16.7
Agree	1	16.7
Strongly agree	1	16.7
Total	6	100.0

50% of the lecturers disagreed with the statement above, 16.7% were undecided, while those who agreed that they always had trained technicians to assist them were 33.3%. This shows that majority of the lecturers responded negatively to the statement.

According to this findings, there are trained technicians but they are not sufficient to assist all the lecturers whenever they experienced ICT technical problems. This will create challenges for lecturers and students as well, with regard to ICTs usages.

4.8. POLICIES IN THE USE OF ICTs.

4.8.1. Functional policies in the use of ICT resources.

Policies are well defined plans which will help organizations or individuals to achieve the goals set for a particular purpose. Policies are necessary in the use of ICTs because the introduction of ICTs in education is a step ahead against traditional methods of teachings and learning. Lecturers' responses on the functional policies are presented in the table below.

Table 4.21. Distribution of lecturers' response on the statement: "I am fully aware there are functional policies in the use of ICT resources in the College."

Response	Frequency	Percentage
Strongly disagree	0	00.0
Disagree	3	50.0
Undecided	0	00.0
Agree	3	50.0
Strongly agree	0	00.0
Total	6	100.0

The table above shows that 50% of the lecturers disagreed with the statement, while 50% of them agreed with the statement. The percentages of how they felt about functional policies in the College is 50% - 50%.

According to this finding, we can conclude that there are policies in the use of ICT resources in the College but it is not fully functional. This may be caused by lack of sensitization exercise on the lecturers. This will pose challenge for the lecturers, since

they will not have the goals they are pursuing in the use of ICTs, and at the same time on the students who are to benefit from ICTs.

4.8.2: Implementation of ICTs policies.

Implementation is the actual carrying out of all the agreed plans to achieve the desired goals. The researcher sought for information on how the lecturers are implementing the policies in the use of ICTs in teaching and learning. The table below shows the different levels of lecturers' responses to the statement.

Table 4.22. Distribution of lecturers' response on the statement: "I always make effort to implement the policies."

Response	Frequency	Percentage
Strongly Disagree	1	16.7
Disagree	2	33.3
Undecided	1	16.7
Agree	0	00.0
Strongly agree	2	33.3
Total	6	100.0

50% disagreed with the statement, 16.7% were undecided, and 33.3% lecturers agreed with the statement that they always make effort to implement the policies whenever they use ICTs. In these findings we can conclude that most lecturers do not implement these policies. The challenge here will be lack of uniformity in equipping the students with the ICT skills. This is because not all the lecturers will implement the policies.

4.8.3.: Involvement in the making of ICTs policies in education.

Lecturers are the ones to introduce the students to the use of ICTs in their academic

activities, and so they are supposed to be part and parcel of ICT policy decision making members. The researcher sought to find out if the lecturers were involved in the making of ICTs policies. Lecturers' responses are presented in the table below.

Table 4.23. Distribution of lecturers' response on the statement: "I am involved in making the policies on the usage of ICT resources in education."

Response	Frequency	Percentage
Strongly disagree	3	50.0
Disagree	2	33.3
Undecided	0	00.0
Agree	1	16.7
Strongly agree	0	00.0
Total	6	100.0

50% of the lecturers strongly disagreed, while 33.3% of them disagreed with the statement, 16.7% agreed. This shows that 83.3% of lecturers which is the majority disagreed with the statement.

The findings show that five out of the six sampled Lecturers were in disagreement with the statement. We can draw up conclusion that the majority of the lecturers who responded were not involved in making of ICT policies in education (at the College). The challenge that the lecturers will face is that of not knowing how the goals of ICTs will be achieved and this will affect the students in acquiring ICTs skills.

4.8.4. The integration and utilization of ICTs resources.

Policies are made to guide the lecturers on how to integrate and utilize ICT resources in teaching and learning process. In this regard, the researcher wanted to know how the policies are helping the lecturers in integrating and utilizing ICTs.

