FEMALE STUDENTS' ACCESS TO TECHNICAL EDUCATION THROUGH ICT: A CASE OF KIAMBU COUNTY, KENYA

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2016

DECLARATION

This research project is my original work and has not been submitted for the award of a degree or any other qualification in any other university.

Signature _____ Date _____

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This research project has been submitted for examination with my approval as the University Supervisor.

Signature _____ Date _____

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DEDICATION

This project is dedicated to my sons, Benwilliam Ngugi and John Paul Mburu for standing by me throughout the course. It is also dedicated to my parents, brothers and sisters especially my dad who is my biggest cheer leader.

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The completion of this study would not have been possible without the material and moral support from various people. It is my obligation therefore to extend my gratitude to them. First of all, I thank the Almighty God for giving me good health, and guiding me through the entire course.

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ABSTRACT

This study sought to establish the effect of communication through ICT on female students' access to technical education in Kiambu County, Kenya. The general objective was to establish effect of communication through ICT on female students' access to technical education in Kiambu County, Kenya. The Specific objectives were; to establish the linkage between communication through ICT and female students' access to technical education in Kiambu County, Kenya; to determine the statistics of female students' access to technical education in Kiambu County, Kenya; and to investigate the factors influencing female students' access to technical education in Kiambu County, Kenya. The study adopted a descriptive survey research design. The target population was the 200 female students in TTIs in Kiambu County and the sample size was 100 female students who were sampled using stratified sampling technique. The primary data was collected using a questionnaire while secondary data was obtained from the TTI registers for 2013 - 2015. In analyzing the quantitative data, the study used descriptive statistics using Statistical Package for Social Sciences (Version 21) while qualitative data was analyzed using content analysis. The multiple linear regression analysis was also used. The findings show that ICT is being implemented by educational institutions in Kenya including TTIs, e.g. The laptop project. However, implementation gap still exist in the extent to which ICT is being utilized in improving female students access to information on technical education. There is a linkage between communication through ICT and female students' access to technical education in Kiambu County, Kenya. The use of communication through ICTs by TTIs in Kiambu County significantly increased access to technical education among prospective female students. Female students' access to technical education in Kiambu County is still very low as shown by low enrolment, high drop-out, and low completion and transition rates. The key factors influencing female students' access to technical education include; affordability, staff remuneration and motivation, attitude, lack of reliable IT infrastructure and government policy. The TTIs should scale up marketing and communicating through social media and allocate adequate budget to implement communication through ICT strategy towards enhancing female students' access to technical education. The government through the Ministry of Education should conduct a nation-wide campaign sensitizing female students to enroll for technical education.

CHAPTER ONE

INTRODUCTION

1.1 Overview of the Chapter

This chapter entails introduction, background to the study, problem statement, general objective, specific objectives, research questions, significance, rationale and scope of the study.

1.1.1 Introduction

Communication is the exchange of information between individuals through various communication channels such as print media, mass media, and information communication technology channels (Oxford dictionary). Duncombe *et al* (1999) referred ICTs as electronic method of seizing, processing, storing and distributing information. Information and communication technologies (ICTs) have the ability to make massive amounts of information accessible to users situated in different parts of the world and to enable rapid communication between them (McCormick et al, 2002).

According to the National ICT Strategy for learning in Kenya, the procedure of ICT operation in colleges includes contribution of a composite of various persons, organizations and investors who execute itemized parts in the operation process (GoK, 2006). The use of information communication technology (ICT) in tertiary institutes is predestined to broaden access to tertiary learning. ICTs can convey many advantages to the classroom, training and learning process including offering chances for student-sided training, more interactions and partnership, lead to access to a broader variety of sequences and amplified learning eagerness due to distribution of

manifold skills by educators. The ICT can be promoted to advance competence, accessibility and excellence of the learning process by allowing amplified access to knowledge, more concerted and cooperative learning systems (GoK, 2005).

Owing to simplicity of access to information through ICT networks such as social media podiums, post-secondary scholars acquire information on courses obtainable in several tertiary institutes. The degree to which innumerable tertiary institutes have adopted ICT channels as their communication tools to their public influences students' decision in taking up different technical courses accessible. It also influences the contribution and accomplishment rates of the learners (Carayannis *et al.*, 2005). According to GeSCI (2009), the initial aim to introduce ICTs in education was primarily to develop CT skills. Most technical colleges with computers minimally use the accessible infrastructure. Only a few of the TTIs essentially use ICT as a substitute method for communication on what they offer to the public. Kenya ICT survey, (2007) observed that many teachers are ill prepared to successfully incorporate ICT in technical training preferment.

1.1.2 Background to the Study

In Kenya, most girls and women are concerted in the uneducated and semi-skilled, low status and low-paying careers. Women's occupation glitches originate from their low involvement in learning and expressly in professional and practical learning, mainly in the technically oriented progressions (Mehta, 2006). Despite the government's appreciation of the reputation of science and expertise in national expansion and equivalent efforts to increase the essential facilities, female depiction in occupational and technical learning remains low. In fact, there is a steady decline in

female registration from basic education to technical and university education in Kenya (MoE, 2015).

Female admission in Institutes of Technology (ITs) remains low in Kiambu County which has deteriorating registration, holding, and completion rates of female scholars in technical training between 2011 and 2015 as illustrated in Table 1.1 below. This is despite enormous campaigns by both county and national administrations to inspire female learners to participate in technical education. The ratio of female to male scholars in technical learning in Kiambu County is 1:3. Due to their under-representation in science and technology-based subjects, women are likely to become gradually sidelined and perhaps left out from the conventional of nationwide growth (Kiambu County Education Office, 2015).

Table 1.1 Statistics of Female Students access to Technical Education in Kiambu County

	2011	**2012**	**2013**	**2014**	**2015**	**Total**
Enrolment	17	15	14	14	13	73
Retention	15	13	13	12	10	63
Completion	13	12	11	11	10	57

Source: Kiambu County Education Office Statistics (2015)

The key benefits of ICTs in teaching and learning include; empowerment of students and teachers via better interactions and communicating, innovating better ways of syllabus delivery and revolutionizing the processes of learning and teaching. In Kenya, mobile penetration has been incremental in few years (CAK, 2015). The technical institutions in Kenya have been using ICT communication to market

themselves among the prospective post-secondary students (Aimola, 2010). However, the use of ICT communication has not been effective in addressing the disparity between male and female students seeking to enroll in technical education. This study therefore seeks to establish the effect of communication through ICT on female students' access to technical education in Kiambu County.

1.2 Problem Statement

The adoption and use of ICTs as a communication tool among TTIs has been elusive despite even with the huge financial investment made (Trucano, 2005). This is particularly reflected in technical education promotion where small budgets allocated cannot make a difference in enhancing access of technical education by female students. Although technical education in Africa and Kenya in particular is male dominated, communication through ICT channels is strategic in enhancing female student access to technical education. This is attributed to increased use of mobile phones and internet among post-secondary youths in accessing education related information (Kenya ICT survey, 2007).

The empirical evidence on the role of communication through ICT in boosting female students' access to technical learning in Kenya is non-conclusive. Studies both local and international emphasize on role of ICT in delivery of education but not on the role of communication through ICT in enhancing female students' access to technical learning (Trucano, 2005; GeSCI, 2009; Avgerou, 2001; and Meng *et al*, 2002). Informed by this information gap, this study sought to investigate the effect of communication through ICT on female students' access to technical education in Kiambu County, Kenya.

1.3 General Objective

To establish effect of communication through ICT on female students' access to technical education in Kiambu County, Kenya

1.3.1 Specific objectives

i. To establish the linkage between communication through ICT and female students' access to technical education in Kiambu County, Kenya

ii. To determine the statistics of female students' access to technical education in Kiambu County, Kenya

iii. To investigate the factors influencing female students' access to technical education in Kiambu County, Kenya

1.4 Research Questions

i. What is the linkage between communication through ICT and female students' access to technical education in Kiambu County, Kenya?

ii. What are the statistics of female students' access to technical education in Kiambu County, Kenya?

iii. What are the factors influencing female students' access to technical education in Kiambu County, Kenya?

1.5 Significance

The discoveries of this research will inform ICT policy formulation and implementation in technical education institutes. This study may also be of

significance to institutions' administration in guaranteeing that their organizations keep well-informed with the information know-how and use ICT as a communication instrument in improving acceptance of learning. Other beneficiaries comprise of non-governmental organisations and private learning institutions who may wish to adopt ICT communication in improving uptake of similar programmes. This study provides a clear understanding on how ICT communication if successfully utilized could help in mounting up admittance of technical education to female scholars. Finally, the study may be valuable to forthcoming academics and scholars who may be involved to follow this theme further on. The results may be valuable to academics and scholars as it forms the foundation for further research.

1.6 Rationale

Without any research on communication through ICT as a driver of access to technical education, technical institutions would continue to be challenged with the challenge of gender disparity on access to technical education. Only about 20% of one hundred thousand female students who miss joining university education, join technical education in Kiambu County. This is attributed to the lack of TTIs to use communication through ICT channels to advertise their courses. Therefore, prospective female students remain disadvantaged as they lack awareness of the TTIs and possible courses they could join. The use of ICTs by the TTI in both curriculum delivery and marketing of courses would help to scale up female students access to technical education in Kiambu County. This is because ICTs make learning interesting and learner-centered and also reach wider population of youths who are using ICTs in communicating.