Table 4.24. Distribution of lecturers' response on the statement: "The policies are helping me to integrate and utilize ICT resources."

Response	Frequency	Percentage
Strongly disagree	2	33.3
Disagree	0	00.0
Undecided	2	33.3
Agree	1	16.7
Strongly agree	1	16.7
Total	6	100.0

In the table above, 33.3% of the lecturers disagreed with the statement, 33.3% were undecided, while 33.3% of them agreed.

From the findings we can conclude that not all the lecturers agreed that the policies are helping them to integrate and utilize ICT resources. This is because the policies that are in existence are not well harmonized and made known to all those involved (lecturers). The lecturers and students will face a challenge of not having the goals that will be achieved in the use of ICTs well defined.

4.8.5. Supports towards achieving the goals of the policies.

Supports from the management could be in the form of in-service training for the lecturers, provision of adequate up-to-date ICT resources, moral and financial assistance, among others. This will go a long way in helping the lecturers to achieve the goals of ICTs. The researcher wanted to investigate on the level of support the Management gives to the lecturers.

Table 4.25. Distribution of lecturers' response on the statement: "The management supports me in achieving the goals of the policies."

Response	Frequency	Percentage
Strongly disagree	0	00.0
Disagree	2	33.3
Undecided	3	50.0
Agree	0	00.0
Strongly agree	1	16.7
Total	6	100.0

The table above shows that 33.3% of the lecturers disagreed with the statement, 50% were undecided and 16.7% agreed with the statement. This implies that the majority of the lecturers disagreed with the statement.

The findings indicate that the supports that lecturers get from the Management in terms of achieving the goals of ICT policies are not adequate. The implication is that when the lecturers are not fully supported in terms of training, provision of ICT tools and motivations, the students will not receive proper skills from their lecturers.

4.9. How lecturers use of ICT resources pose challenges to the students

4.9.1. Use of ICT tools in the process of teaching and learning

Since there are public cries all over the globe in the educational systems to integrate ICTs in the process of teaching and learning, the researcher wanted to find out how the lecturers have adapted to the new systems. The table below presents their responses.

Table 4.26. Distribution of lecturers' response on the statement: "I always make use of ICT tools in teaching and learning process."

Response	Frequency	Percentage
Strongly disagree	1	16.7
Disagree	2	33.3
Undecided	0	00.0
Agree	2	33.3
Strongly agree	1	16.7
Total	6	100.0

In the above table, 50% of the lecturers disagreed with the statement, while 50% agreed that they had always used ICTs in the process of teaching and learning.

The findings indicate that 50% of the lecturers make use of ICT resources in the process of teaching and learning, while 50% of them were in disagreement with the statement. Therefore, we can draw up a conclusion that half of the lecturers use ICTs in teaching their students while the remaining half do not use. This will pose challenge for the students who will be taught by the lecturers who do not use ICTs.

4.9.2. Competency in the use of ICT resources.

Lecturers are supposed to be well equipped in terms of skills in the use of ICTs in teaching and learning. This is because we in the age of computer technologies and all the lecturers are expected to have knowledge about it. The researcher embarked on investigation to determine how competent the lecturers in the College were.

Table 4.27. Distribution of lecturers' responses on the statement: "I am competent in the use of ICT resources."

Response	Frequency	Percentage
Strongly disagree	1	16.7
Disagree	2	33.3
Undecided	1	16.7
Agree	2	33.3
Strongly agree	0	00.0
Total	6	100.0

This table shows that 50% of the lecturers who responded disagreed with the statement above, 16.7% was undecided, 33.3% of them agreed, which shows that some are competent in the use of ICT resources, while the majority are not skillful.

The findings here shows that 50% of the lecturers disagreed that they are competent in the use of ICT resources, while 33.3% agreed which indicates that not all the lecturers in the university (College) that are competent in using ICT tools in teaching and learning. So, we can conclude that majority of the lecturers are not competent in the use of ICTs. The students will face challenges in terms of acquiring ICT skills and managing their academic activities.