The study is tactical in finding how communication through ICT is exploited to improve partaking of female learners in technical learning in Kiambu County. It is supposed that communication through ICT can enable teachers and students by expediting communication and collaboration, offering new methods of distribution, and largely converting teaching and learning procedures. At the same time owing to the increased penetration of mobile communication in recent years, using ICT to advertise technical courses offered by technical institutions is likely to be very effective in enhancing uptake of technical education particularly by the minority groups such as female students, technical education being a male dominated field. Kenya is currently undergoing economic transformation as reflected by increased economic growth, and therefore, technical education offers to bridge the gap of offering trained manpower to drive the economy forward. Therefore, the study may help to establish the extent to which female students use social media platforms to explore different technical education courses on offer. Hence, establishing the linkage between communication through ICT and female students' access to technical education in Kiambu County, Kenya.

1.7 Scope of the Study

This study only focused on female students' in Kiambu County and therefore the findings may not be generalizable to other counties in Kenya due to their diverse contextual realities. However, findings can be useful as lessons learned by other counties. The study sought to establish the outcome of communication through ICT on female scholars' access to technical training. The study was restricted to; connection between communication through ICT and female learners' access to

practical training; the statistics of female scholars' access to technical education; factors prompting female scholars' access to technical learning; and approaches that would enable an operative communication through ICT towards improving female students' access to technical training. The study pursued information from female scholars in public technical institutes in Kiambu County.

CHAPTER TWO

LITERATURE REVIEW

2.1 Overview

The chapter is structured in to the following areas; the role of ICT in education, the effect of communication through ICT and theoretical model.

2.2 The role of ICT in education

Broader education resource materials which are easily transferred through ICT amongst the stakeholders, enhances learning processes. Through ICT there is increased inclusivity where the disadvantaged population are reached as well as prospective markets of educational both locally and internationally are reached achieving educational democratization as well as bridging the digital divide (Ashish, 2011).

The several types of ICT merchandises accessible and having importance to learning, such as teleconferencing, email, audio conferencing, television lessons, radio broadcasts, cooperative radio advising, interactive voice rejoinder system, audiocassettes and CD ROMs etc. have been used in learning for dissimilar determinations (Sharma, 2003; Sanyal, 2001; Bhattacharya and Sharma, 2007). It is only through teaching and the incorporation of ICT in learning that one can teach scholars to be contributors in the development process in this era of speedy transformation.

ICT can be used as a tool in the procedure of learning in a number of methods. As an enlightening tool, ICT offers massive quantity of data in various setups such as audio,

video and documents. As a positioning tool, ICT generates circumstances, which the scholars can relate to in real life. Thus, reproduction and effective reality is possible. As a positive tool, ICT is used to deploy the data and produce study while as a communicative instrument; it can be used to eliminate communication barricades such as that of interplanetary and time (Lim and Chai, 2004).

The common ICT mediums used for the conveyance and for directing the education course comprises voice, video and print medium (Bhattacharya and Sharma, 2007). ICTs also permits for the formation of digital properties like digital archives where the scholars, instructors and specialists can get research and sequence material from any domicile at any time (Bhattacharya and Sharma, 2007; Cholin, 2005). Such amenities permit the interaction of academics and investigators and henceforth partaking of academic material.

2.3 The effect of communication through ICT

According to data from Deloitte, 2009 was the year that social media blossomed, with 47% of individuals upholding a profile online, the main upsurge of any cluster of people from the preceding year. 73% of those described that they vigorously preserved a Facebook page. The newfangled communication tackles have permitted business communications to develop faster, more effectual and totally free from topographical confines. A number of ICT tackles that have greatly improved communication comprise the internet centered apparatuses which include E-Mail, Instant messaging (IM), VoIP telephony, Social media, Embattled publicity, Cloud computing, Video conferencing and WebRTC. As well as improving business communications through tools that use the influence of the Internet, technology has

also seen the expansion of many new submissions that increase communication supremacy even further through incorporation. These comprise Google Talk, Yammer, Teambox and GoToWebinar (Akbaba-Altun, 2004).

Evolving technologies, such as groupware and the Internet, offer the latent to vividly expand the way in which people communicate and collaborate in the organization of the twenty-first century. Technologies, such as the Internet, mobile phones, social media, and customer relationship management systems greatly affect the way companies communicate with prospective customers. These new forms of communication are changing the media landscape and the type of messaging strategy organizations use. With access to many sources of information and an interest in interactive media, consumers may collect more product information on their own. Work environments are also changing, with more people having virtual offices, texting on their cell phones, or communicating through social media sites such as Facebook, LinkedIn, Pinterest, and Twitter. As the media landscape changes, the money that organizations spend on different types of communication will change as well. Once companies have developed products and services, they must communicate the values and benefits of the offerings to current and potential customers (Paryono and Quito, 2010).

Integrated marketing communication (IMC) offer a method intended to convey one reliable message to buyers through a group's elevations that may span all diverse kinds of media such as TV, radio, magazines, the Internet, mobile phones, and social media. Delivering reliable info about a marque or an organization helps create it in the attentions of consumers and potential consumers across target markets. With IMC,

administrations can organize their communications to shape the brand and develop strong purchaser relations while also helping clients satisfy their desires (Iqbal, 2010).

Young people today are part of the millennial cohort, and it is customers from this group who are driving the transformation in the direction of new communication tools. A young customer might opt to get advertisings via mobile promotion - say, from rations on their cell phone as they walk by them or via a mobile gaming device that allows them to connect to the Web. Similarly, commercials on Facebook are prevalent as businesses push on to exploit more social media. Traditional media (magazines, newspapers, television) contest with media such as the Internet, texting, mobile phones, social media, user-generated content such as blogs, and YouTube as well as out-of-home advertising such as billboards and portable advertisements. Thus, all systems of marketing media have been forced to come up with new inventions to remain pertinent (Youssef and Dahmani, 2014).

Email or electronic mail is one of the most commonly used communication method through which a person can create and transmit messages electronically to an individual or group of individuals. Telefax is a useful system for communicating data images over telecommunication lines enabling a user to transmit a text or graphics securely. Video conferencing is another communication technology that uses high speed telecommunication network to transmit audio and video allowing people to conduct meetings across the world. Networking plays a major role in information resource sharing and support activities through a network of computer and databases with the help of telecommunication. Internet is now a common term, which signifies interconnections of multiple networks (both LANs and WANs), located in different

parts of the world enabled through the Transmission Control Protocol and the Internet Protocol (TCP/IP protocols). It is a powerful means of speedy dissemination and retrieval of information in text, graphics, audio or video format (Singh, 2001).

The evolving wireless, mobile and internet technologies are alternative form of ICT communication podiums.

Education legislators have been solemnizing all-embracing ICT strategies as part of informative regeneration and reform in the past four decades. The progress in communication technology and media has helped to increase access to educational resources and thereby enhance the quality of education. The use of interactive communication media has facilitated expansion of opportunities for higher education. At the global level, goals for the incorporation of ICT in learning have been framed by both the millennium growth goals to "make accessible the benefits of newfangled technologies, particularly information and communications" (UN, 2000; UN, 2012), and the World Summit on the Information Society (WSIS), resulting in a clear obligation by governments to push for the triumph of an comprehensive information society (ECLAC, 2010).

In Latin America and the Caribbean, most countries (31 of 38, or 82 per cent) have at least one kind of prescribed meaning of their ICT in learning initiatives, while nine (24%) have all prescribed descriptions counting Anguilla, Bahamas, Barbados, Chile, Ecuador, Guatemala, Saint Vincent and the Grenadines, Uruguay and Venezuela. Nonetheless, some republics have yet to espouse any kind of official strategy or

recognized pledge to ICT in training including Curaçao, Dominica, Montserrat and Suriname (UNESCO, 2015).

2.4 Theoretical Framework

Kerlinger (2002) defined a theory or a model as a set of unified paradigms, definitions and schemes that contemporary a methodical view of marvels by stipulating relations among variables, with the resolve of elucidation and envisaging the occurrences. Pedersen (2003) argues that studies on ICT acceptance have taken three likely tactics: a diffusion method, an adoption approach and a subjugation approach. The study will be steered by the Diffusion of Innovation Theory (DIT) by Roger (1995).

2.4.1 Diffusion of Innovation Theory

Diffusion of Innovation theory was structured by Everret Rogers (1995). Rogers (1995) describes diffusion as "the development by which a revolution is interconnected through certain conduits over time among associates of a social scheme". An innovation, rendering to the innovation-diffusion model claims that a revolution (technology) is conceded on from its foundation to end operators through a medium of proxies and its distribution in probable users for the most part reliant on the individual qualities of the discrete handler. The model undertakes that the expertise in question is apposite for use lest stalled by the absence of operative communication (Negatu and Parikh, 1999).

Van Akkeren and Harker, (2003) claim that media and relational links offer information that impacts an individual's estimation and conclusion. The theory contains four elements: invention, diffusion through the public networks, time and penalties. Rogers additionally argues that there are five adopter groupings that

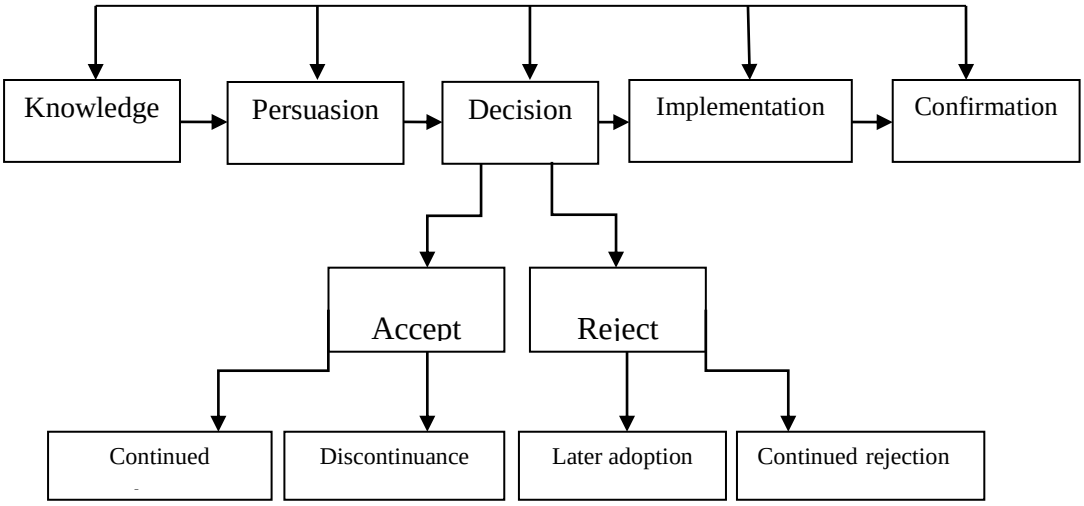
include: innovators, early adopters, early majority, late majority, and laggards. Fascinatingly, the five groups follow a normal nonconformity curve where very petite trendsetters approve at the start (2.5%), early adopters establishing 13.5%, the early mainstream establishing 34%, the late mainstream extra 34%, finally the dawdlers at 16%.

Diffusion of innovation theory forecasts that media as well as relational links offer information and effect opinion and decision (Rogers, 1995). In applying diffusion of innovation as the theoretical structure for the study, the attention was on the five elements designated by Rogers (1995). According to the structure, innovation has got five elementary features: (1) *Relative advantage*, that is, the gradation to which an invention is perceived as superior to the idea it heralds. Thus, the better the advantage, the faster is its acceptance. It is wise to regulate to what degree the interference such as access to technical training is perceived as having a comparative advantage to female scholars; (2) *Compatibility*, that is, the degree of steadiness of the innovation with prevailing values, past experiences and needs of a receiver. Thus, the grade of compatibility controls the rate of embracing of the innovation, so that in instances of reduction of unemployment among female, acceptance of technical education may require prior acceptance of it as part of emerging social norm; (3) *Complexity*, which is the degree to which an innovation can be effected; (4) *Triability*, which is the degree to which an origination can be tried or experimented inside a restricted basis. This characteristic may clarify the abrupt upsurge in the number of persons who have taken technical training in Kiambu County; (5) *Observability*, is the gradation to

which the consequences of an invention are noticeable to other people, so that innovations that have readily noticeable results diffuse faster than those that do not.

Diffusion of an invention happens through a five-step process: knowledge, persuasion, decision, implementation and confirmation. The stage of *Knowledge* suggests that a person is first open to an invention but because he lacks access to info about the invention, the individual has not been enthused to pursue for additional information on it. The second step, that comprises *persuasion*, confirms that the person is absorbed in the invention and aggressively pursues information or aspect about the novelty. Through this phase, the individual takes the notion of the novelty and weighs the merits and shortcomings of using the invention. On this basis, the separate is able to make a *decision* on whether to accept or reject the invention, and according to Rogers, this is the toughest stage to obtain experiential proof. The next stage, of *implementation*, sees the person using the invention to a changing gradation contingent on circumstances. At this point, the person controls the practicality of the invention and may hunt for auxiliary info about it. *Confirmation* is the final step, in which the person completes his/her decision to carry on using the invention and might use it to its fullest prospective (Rogers, 2003).

Figure 1.1 Five stages of the adoption process



Source: Rogers, 1995.

2.4.2 Theoretical Framework explained

Based on the DIT, the tertiary institutes in Kiambu County, Kenya have been espousing ICT in their proposal to intensify acceptance of technical training. The transformation from the current media to use of communication through ICT is expected to conduit the rift in technical learning that is presently male subjugated. The communication through ICT is possible through the diffusion innovation theory as theory comprises four fundamentals: invention, diffusion through the social grids, time and penalties. Although not all the nominal institutes in Kiambu County use communication through ICT, it is foreseen that those that are already using it will ultimately attain female scholars' access to technical learning. Furthermore, the DIT was found to be valuable in determining the suitable networks for communicating info on female scholars' access to technical learning. While mass media networks are treasured in crafting information on novelties, relational channels are more operative in forming and changing attitudes towards a new idea such as female scholars' access

to technical training and thus prompting the conclusions to acclimate or castoff the new idea.

In terms of *Knowledge* technical teaching institutions in Kiambu County are conscious of the benefits that they would accomplish in terms of advertising their practical courses to potential scholars through ICT. Nonetheless, the degree of their application of communication through ICT to inspire female learners take up technical courses contrasts.

Through *coaxing*, the technical teaching institutes are made to be absorbed in the novelty of advertising their courses through ICT and they would aggressively pursue amplification about communicating through ICT. A number of technical teaching institutions would make the *judgment* to espouse this modernization and hence *implement*, their communication through ICT to a variable notch. Lastly, the technical teaching institutions are expected to e*ndorse their usage of* communicating through ICT to boost the female scholars' access to technical training.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Overview

This chapter highlights the research design, research approach, research method, sampling technique, data collection method, piloting, reliability and validity and data analysis and reporting.

3.2 Research Design

The study was based on descriptive research design, a method that allows for effective and meaningful organization of information (Mugenda and Mugenda, 2008).

3.3 Research Approach

The study used the mixed method approach. The choice of mixed method of research was due to their reliance on both qualitative and quantitative data collected through questionnaires (see Appendix 1). This allowed for triangulation of data from different data sources as well as collection of complementary information. The quantitative data from closed ended questions was in readily usable form while the qualitative data from open ended questions allowed collection of in depth information as the respondents were allowed to give more insights without being held back.

3.3 Research Method

The study was a survey as it focused on all technical training institutes in Kiambu County. Survey was the most appropriate research method as all the Technical

Training Institutes in Kiambu County were selected to participate in the study and a representative sample was selected.

3.4 Target Population

The target population of this study was the female students in technical training institutes in Kiambu County. Currently there are four technical training institutes with a population of 200 female students in Kiambu County that formed the target population of the study.

3.4.1 Sampling Technique

From a population of 200 female students in technical training institutes (TTIs) in Kiambu County, the study sampled 100 female students using stratified sampling technique where strata were the different courses that the students were pursuing. This gave the female students pursuing different technical courses and at diploma and certificate levels equal chances of participating hence no biasness. From each of the four TTIs, the study therefore sampled 25 female students to have a sample size of 100 respondents. The 100 female students were 50% of the target population which was higher than 10-30% of the target population that Kothari (2004) recommends to be representative and adequate for statistical reporting, hence sufficient.

3.5 Data Collection Method

The study used primary and secondary data where the primary data was collected by using a self–administered questionnaire both qualitatively and qualitatively and was administered to 100 respondents. The secondary data was obtained from the TTI registers spanning three years (2013 - 2015) on the statistics on female students'

access to technical education. Data was collected through a self-administered questionnaire to the female students from the TTI.

The researcher obtained approval from University of Nairobi to conduct the study. The respondents were explained to the entire tool and understood what was being sought and were given one week to fill in the tools to enhance the response rate.

3.6 Piloting

The researcher carried out a pilot study among 10 female students' (10% of the sample) from TTIs that were not be included in the main study. This was with a view to enhance the reliability of the questionnaires. Piloting also provided insight on the process and the outcome of the intended study. The pilot study was conducted through test retest method within a two-day lapse with pilot study participants not participating in the main study.

3.7 Reliability and Validity

Reliability ascertained the consistency of the research tools obtaining the same data from the same respondents repeatedly (Nsubuga, 2006). Using data from the pilot study, the reliability of the instrument will be estimated using Cronbach's Alpha Coefficient where a Coefficient of at least 0.70 at α=0.05 significance level was achieved. The research instrument was also availed to the lecturers and peers for them to establish the content and construct validity. The validity was to ensure that the study gained the information being sought.

3.8 Data Analysis and Reporting

The primary data was obtained quantitatively and qualitatively. In analyzing the quantitatively collected data, the study used descriptive statistics using calculator and excel. The mean, standard deviation, frequencies and percentage were used. Graphical presentations and tables were used to present the study findings. The data findings explanation were given in prose thereafter. The tables and graphical presentations showed the percentages, frequencies and means of the questions being analyzed. This increased the clarity of the findings and ensured that the findings were easily interpreted. In analyzing the qualitative data from open ended questions in the questionnaire, the study was analyzed using content analysis.

3.9 Ethical Considerations in the Research

The study observed key ethical considerations in order to promote values that are essential to the work such as protection, accountability, mutual respect and fairness.