4.9.3. Guiding the students towards the use of ICT resources

One of the duties of the lecturers these days is to help the students to discover and construct new knowledge using their own abilities. So, it is very important in the life of students for lecturers to fulfill this role accordingly. The researcher investigated how lecturers are guiding the students in the use of ICTs.

Table 4.28. Distribution of lecturers' responses on the statement: "I guide the students properly on how to use ICT resources."

Response	Frequency	Percentage
Strongly disagree	1	16.7
Disagree	2	33.3
Undecided	1	16.7
Agree	2	33.3
Strongly agree	0	00.0
Total	6	100.0

The table above shows that 50% of lecturers who participated in the study disagreed with the statement, 16.7% undecided, and 33.3% of them agreed that they guide the students properly in the use of ICTs.

The findings indicate that majority of the lecturers (50%) do not guide the students adequately on how to use ICT resources. The challenge here is that some students will be left out in the fast growing technological world, especially the first year students.

4.9.4. The use of ICTs is better than traditional methods of teaching and learning

There has been a debate in the media on whether teachers should drop the traditional methods of teaching and learning and adapt the use of ICTs or not. The researcher was

interested in finding out the views of the lecturers concerning the integration of ICTs in education as part of teaching methods.

Table 4.29. Distribution of lecturers' responses on the statement: "I prefer the use of ICTs to traditional methods of teaching and learning."

Response	Frequency	Percentage
Strongly disagree	1	16.7
Disagree	2	33.3
Undecided	1	16.7
Agree	2	33.3
Strongly agree	0	00.0
Total	6	100.0

This table shows that 50% of the lecturers disagreed with the statement, 16.7% was undecided, 33.3% of them agreed with the statement. In this case, those who disagreed with the statement take greater percentage.

The findings indicate that the majority of lecturers (50%) are not using ICT resources in our modern classroom settings. This might be as a result of limited knowledge in ICTs, lack of time for proper preparation and fear of losing their identity as teachers to modern technologies. This can pose some challenges to the students, as they will pass out of Universities without gaining experiences in these new technologies in education.

4.9.5. Constant in-service training.

No knowledge is static and we should continue to improve on what we have learnt. In-service training for all lecturers is vital because it assists them in the use of ICTs. ICT technologies change regularly and for the lecturers to cope with these changes, they must

always update themselves in order to meet up with the demands of ICTs. This study searched for information on how lecturers are being re-trained in the use of ICTs.

Table 4.30. Distribution of lecturers’ response on the statement: “I always undergo in-service training for the use of ICTs in teaching and learning.”

Response	Frequency	Percentage
Strongly disagree	2	33.3
Disagree	3	50.0
Undecided	0	00.0
Agree	1	16.7
Strongly agree	0	00.0
Total	6	100.0

The table above indicates that 83.3% of the lecturers disagreed with the statement, while only one of them, 16.7% agreed with the statement, that there is in-service training for the lecturers.

The findings show that 83.3% of the lecturers do not undergo in-service training for the use of ICT resources. This percentage is very high and this will make things very difficult for the lecturers who will not be able to impart the knowledge of ICTs on the students.

4.10. OPEN-ENDED QUESTIONS

4.10.1. Suggestions on Availability, Accessibilities and Policies.

The researcher sought further information from the lecturers using open-ended questions on the availability and accessibility of ICT resources, and also the policies in the use of ICTs. This is because lecturers may be limited in terms of expressing their views in the closed-ended questions. The table below shows their responses with regard to what should be done to remedy the challenges in the use of ICT resources.

Table 4.31. Distribution of lecturers' responses on the statement: "What suggestions do you think can improve the use of ICT resources in your area of specialization, in terms of availability, accessibilities and policies?"

Response	Frequency	Percentage
Regular in-service training	1	16.7
Increase ICT resources	5	83.3
Total	6	100.0

According to the data presented above with regard to the open-ended question, 16.7% suggested that "there should be regular in-service training which will help the lecturers to meet up with the fast growing ICT technologies". On the other hand, 83.3% of the lecturers were of the opinion that "the quantity and quality of ICT resources should be increased to make work easier for them and the students as well."

From these findings we can conclude that there is lack of in-service training for the lecturers and also inadequate supply of ICT resources.

4.10.2.: Comments about the challenges faced by the students.

The researcher wanted to know whether the lecturers were aware of the challenges faced by their students in the use of ICTs in university teaching and learning. The table below presents the responses of the lecturers.

Table 4.32: Distribution of lecturers’ response on the statement: “Do you have any other comments as regards the challenges faced by your students in the use of ICT resources?”

Response	Frequency	Percentage
Lack of sensitization exercise, Slow internet services, Inaccessibility of ICTs and Maintenance is not constant--	2	33.3
No comment	4	66.7
Total	6	100.0

The table above indicates that 33.3% of those who responded to the question suggested that “lack of sensitization exercise especially on the new students, slow internet services during browsing, inaccessibility of ICT tools due to shortage in quantity, and lack of constant maintenance on the existing ones.” pose some challenges to the students in the use of ICT resources. On the other hand, 66.7% lecturers did not make any comment concerning the question asked. This shows that most lecturers are not in touch with the realities of their students, that is to say, the challenges they face in the use of ICTs.

We can conclude in the findings that there is lack of sensitization exercise on the new student; internet services are low in functions, inaccessibility of ICTs and lack of maintenance on them. Lecturers do not care much about the students’ challenges.

4.10.3. Lecturer’s challenges.

Lecturers have their own challenges in the use of ICTs too. This study wanted to establish the challenges that lecturers face in the use of ICT resources in the university teaching

and learning. This is because, when the lecturers are facing problems, it will create difficulties for the students.

Table 4.33. Distribution of lecturers’ response on the question: “What are the challenges you encounter in the use of ICT resources in teaching and learning?”

Response	Frequency	Percentage
Unwillingness to embrace ICTs	1	16.7
Lack of in-service training, Documents on internet are not accessible, and Lack of adequate time to use ICTs-	4	66.7
Constant changing of ICT resources	1	16.7
Total	6	100.0

The table above shows that 16.7% of the lecturers expressed that “unwillingness to embrace the new ICTs is one the challenges,” 66.7% of them suggested that: “lack of in-service training, inaccessibility of documents in the internet, for example, Portable Document Format (PDF), and lack of adequate time to prepare and use ICTs,” are some of the challenges that they face in trying to integrate ICT resources in the process of teaching and learning. 16.7% of them expressed that it is “Constant changing of ICT resources. From these findings we can establish that lecturers face the challenges of “unwillingness to embrace the new ICTs in teaching and learning, lack of in-service training, inaccessibility of documents in the internet, inadequate time to prepare and use ICTs and constant changing of ICT resources.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

In this chapter, the summary, the conclusions and various recommendations are presented. The study was set to investigate the challenges faced by the students in the use of ICTs in University teaching and learning: A case study Tangaza College, Nairobi.

5.2. Summary of the Findings

The study was intended to investigate the challenges faced by the students in the use of ICTs in university teaching and learning in Tangaza College, Nairobi.

This study was guided by the following research questions:

- To what extent does the availability and accessibility of ICT resources cause challenges to the students?
- To what extent do the laid down policies in the use of ICTs create challenges to the students?
- To what extent does the lecturers' use of ICTs in Tangaza College pose challenges to the students?

The sample size of the population that was used in the study was forty (40) students and six (6) lecturers of Tangaza College, Nairobi, who responded to the questionnaire accordingly. They were chosen for the purpose of providing all the necessary information that the researcher needed to answer the research questions mentioned in chapter one.

In order to achieve the objectives of this study, the researcher used survey design to gather information. The collection of data was done using questionnaire which were coded and analyzed quantitatively using statistical software. The information gathered

was analyzed using frequencies and percentages and also presented using charts, graphs and tables.