After successfully presenting the proposal before the Board of Examiners, School Of Journalism University Of Nairobi, a questionnaire (see Appendix 1) which was the main data collection tool, was then prepared to enable the research go to the field.

The researcher ensured that permission was sought from the University Of Nairobi School Of Journalism before embarking on fieldwork. A Certificate of Fieldwork (see Appendix 2) was obtained from the University to enable the researcher go to the field to collect the data necessary in this study.

Upon going to the field, the researcher ensured that all respondents only participated through their direct consent and the information given was used for purposes for

which it was sought. The researcher treated information from respondents with confidentiality. Anonymity as an option to withhold the identity of the respondents was well clarified.

After defending the project before the University's Board of Examiners, the researcher proceeded to make the corrections suggested by the defence panel. Upon completion of the corrections, the researcher was awarded a Certificate of Corrections (see Appendix 3).

The project was then checked for plagiarism and scored 12% plagiarism levels which was below the 15% required (see Appendix 5). Acknowledgement of works of other authors used in any part of the project with the use of APA referencing system was put into consideration. The Declaration of Originality form (see Appendix 4) was attached in the project in line with the research guidelines of the University of Nairobi.

CHAPTER FOUR

DATA INTERPRETATION, ANALYSIS, AND PRESENTATION

4.1 Overview

This section focuses on data analysis, interpretations and presentation. The results are presented on effect of communication through ICT on female students' access to technical education in Kiambu County, Kenya. Specifically, the study sought to establish the linkage between communication through ICT and female students' access to technical education in Kiambu County, Kenya; to investigate the statistics of female students' access to technical education in Kiambu County, Kenya; and to investigate the factors influencing female students' access to technical education in Kiambu County, Kenya. The chapter covers the respondent's background information, and the findings based on the study aforementioned three specific objectives.

4.1.1 Response Rate

The study targeted 100 female students from four technical training institutes in Kiambu County to whom questionnaire were administered to and the outcome are as indicated on Table 4.2 below.

Table 4.2 Response Rate

Response Rate	
Questionnaires administered	100
Questionnaires returned duly filled	100
Response rate (%)	**100%**

As indicated in Table 4.2 above, all the 100 of questionnaires administered were returned giving the study a response rate of 100which was adequate for analysis.

4.2 Personal Information

The study sought the respondents' background data including; gender, age bracket, and education level were sought. This was important because it enhanced reliability of the information given and gave the basic understanding of the respondents. Based on the level of their education, in would show where more female students are, either at the certificate or diploma level. The study required the students to indicate the level of college education they are currently pursuing. The findings are as shown in Figure 4.2 below.

Figure 4.2 College Education

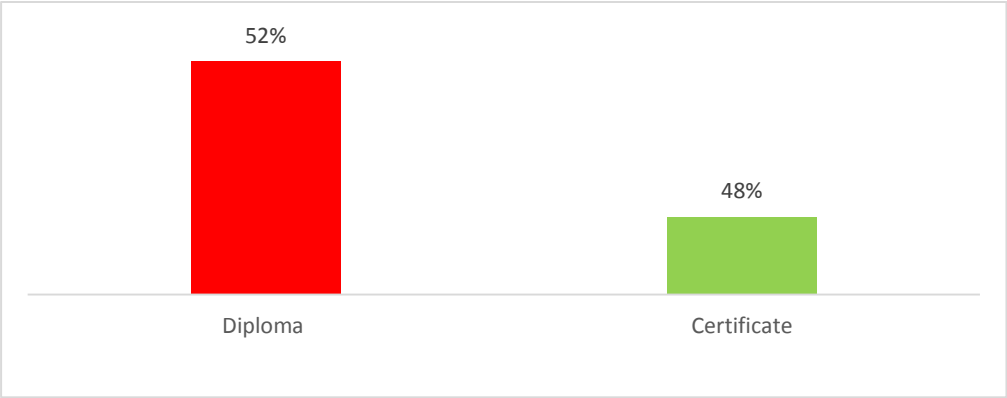
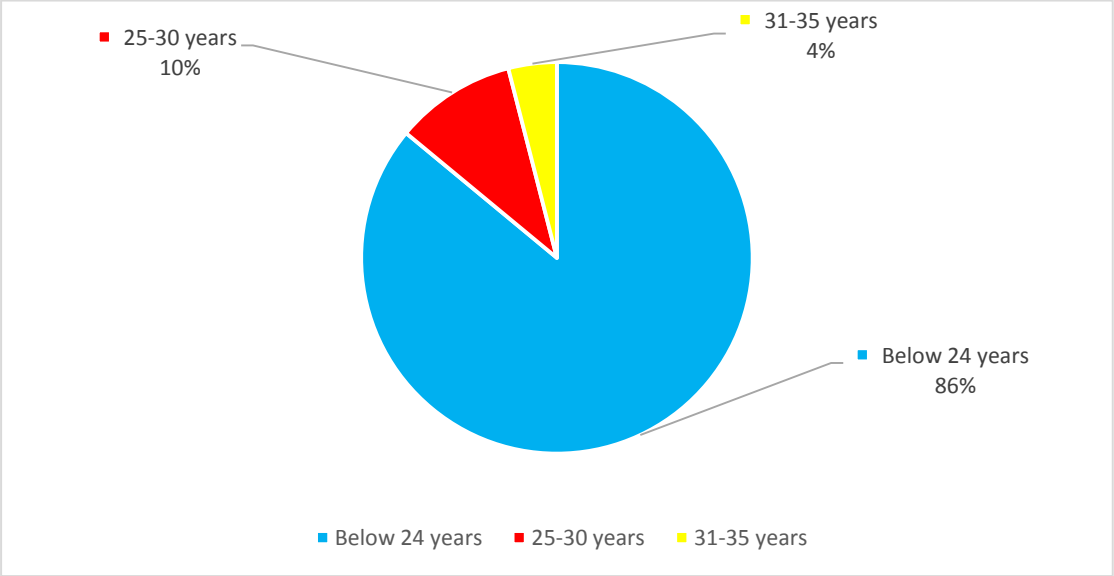


Figure 4.2 above, over half (52%) of the female students from TTIs in Kiambu County were pursuing diploma in their respective fields while nearly half (48%) of the students were pursuing certificate in their areas of study. The findings infer that the female students were knowledgeable and could give reliable data on effect of communication through ICT on female students' access to technical education in Kiambu County.

4.2.2 Female students' age

The study further sough to find out the age of the female students and the results are as shown in figure 4.3 below.

Figure 4.3 Female students' age



The majority of the female students were aged below 24 years, 10% were aged 25-30 years while only 4% were aged 31-35 years of age. This infer that majority of the female students were young and belonged to category of youth population in Kenya that have high access to information through ICT channels such as mobile phones,

internet sources and social media platforms which makes them best targeted by TTIs using communication through ICT.

4.3 Linkage between communication through ICT and female students' access to technical education

The first objective of the study was to establish the linkage between communication through ICT and female students' access to technical education in Kiambu County, Kenya. The findings are as shown in the subsequent section 4.3.

4.3.1 Technical Institutions with ICT Department

The study inquired from the students on whether their technical institutions had an ICT department that managed the institutions' communication to its different stakeholders.

Figure 4.4 Technical Institutions with ICT Department

According to the findings, the majority of the female students (81%) indicated that their technical institutions have an ICT department that manages the institutions communication to its different stakeholders. Only 19% of the female students

indicated that their technical institutes did not have n ICT department that manages the institutions communication to its different stakeholders.

The findings infer that the technical institutes in Kiambu County had in place an ICT department to communicate to their different audience through ICT communication channels. Depending on the extent to which these ICT departments employed communication through ICT, they were likely to enhance students' access to technical education in the county.

4.3.2 Internet supported platforms to advertise technical education

The study sought to establish whether the technical institution use internet supported platforms to advertise its courses to the students.

Figure 4.5 Internet supported platforms to advertise technical education

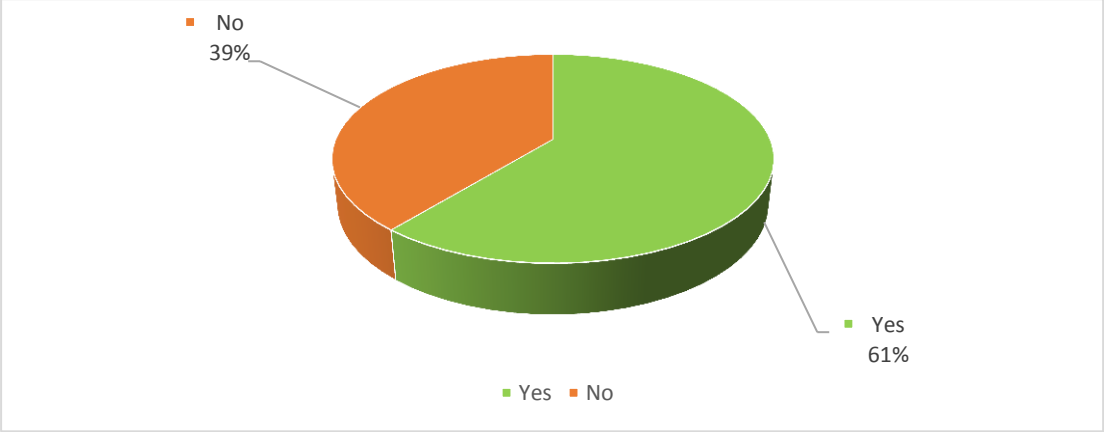


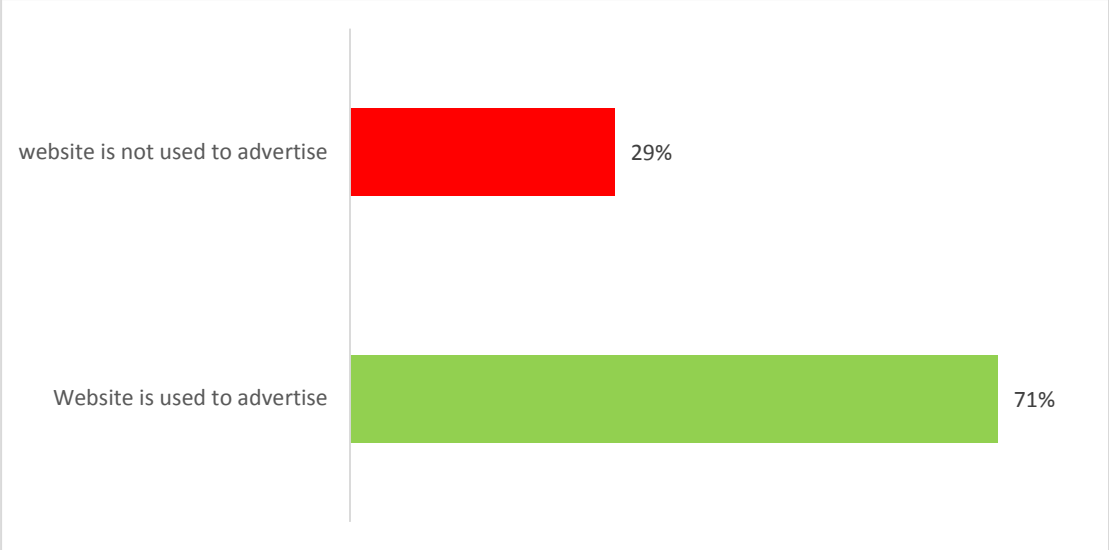
Figure 4.5 indicates that the technical institution used internet supported platforms to advertise its courses to the students as indicated by 61% of the respondents. However, 39% of the respondents attested that their technical institution never used internet supported platforms to advertise its courses. From the findings, it is evident that majority of the technical training institutes in Kiambu relied on ICT communication

through internet platforms to increase their clientele. This was likely to enhance female students' access to technical education as they had access to internet marketing platform where there was ease of access to information on TTI courses on offer.

4.3.3 Using website to advertise technical education

The study investigated on whether technical institutions in Kiambu County used websites to advertise their courses to the prospective students.

Figure 4.6 Using website to advertise technical education



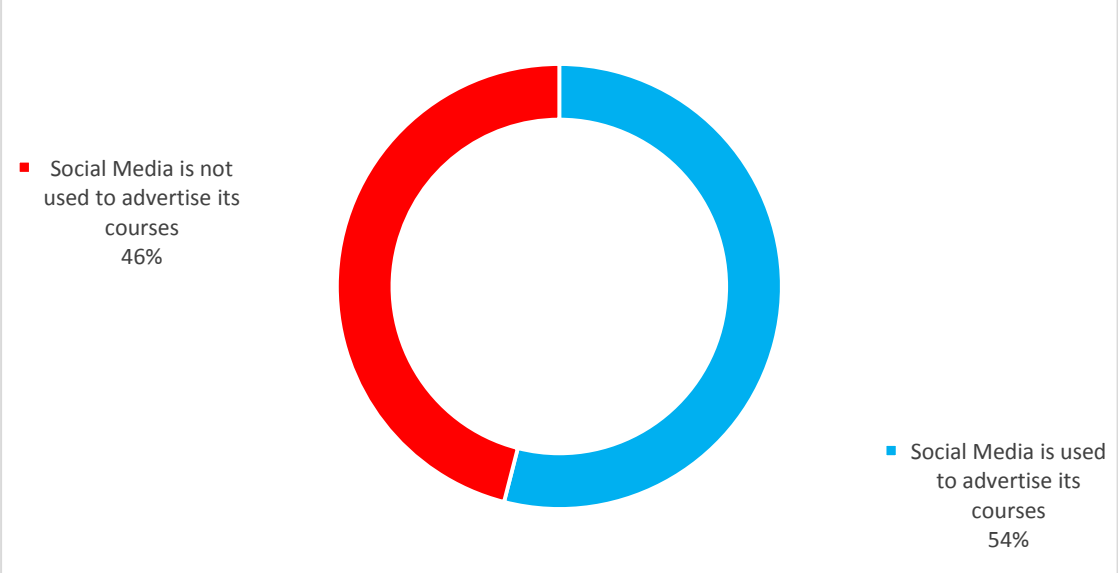
Based on the findings, the majority of the students (71%) indicated that their technical institutions use website to advertise its courses to the students. However, 29% of the students indicated that their technical institutions use website to advertise its courses to the students. The findings infer that majority of the TTI in Kiambu had websites where they advertised the technical courses they offered. The use of website was a communication through ICT that the TTIs heavily relied on to reach their target

market and which increased their attractiveness to prospective students including the female students in Kiambu County.

4.3.4 Using Social Media to advertise technical education

The study investigated on whether technical institutions in Kiambu County used Social Media (e.g. WhatsApp, twitter, Instagram, Facebook) to advertise their courses to the prospective students.

Figure 4.7 Using Social Media to advertise technical education



Over half of the students (54%) indicated that the institution they were in use Social Media (e.g. WhatsApp, twitter, Instagram, Facebook) to advertise its courses to the students. However, nearly half of the students indicated that their technical institutions never use Social Media (e.g. WhatsApp, twitter, Instagram, Facebook) to advertise its courses to the students. The findings show that despite majority of the TTIs in Kiambu using communication through ICT to market themselves, only half of them used social media platforms such as WhatsApp, twitter, Instagram, Facebook to

market themselves. Therefore, the TTIs in Kiambu failed to reach a wide market for the technical education on offer since majority of the youths in the county were using social media to inquire information regarding technical courses that suited their choices. Since only half of the TTIs used social media to advertise, it was difficult for them to enhance female students' access to technical education as prospective female students had to use other costly means to inquire about technical courses on offer.

4.3.5 Communication Channels used in promoting students' access to vocational education

The students were required to identify the different channels through which they came to know of the vocational education being offered in their respective technical institution.

Table 4.3 Communication Channels

Communication Channels	Frequency	Percent
Internet	68	68%
Website	62	62%
Social Media (e.g. WhatsApp, twitter, Instagram, Facebook)	60	60%
Print media (newspaper, magazines etc.)	54	54%
Mass media (radio, TV etc.)	58	58%
Interpersonal communication (word of mouth)	66	66%

The different channels through which the students came to know of the vocational education being offered in their respective technical institutions included; internet sources (68%), interpersonal communication (word of mouth) (66%), website (62%),

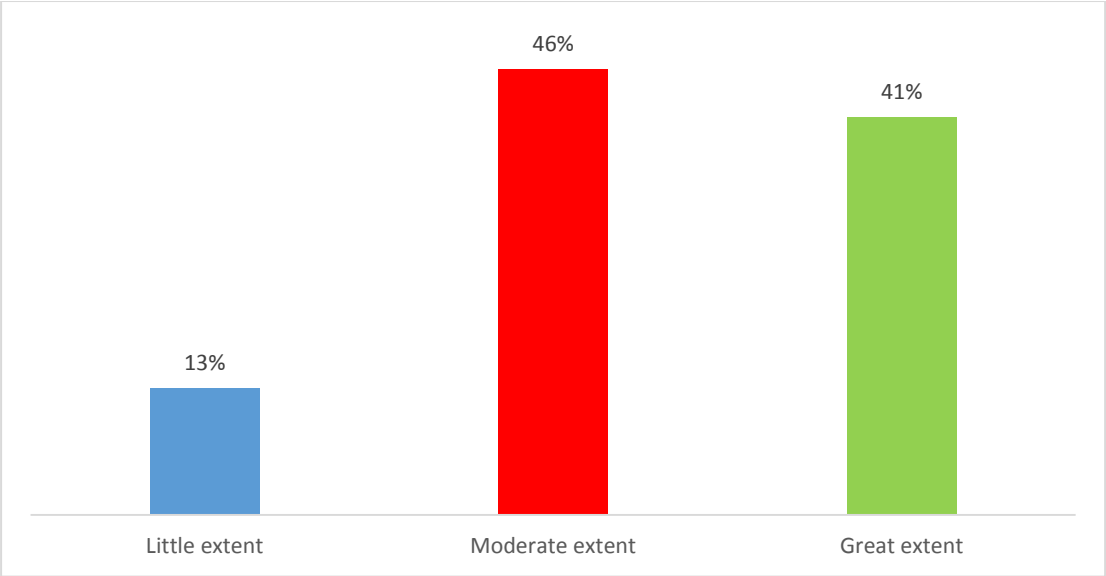
social media (e.g. WhatsApp, twitter, Instagram, Facebook) (60%), mass media (radio, TV etc.) (58%) and print media (newspaper, magazines etc.) (54%) respectively.