The first objective in the study was to establish how the availability and accessibility of ICT resources in Tangaza College cause challenges to the students. From the analysis, the study revealed that there are challenges of unavailability and inaccessibility of ICT resources in the process of teaching and learning in Tangaza College. This is because both students and lecturers make use of ICTs on daily basis which facilitates their academic activities.

The second objective of the study was to establish how laid down policies in the use of ICTs in Tangaza College create challenges to the students. The research findings indicated that there are policies in the use of ICTs in Tangaza College, but the challenges that majority of the students and lecturers have expressed is that the policies are not functional and not everyone is aware of its existence.

The third objective of the study was to establish how lecturers' use of ICTs in Tangaza College poses challenges to the students. The findings revealed that majority of lecturers have challenges in the use of ICTs in teaching and learning in Tangaza College. This is as a result of lack of in-service training, inadequate ICT resources, lack of time to prepare, lack of functional policies in the use of ICTs and unwillingness to embrace ICTs in the process of teaching and learning. All these contribute to the challenges that students face in the use of ICTs in their academic activities.

5.3. Conclusion

The researcher concluded the study in the following ways: First, there is clear evidence that both lecturers and students have a quite number of challenges in the use of ICTs in

the process of teaching and learning. This is because, nowadays, all institutions of higher learning cannot operate effectively and efficiently without the use of ICT resources. The findings show that lack of in-service training in the use of ICTs in teaching and learning is a challenge which affects both lecturers and students. Inadequate supply of ICT resources is another big challenge, and this leads to the challenge of many students and lecturers struggling for a few available ICT resources. Internet services have been discovered to be functioning in a slow manner which makes it difficult for both lecturers and students to carry out further researches properly. Lack of functional policies in the use of ICT resources poses challenge to lecturers and students. The findings have indicated that the policies in the use of ICTs are not clearly defined and harmonized to suit the fast growing ICT technologies of our time. Another challenge is lack of trained technicians for the maintenance of existing ICT resources. It is difficult for lecturers and students to use ICT tools when they are not in good conditions. The findings also showed that lecturers do not have enough time to prepare well for the use of ICTs in the classroom presentations, and at the same time, they may be unwilling to embrace ICT resources in the process of teaching and learning, which will certainly affect the students.

5.4. Recommendations

Having carried out the study on the challenges faced by the students in the use of ICTs in University teaching and learning, the researcher made the following recommendations that would help improve the effective and efficient use of ICT resources in the process of teaching and learning:

- The Management should provide enough ICT resources for both lecturers and students. This will go a long way in reducing the challenges that students face in the use of ICTs resources, in the process of teaching and learning.
- The Management should always provide internet services and maintain as well for both lecturers and students so that they can use it for academic researches.
- The Management should re-establish its policies in the use of ICTs and make it stronger to serve its purposes. This is because the existing ones are not fully functional.
- There should be regular maintenance on the existing ICT resources to enable the students to utilize ICTs effectively and efficiently.
- Lecturers should be involved in ICTs policy making because they are the ones to implement its goals in education.
- Lecturers should be well equipped through constant in-service training so as to acquire up-to-date ICT skills to suit the fast growing ICT technologies.
- Lecturers are encouraged to embrace with positive attitudes, ICTs technologies in the process of teaching and learning.
- Lecturers should always guide the students adequately on how to utilize ICT resources.
- The Students should be part and parcel of policy decision making on ICTs because they are the ones to benefit from such decision.

- There should be constant sensitization exercise, especially for the new students.
Some students join University with little or no knowledge on ICT resources.
Sensitization exercise in the use of ICTs will help them to fit in well in the new environment.

5.5. Suggestions for Further Research

According to the findings, the researcher suggests the following areas for further research:

- i. Assessment of the difficulties faced by the lecturers in adapting to the constant change in ICT technologies.
- ii. Evaluation of the challenges faced by the Management in adopting and integrating ICTs in education.
- iii. Evaluation of the challenges faced by the first year university students in the use of ICT resources.