The findings infer that communication through ICT was one of the most effective channels of communication that TTIs in Kiambu County could use to enhance female students access to technical education due to its cost effectiveness and high penetration of internet use among the youths in the county. Depending on the extent to which TTIs in Kiambu County applied communication through ICT to reach their prospective clients, they were likely to significantly reduce the current high disparity in access to technical education between male and female students in the near future.

S4.3.6 Extent of using ICT during instruction

The study further sought to establish the extent to which students used ICT during instruction.

Figure 4.8 Extent of using ICT during instruction



On the extent to which students used ICT during instruction, 46% indicated that they used it to a moderate extent, 39% to a great extent while 13% indicated that they used ICT during instruction to a little extent. From the findings, it is evident that TTIs in Kiambu County used e-learning in the delivery of technical education to a great extent.

4.3.7 Linkage between communication through ICT and female students' access to technical education

The study required the respondents to indicate their level of agreement with statements on the linkage between communication through ICT and female students' access to technical education in Kiambu County.

Table 4.4 Communication through ICT and female students' access to technical education

Communication and female students' access to technical education	**Mean**	**Std Dev**
The high penetration of internet enabled phones among the youths is an added advantage to accessing vocational education information	3.7475	1.35785
Through communication they learn about vocational training through interpersonal communication	3.2900	1.38750
Through communication they learn about vocational training through Internet sources	3.1616	1.38289
Through communication they learn about vocational training through Mass media	3.0808	1.29895
Through communication they learn about vocational training through social media platforms	3.0800	1.33847
Through communication they learn about vocational training through Print media	2.8800	1.12169

The majority of the female students indicated that; the high penetration of internet enabled phones among the youths is an added advantage to accessing vocational education information (Mean=3.7475), through communication they learn about vocational training through interpersonal communication (Mean=3.2900), Internet sources (Mean=3.1616), Mass media (Mean=3.0808), social media platforms (Mean=3.0800) and Print media (Mean=2.8800) respectively.

Based on the finding, it is evident that female students significantly use social media platforms among other channels of ICT communication to explore different technical education courses on offer. It is evident that there is a linkage between communication through ICT and female students' access to technical education in Kiambu County, Kenya. The use of communication through ICT by TTIs in Kiambu County significantly increased access to information among prospective female students. This was likely to inform their enrolment decision to different courses they qualified for in the TTIs. The high penetration of internet enabled phones among the youths was an aspect that made communication through ICT by TTIs one of the cost effective communication channels available for the TTIs. The fact that majority of the prospective students sought information about TTIs and courses of their interest through internet search engines, websites and social media platform, also meant that use of communication through ICT by TTIs would be an efficient communication tool for them. Therefore, there is a linkage between communication through ICT and female students' access to technical education in Kiambu County, Kenya.

To confirm the linkage between communication through ICT and female students' access to technical education in Kiambu County, Kenya, the study used chi-test. The

chi-test was used to determine the significance of communication through ICT in affecting female students' access to technical education. The findings are as shown in table 4.5 below.

Table 4.5 ICT Communication and female students' access to technical education

	Value	**df**	**Asymp. Sig. (2-sided)**
Chi-Square	89.778[a]	99	0.001
N of Valid Cases	100		

The study rejects the null hypothesis that indicates that there is no relationship between variables being investigated. In this case rejects the null hypothesis that; communication through ICT has no significant effect on female students' access to technical education in Kiambu County in Kenya (p=0.001). Therefore, the alternate hypothesis is accepted that; communication through ICT has a significant effect on female students' access to technical education in Kiambu County. Therefore, there is a significant positive relationship between communication through ICT has on female students' access to technical education in Kiambu County.

4.4 Statistics of female students' access to technical education

The second objective of the study was to investigate the statistics of female students' access to technical education in Kiambu County, Kenya. The findings are as shown in the subsequent section 4.4.

4.4.1 Female students' access to technical education from 2013-2015

The study sought to establish female students' access to technical education in Kiambu. This was achieved by collecting secondary data in form of students' records from the technical institutes in Kiambu County. The secondary data collected was measuring technical students' enrolment, drop-outs, completion and transition for the period between 2013 and 2015 and was disaggregated by gender.

Table 4.6 Female students' access to technical education from 2013-2015

	2013		**2014**		**2015**		**Total for three years (2013-2015)**		
	Male	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Combined**
Enrolment	2586	1362	2610	1382	2755	1393	7,951	4,137	12,088
Drop-Outs	101	135	112	156	106	142	319	433	752
Completion	2485	1227	2498	1226	2649	1251	7,632	3,704	11,336
Transition	1054	523	1069	574	1123	625	3,246	1,722	4,968

In terms of enrolment, in year 2013, 2586 male and 1362 female students were enrolled to technical institution. In year 2014, 2610 male and 1382 female students were enrolled while in year 2015, 2755 male and 1393 female students were enrolled to technical institution. The findings infer that over the three-year period (2013-2015) that the study covered, girls enrolled in technical training institutes was only 34% while male students enrolled were 66%. This finding confirm poor access of female students to technical education in Kiambu compared to their male counterparts.

In terms of student drop-outs, in year 2013, 101 male and 135 female students dropped out from their technical institution. In year 2014, 112 male and 156 female students dropped out from their technical institution while in year 2015, 106 male and 142 female students dropped out from their technical institution. The findings infer that more female students (433) than male students (319) dropped out of technical training institutes in Kiambu County contributing to low female students' access to technical education in the county.

In terms of completion, in year 2013, 2485 male and 1227 female students completed their technical education. In year 2014, 2498 male and 1226 female students completed their technical education while in year 2015, 2649 male and 1251 female students completed their technical education. Based on the findings, it is evident that more male (7,632) than female (3,704) students completed their technical education in Kiambu County. The findings further confirm that the female students' access to technical education in Kiambu County is very low.

In terms of student transition, in year 2013, 1054 male and 523 female students transited. In year 2014, 1069 male and 574 female students transited while in year 2015, 1123 male and 625 female students transited in their technical education levels. Out of the 4,968 students that transited from certificate to diploma level, 3,246 were male while only 1,722 were female students. From the foregoing, it is evident that the transition of female students compared with that of male students was 34% which was very low and male students' number nearly doubled that of their female counterparts. It is therefore evident that female students access to technical education in Kiambu

was still very low and required to be scaled up to reduce disparity in access to technical education in the county.

4.5 Factors influencing female students' access to technical education.

The third objective of the study was to investigate the factors influencing female students' access to technical education in Kiambu County, Kenya. The findings are as shown in the subsequent section 4.5.

4.5.1 Factors influencing female students' access to technical education

Respondents were to indicate their levels of agreement on statements on the factors influencing female students' access to technical education in Kiambu County.

Table 4.7 Factors influencing female students' access to technical education

Factors influencing female students' access to technical education	Mean	Std Dev
learning materials for technical courses are very expensive	3.6500	1.23399
technical education courses are costly	3.6400	1.24333
inability of some technical institutions to pay their teachers regularly leads to low morale	3.5200	1.22664
most female students pursue art based courses	3.2600	1.12474
lack of infrastructure affects female students access to technical education	3.0000	1.44949
government policy affects female students access to technical education	2.7300	1.22972
admission criteria favor boys	2.6869	1.39713
technical courses are meant to be pursued by boys	2.5900	1.27204
girls are supposed to be home makers	2.4300	1.42315

Majority of female students said that; the learning materials for technical courses are very expensive (Mean=3.6500), technical education courses are costly (Mean=3.6400), inability of some technical institutions to pay their teachers regularly leads to low morale (Mean=3.5200), most female students pursue art based courses

(Mean=3.2600), lack of infrastructure affects female students access to technical education (Mean=3.0000), government policy affects female students access to technical education (Mean=2.7300), admission criteria favor boys (Mean=2.6869), technical courses are meant to be pursued by boys (Mean=2.5900), and that girls are supposed to be home makers (Mean=2.4300) respectively.

This infers that there are a number of factors determined female students' access to technical education in Kiambu County, Kenya. Depending on the extent to which these factors were dealt with by the different stakeholders of technical education, female students' access to technical education was enhanced or hindered. The key factors influencing female students' access to technical education in Kiambu County, Kenya include; affordability of technical education which at present was low due to high cost of fees, remuneration and motivation of staff, female students' preference for art courses as opposed to technical courses, lack of reliable IT supportive infrastructure, and government policy.

4.4 Multiple Regression Analysis

In determining the significance of communication through ICT on female students' access to technical education in Kiambu County, the researcher conducted a simple regression analysis to determine the nature of relationship between the variables. The regression model specification was as follows;

$Y=\alpha+\beta_1 X_1 + \varepsilon.$

Y= is the dependent variable (female students' access to technical education in Kiambu County)

X_1= communication through ICT.

4.4.1 Model Summary

Coefficient of determination explains the extent to which change in the dependent variable (female students' access to technical education) can be explained by the change in the independent variable (communication through ICT) or the percentage of variation in the dependent variable (female students' access to technical education) that is explained by the independent variable (communication through ICT).

Table 4.8 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	. 899[a]	.8082	.796	0.0014

a. Predictors: (Constant), communication through ICT

b. Dependent Variable: female students' access to technical education

Based on the findings, communication through ICT as the independent variable, explain 80.82% of variance in the female students' access to technical education as represented by the R2. This means that other factors not studied in this research contribute 19.18% of variance in the dependent variable. Future, studies should investigate the role of these factors in influencing female students' access to technical education.

4.3.2 ANOVA (Analysis of Variance)

Table 4.9 ANOVA (Analysis of Variance)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.323	50	.202	8.66	.004[a]
	Residual	5.408	49	.246		
	Total	6.898	99			

a. Predictors: (Constant), communication through ICT

b. Dependent Variable: female students' access to technical education

From the findings the significance value is .004 which is less than 0.05, thus the model is statistically significant in predicting how communication through ICT influence female students' access to technical education in Kiambu County. The F critical at 5% level of significance was 3.23. Since F calculated (value = 8.66) is greater than the F critical (3.23), this shows that the overall model was significant.

4.3.3 Coefficient of Determination

Multiple regression analysis was conducted as to determine the relationship between female students' access to technical education in Kiambu County and communication through ICT.

Table 4.10 Regression Coefficients of Determination

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta	B	
(Constant)	4.432	.826		3.61	.000
communication through ICT	0.788	.312	0.218	3.61	.0008

From the regression findings, the substitution of the equation;

$Y=\alpha+\beta_1 X_1 + \varepsilon$ becomes:

$Y= 4.432 + 0.788\ X_1 + \varepsilon$

According to the regression equation above, taking communication through ICT to be constant at zero, female students' access to technical education in Kiambu County will be 4.432. The data findings analyzed also shows that a unit increase in communication through ICT will lead to a 0.788 increase in female students' access to technical education in Kiambu County in Kenya. This infers that communication through ICT contribute significantly to improvement in female students' access to technical education in Kiambu County.

At 5% level of significance and 95% level of confidence, communication through ICT had a 0.0008 level of significance hence communication through ICT significantly influence female students' access to technical education in Kiambu County in Kenya.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Overview

The chapter presents the summary, conclusion, recommendation and areas for further studies on the effect of communication through ICT on female students' access to technical education in Kiambu County, Kenya.

5.2 Summary

The summary of findings is based on the specific objectives;

5.2.1 Communication through ICT and female students' access to technical education

The study established that technical institutions have an ICT department that manages the institutions communication to its different stakeholders as indicated by the majority of the female students (81%). Therefore, the technical institutes in Kiambu County had in place an ICT department to communicate to their different audience through ICT communication channels. Depending on the extent to which these ICT departments employed communication through ICT, they were likely to enhance students' access to technical education in the county.

Technical institution used internet supported platforms to advertise its courses to the students as indicated by 61% of the respondents. From the findings, it is evident that majority of the technical training institutes in Kiambu relied on ICT communication through internet platforms to increase their clientele. This was likely to enhance

female students' access to technical education as they had access to internet marketing platform where there was ease of access to information on TTI courses on offer.

Technical institutions also use website to advertise its courses to the students as attested by the majority of the female students (71%). Therefore, majority of the TTI in Kiambu had websites where they advertised the technical courses they offered. The use of website was a communication through ICT that the TTIs heavily relied on to reach their target market and which increased their attractiveness to prospective students including the female students in Kiambu County.

The TTIs in Kiambu County were rarely using Social Media (e.g. WhatsApp, twitter, Instagram, Facebook) to advertise their courses to the students. The findings show that despite majority of the TTIs in Kiambu using communication through WhatsApp, ICT to market themselves, they rarely used social media platforms such as WhatsApp, twitter, Instagram, Facebook to market themselves. Therefore, the TTIs in Kiambu failed to reach a wide market for the technical education on offer since majority of the youths in the county were using social media to inquire information regarding technical courses that suited their choices. Since the TTIs rarely used social media to advertise, it was difficult for them to enhance female students' access to technical education as prospective female students had to use other costly means to inquire about technical courses on offer.

The different channels through which the female students came to know of the vocational education being offered in their respective TTIs included; internet sources (68%), interpersonal communication (word of mouth) (66%), website (62%), social

media (e.g. WhatsApp, twitter, Instagram, Facebook) (60%), mass media (radio, TV etc.) (58%) and print media (newspaper, magazines etc.) (54%) respectively. Thus, communication through ICT was one of the most effective channels of communication that TTIs in Kiambu County could use to enhance female students access to technical education due to its cost effectiveness and high penetration of internet use among the youths in the county. Depending on the extent to which TTIs in Kiambu County applied communication through ICT to reach their prospective clients, they were likely to significantly reduce the current high disparity in access to technical education between male and female students in the near future.

On the extent to which students used ICT during instruction, the study established that 46% used it to a moderate extent, 39% to a great extent and 13% to a little extent. From the findings, it is evident that TTIs in Kiambu County used e-learning in the delivery of technical education to a great extent.

It was further revealed that; the high penetration of internet enabled phones among the youths is an added advantage to accessing vocational education information (Mean=3.7475), through communication they learn about vocational training through interpersonal communication (Mean=3.2900), Internet sources (Mean=3.1616), Mass media (Mean=3.0808), social media platforms (Mean=3.0800) and Print media (Mean=2.8800) respectively.

Based on the finding, it is evident that there is a linkage between communication through ICT and female students' access to technical education in Kiambu County, Kenya. The use of communication through ICT by TTIs in Kiambu County

significantly increased access to information among prospective female students. This was likely to inform their enrolment decision to different courses they qualified for in the TTIs. The high penetration of internet enabled phones among the youths was an aspect that made communication through ICT by TTIs one of the cost effective communication channels available for the TTIs. The fact that majority of the prospective students sought information about TTIs and courses of their interest through internet search engines, websites and social media platform, also meant that use of communication through ICT by TTIs would be an efficient communication tool for them. Therefore, there is a linkage between communication through ICT and female students' access to technical education in Kiambu County, Kenya.

The study rejected the null hypothesis that; communication through ICT has no significant effect on female students' access to technical education in Kiambu County in Kenya ($p=0.001$). Therefore, the alternate hypothesis is accepted that; communication through ICT has a significant effect on female students' access to technical education in Kiambu County. Therefore, there is a significant positive relationship between communication through ICT has on female students' access to technical education in Kiambu County.

5.2.1 Communication through ICT and female students' access to technical education

The study established that technical institutions have an ICT department that manages the institutions communication to its different stakeholders as indicated by the majority of the female students (81%). Therefore, the technical institutes in Kiambu County had in place an ICT department to communicate to their different audience

through ICT communication channels. Depending on the extent to which these ICT departments employed communication through ICT, they were likely to enhance students' access to technical education in the county.

Technical institution used internet supported platforms to advertise its courses to the students as indicated by 61% of the respondents. From the findings, it is evident that majority of the technical training institutes in Kiambu relied on ICT communication through internet platforms to increase their clientele. This was likely to enhance female students' access to technical education as they had access to internet marketing platform where there was ease of access to information on TTI courses on offer.

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The TTIs in Kiambu County were rarely using Social Media (e.g. WhatsApp, twitter, Instagram, Facebook) to advertise their courses to the students. The findings show that despite majority of the TTIs in Kiambu using communication through ICT to market themselves, they rarely used social media platforms such as WhatsApp, twitter, Instagram, Facebook to market themselves. Therefore, the TTIs in Kiambu failed to reach a wide market for the technical education on offer since majority of the youths in the county were using social media to inquire information regarding

technical courses that suited their choices. Since the TTIs rarely used social media to advertise, it was difficult for them to enhance female students' access to technical education as prospective female students had to use other costly means to inquire about technical courses on offer.

The different channels through which the female students came to know of the vocational education being offered in their respective TTIs included; internet sources (68%), interpersonal communication (word of mouth) (66%), website (62%), social media (e.g. WhatsApp, twitter, Instagram, Facebook) (60%), mass media (radio, TV etc.) (58%) and print media (newspaper, magazines etc.) (54%) respectively. Thus, communication through ICT was one of the most effective channels of communication that TTIs in Kiambu County could use to enhance female students access to technical education due to its cost effectiveness and high penetration of internet use among the youths in the county. Depending on the extent to which TTIs in Kiambu County applied communication through ICT to reach their prospective clients, they were likely to significantly reduce the current high disparity in access to technical education between male and female students in the near future.

On the extent to which students used ICT during instruction, the study established that 46% used it to a moderate extent, 39% to a great extent and 13% to a little extent. From the findings, it is evident that TTIs in Kiambu County used e-learning in the delivery of technical education to a great extent.

It was further revealed that; high penetration of internet enabled phones among the youths is an added advantage to accessing vocational education information

(Mean=3.7475), female students are likely to learn about vocational training through interpersonal communication (Mean=3.2900), female students are likely to learn about vocational training through Internet sources (Mean=3.1616), female students are likely to learn about vocational training through Mass media (Mean=3.0808), female students are likely to learn about vocational training through social media platforms (Mean=3.0800) and that female students are likely to learn about vocational training through Print media (Mean=2.8800) respectively.

Based on the finding, it is evident that there is a linkage between communication through ICT and female students' access to technical education in Kiambu County, Kenya. The use of communication through ICT by TTIs in Kiambu County significantly increased access to information among prospective female students. This was likely to inform their enrolment decision to different courses they qualified for in the TTIs. The high penetration of internet enabled phones among the youths was an aspect that made communication through ICT by TTIs one of the cost effective communication channels available for the TTIs. The fact that majority of the prospective students sought information about TTIs and courses of their interest through internet search engines, websites and social media platform, also meant that use of communication through ICT by TTIs would be an efficient communication tool for them. Therefore, there is a linkage between communication through ICT and female students' access to technical education in Kiambu County, Kenya.