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APPENDICES

Appendix I: Questionnaire for Students



MARIST INTERNATIONAL UNIVERSITY COLLEGE (MIUC)
Constituent University College of the Catholic University of
Eastern Africa Nairobi-Kenya

DEPARTMENT OF EDUCATION

Dear student,

I am a student of Marist International University College (MIUC), Karen, Nairobi, a Constituent College of Catholic University of Eastern Africa (CUEA). I am presently conducting a research on the challenges faced by the students in the use of Information and Communication Technology (ICT): A case study of Tangaza College, Nairobi, Kenya. I cordially request you to make your free will contributions to this study and whatever input you are making will be highly appreciated. Please note that the information you are giving will be considered authentic and vital to the study. Feel free to express your views and be assured that your contributions will be treated confidentially.

Thank you very much for your understanding and co-operation.

AGUMA BERNARD MESHACH

B.Ed. /053/08/09

abbotbernard@yahoo.com

QUESTIONNAIRE FOR STUDENTS

SECTION A: DEMOGRAPHIC INFORMATION

Instruction:

Kindly answer all the questions by a ticking [\checkmark] against the information that applies to you in this section. Do not write your name on this questionnaire.

1. **Gender:** (i) Male [] (ii) Female []
2. **Age:** (i) 20 and below [] (ii) 21-25 [] (iii) 26-30 [] (iv) 31-35 [] (v) 36 and above []
3. **Year of study:** (i) Year one [] (ii) Year two [] (iii) Year three [] (iv) Year four []

SECTION B: AVAILABILITY AND ACCESSIBILITY OF ICTS.

The statements below are about the availability and accessibility of ICT resources by the students. Kindly indicate your views by ticking [✓] in the most appropriate space provided to indicate your level of agreement, using the scale given below.

Strongly Agree - 5, Agree – 4, Undecided – 3, Disagree – 2, Strongly Disagree -1

	Statement	5 SA	4 A	3 U	2 D	1 SD
1	The number of computers provided is enough.					
2	ICT tools are an effective supplement to traditional education (classroom teaching).					
3	I always use ICT tools in all my academic activities.					
4	I am aware of the importance of ICTs tools in teaching and learning.					
5	I always have internet services whenever I want to use it within college.					

SECTION C: POLICIES IN THE USE OF ICTs.

The list of statements below reflects policies in the use of ICTs. Kindly indicate your views by ticking [✓] in the most appropriate space provided to indicate your level of agreement, using the scale given below.

Strongly Agree - 5, Agree – 4, Undecided – 3, Disagree – 2, Strongly Disagree -1

	Statement	5 SA	4 A	3 U	2 D	1 SD
1	I am aware there are functional policies in the use of ICT tools in the college.					
2	The policies are being implemented to suit the needs of fast growing ICT technologies.					
3	Students' opinions were sought before making the policies.					
4	The policies help me in the effective and efficient use of ICT tools.					
5	The management always ensures that these policies in the use of ICT tools are always adhered to all the time.					

SECTION D: HOW LECTURERS' USE OF ICT RESOURCES POSE CHALLENGES TO THE STUDENTS.

Kindly indicate by ticking [✓] in the most appropriate space provided to show your level of agreement, using the scale given below.

Strongly Agree - 5, Agree – 4, Undecided – 3, Disagree – 2, Strongly Disagree -1

	Statement	5 SA	4 A	3 U	2 D	1 SD
1	Most lecturers are competent in the use of ICT resources.					
2	Most lectures have positive attitude towards the use of ICT resources.					
3	Most lecturers guide the students adequately on how to use ICT resources.					
4	Most lecturers make use of ICT resources in classroom presentations.					
5	Most lecturers give lessons, and receive assignments online.					

Appendix II: Questionnaire for Lecturers



**MARIST INTERNATIONAL UNIVERSITY COLLEGE (MIUC)
Constituent University College of the Catholic University of
Eastern Africa Nairobi-Kenya**

DEPARTMENT OF EDUCATION

Dear Lecturer,

I am a student of Marist International University College (MIUC), Karen, Nairobi, a Constituent College of Catholic University of Eastern Africa (CUEA). I am presently conducting a research on the challenges faced by the students in the use of Information and Communication Technology (ICT): A case study of Tangaza College, Nairobi, Kenya. I cordially request you to make your free will contributions to this study and whatever input you are making will be highly appreciated. Please note that the information you are giving will be considered authentic and vital to the study. Feel free to express your views and be assured that your contributions will be treated confidentially.

Thank you very much for your understanding and co-operation.

AGUMA BERNARD MESHACH.

B. Ed. /053/08/09

abbotbernard@yahoo.com

QUESTIONNAIRE FOR LECTURERS

SECTION A: DEMOGRAPHIC INFORMATION

Instruction:

Kindly answer all the questions by ticking [☒] against the information that applies to you in this section. Do not write your name on this questionnaire.

1. **Gender:** (i) Male [☐] (ii) Female [☐]
2. **Age:** (i) 20 and below [☐] (ii) 21-25 [☐] (iii) 26-30 [☐] (iv) 31-35 [☐] (v) 36 and above [☐]
3. **Experience at university level (Years)** (i) 1- 4 [☐] (ii) 5-10 [☐] (iii) 11-15 [☐] (iv) 16-20 [☐]
- (v) 20 and above [☐]

SECTION B: AVAILABILITY AND ACCESSIBILITY OF ICTS.

The statements below reflect the availability and accessibility of ICT resources by the students. Kindly indicate your views by ticking [☒] in the most appropriate space provided to indicate your level of agreement, using the scale given below.

Strongly Agree -5, Agree -4, Undecided -3, Disagree -2, Strongly Disagree -1

	Statement	5 SA	4 A	3 U	2 D	1 SD
1	I always have enough ICT resources to make my class presentations.					
2	The university Website is well developed and I use it efficiently.					
3	There is constant maintenance on the ICT resources that I use.					
4	Internet services are always available for me to use in carrying out further research.					
5	There is constant power supply which enables me to use ICT resources always.					
6	There are always trained technicians to assist me whenever I experience technical problems in ICTs.					

SECTION C: POLICIES IN THE USE OF ICTs.

The list of statements below reflects policies in the use of ICTs. Kindly indicate your views by ticking [✓] in the most appropriate space provided to indicate your level of agreement, using the scale given below.

Strongly Agree - 5, Agree – 4, Undecided – 3, Disagree – 2, Strongly Disagree -1

	Statement	5 SA	4 A	3 U	2 D	1 SD
1	I am fully aware there are functional policies in the use of ICT resources in the college.					
2	I make effort always to implement the policies.					
3	I am involved in making the policies on the usage of ICT resources in education.					
4	The policies are helping me to integrate and utilize ICT resources.					
5	The management supports me in achieving the goals of the policies.					

SECTION D: HOW LECTURERS' USE OF ICT RESOURCES POSE CHALLENGES TO THE STUDENTS.

The list of statements below reflects how lecturers use of ICT resources pose challenges to the students. Kindly indicate your views by ticking [✓] in the most appropriate space provided to indicate your level of agreement, using the scale given below.

Strongly Agree -5, Agree –4, Undecided –3, Disagree –2, Strongly Disagree -1

	Statement	5 SA	4 A	3 U	2 D	1 SD
1	I always make use of ICT tools in teaching and learning process.					
2	I am competent in the use of ICT resources.					
3	I guide the students properly on how to use ICT resources.					
4	I prefer the use of ICTs to traditional methods of teaching and learning.					
5	I always undergo in-service training for the use of ICTs in teaching and learning.					

Appendix III: Open-ended questions

What suggestions do you think can improve the use of ICT resources in your area of specialization, in terms of availability and accessibility and the policies?

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Do you have any other comments as regards the challenges faced by your students in the use of ICT resources?

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What are the challenges you encounter in the use of ICT resources in teaching and learning?

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