The study rejected that indicates that there is no relationship between variables being investigated. In this case rejects the null hypothesis that; communication through ICT has no significant effect on female students' access to technical education in Kiambu

County in Kenya (p=0.001). Therefore, the alternate hypothesis is accepted that; communication through ICT has a significant effect on female students' access to technical education in Kiambu County. Therefore, there is a significant positive relationship between communication through ICT has on female students' access to technical education in Kiambu County.

5.2.2 Statistics of female students' access to technical education

In year 2013, 2,586 male and 1,362 female students were enrolled to technical institution. In year 2014, 2,610 male and 1,382 female students were enrolled while in year 2015, 2,755 male and 1,393 female students were enrolled to technical institution. Over the three-year period (2013-2015), female students enrolled in technical training institutes were only 34% while male students enrolled were 66%. This finding confirms of poor access of female students to technical education in Kiambu compared to their male counterparts.

In year 2013, 101 male and 135 female students dropped out from their technical institution. In year 2014, 112 male and 156 female students dropped out from their technical institution while in year 2015, 106 male and 142 female students dropped out from their technical institution. Thus, more female students (433) than male students (319) dropped out of technical training institutes in Kiambu County contributing to low female students' access to technical education in the county.

In year 2013, 2,485 male and 1,227 female students completed their technical education. In year 2014, 2,498 male and 1,226 female students completed while in year 2015, 2,649 male and 1,251 female students completed their technical education.

Therefore, more male (7,632) than female (3,704) students completed their technical education in Kiambu County. The findings further confirm that the female students' access to technical education in Kiambu County is very low.

In year 2013, 1,054 male and 523 female students transited to the next level of their technical education. In year 2014, 1,069 male and 574 female students transited while in year 2015, 1,123 male and 625 female students transited in their technical education levels. Out of the 4,968 students that transited from certificate to diploma level, 3,246 were male while only 1,722 were female students. The transition of female students compared with that of male students was 34% which was very low and male students' number nearly doubled that of their female counterparts. It is therefore evident that female student's access to technical education in Kiambu was still very low and required to be scaled upwards to reduce disparity in access to technical education in the county.

5.2.3 Factors influencing female students' access to technical education.

The study established that; the learning materials for technical courses are very expensive (Mean=3.6500), technical education courses are costly (Mean=3.6400), inability of some technical institutions to pay their teachers regularly leads to low morale (Mean=3.5200), most female students pursue art based courses (Mean=3.2600), lack of infrastructure affects female students access to technical education (Mean=3.0000), government policy affects female students access to technical education (Mean=2.7300), admission criteria favors boys (Mean=2.6869), technical courses are meant to be pursued by boys (Mean=2.5900), and that girls are supposed to be home makers (Mean=2.4300) respectively.

Hence, there are a number of factors that determined female students' access to technical education in Kiambu County, Kenya. Depending on the extent to which these factors were dealt with by the different stakeholders of technical education, female students' access to technical education was enhanced or hindered. The key factors influencing female students' access to technical education in Kiambu County, Kenya include; affordability of technical education which at present was low due to high cost of fees, remuneration and motivation of staff, female students' preference for art courses as opposed to technical courses, lack of reliable IT supportive infrastructure, and government policy.

From the regression analysis, communication through ICT as the independent variable, explained 80.82% of variance in female students' access to technical education. It was also revealed that taking communication through ICT to be constant at zero, female students' access to technical education in Kiambu County will be 4.432. In addition, a unit increase in communication through ICT will lead to a 0.788 increase in female students' access to technical education in Kiambu County in Kenya. Therefore, communication through ICT contribute significantly to improvement in female students' access to technical education in Kiambu County. At 5% level of significance and 95% level of confidence, communication through ICT had a 0.0008 level of significance hence communication through ICT significantly influence female students' access to technical education in Kiambu County in Kenya.

5.3 Conclusion

5.3.1 Communication through ICT and female students' access to technical education

Technical institutes in Kiambu County had in place an ICT department to communicate to their different audience through ICT communication channels. Depending on the extent to which these ICT departments employed communication through ICT, they were likely to enhance students' access to technical education in the county. The study concludes that majority of the technical training institutes in Kiambu relied on ICT communication through internet platforms to increase their clientele. This was likely to enhance female students' access to technical education as they had access to internet marketing platform where there was ease of access to information on TTI courses on offer.

The majority of the TTIs in Kiambu had websites where they advertised the technical courses they offered. The use of website was a communication through ICT that the TTIs heavily relied on to reach their target market and which increased their attractiveness to prospective students including the female students in Kiambu County. The study concludes that despite majority of the TTIs in Kiambu using communication through ICT to market themselves, only half of them used social media platforms such as WhatsApp, twitter, Instagram, Facebook to market themselves. Therefore, the TTIs in Kiambu failed to reach a wide market for the technical education on offer since majority of the youths in the county were using social media to inquire information regarding technical courses that suited their choices. Since only half of the TTIs used social media to advertise, it was difficult for

them to enhance female students' access to technical education as prospective female students had to use other costly means to inquire about technical courses on offer.

Communication through ICT was one of the most effective channels of communication that TTIs in Kiambu County could use to enhance female students access to technical education due to its cost effectiveness and high penetration of internet use among the youths in the county. Depending on the extent to which TTIs in Kiambu County applied communication through ICT to reach their prospective clients, they were likely to significantly reduce the current high disparity in access to technical education between male and female students in the near future.

There is a linkage between communication through ICT and female students' access to technical education in Kiambu County, Kenya. The use of communication through ICT by TTIs in Kiambu County significantly increased access to information among prospective female students. This was likely to inform their enrolment decision to different courses they qualified for in the TTIs. The high the high penetration of internet enabled phones among the youths was an aspect that made communication through ICT by TTIs one of the cost-effective communication channels available for the TTIs. The fact that majority of the prospective students sought information about TTIs and courses of their interest through internet search engines, websites and social media platform, also meant that use of communication through ICT by TTIs would be an efficient communication tool for them. Therefore, there is a linkage between communication through ICT and female students' access to technical education in Kiambu County, Kenya. The study concludes that communication through ICT has a significant effect on female students' access to technical education in Kiambu County.

Therefore, there is a significant positive relationship between communication through ICT has on female students' access to technical education in Kiambu County.

5.3.2 Statistics of female students' access to technical education

Over the three-year period (2013-2015) female students' enrolment in technical training institutes was about half of male students' enrolment confirming poor access of female students to technical education in Kiambu compared to their male counterparts. More female students than male students dropped out of technical training institutes in Kiambu County contributing to low female students' access to technical education in the county.

More male than female students completed their technical education in Kiambu County confirming that the female student's access to technical education in Kiambu County is very low. The transition of female students compared with that of male students was about half which was very low and male students number nearly doubled that of their female counterparts. It is therefore evident that female students access to technical education in Kiambu was still very low and required to be scaled up to reduce disparity in access to technical education in the county.

5.3.3 Factors influencing female students' access to technical education.

There are a number of factors determined female students' access to technical education in Kiambu County, Kenya. Depending on the extent to which these factors were dealt with by the different stakeholders of technical education, female student's access to technical education was enhanced or hindered. The key factors influencing female students' access to technical education in Kiambu County, Kenya include;

affordability of technical education which at present was low due to high cost of fees, remuneration and motivation of staff, female students' preference for art courses as opposed to technical courses, lack of reliable IT supportive infrastructure, and government policy. It is further concluded that communication through ICT contribute significantly to improvement in female students' access to technical education in Kiambu County and that communication through ICT significantly influence female students' access to technical education in Kiambu County in Kenya.

5.4 Recommendations

Despite the majority of the TTIs in Kiambu using communication through ICT to market themselves, only half of them used social media platforms such as WhatsApp, twitter, Instagram, Facebook to market themselves. The study therefore recommends that all the TTIs in Kiambu County should adopt and scale up the marketing and communicating to their different audience through social media platforms.

There is linkage between communication through ICT and female students' access to technical education in Kiambu County, Kenya. The management of the TTIs should allocate adequate budget to implement communication through ICT strategy towards enhancing female students' access to technical education.

The study established that female students' access to technical education as a function of enrolment, drop-outs, completion and transition was very low. It is therefore necessary for the government through the Ministry of Education should conduct a nation-wide campaign sensitizing female students to join technical education. This

should be coupled with requisite changes in technical education policy to achieve gender parity in technical education in Kenya.

5.5 Areas for Further Studies

The study was on effect of communication through ICT on female students' access to technical education in Kiambu County. The study recommends that further study should be carried out in effect of communication through ICT on female students' access to university education in Kenya. This will allow for validation of the results of the current study finding.

Similar study can also be conducted on the role of print media in enhancing female students' access to technical education in Kenya.

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APPENDICES

APPENDIX 1: QUESTIONNAIRE

I am Alexandrina Ngugi, a student at UoN taking a Masters of Arts degree in Communication Studies. As a requirement for the fulfillment of the Masters degree, I intend to carry out a research on **"FEMALE STUDENTS' ACCESS TO TECHNICAL EDUCATION THROUGH ICT: A CASE OF KIAMBU COUNTY, KENYA."** This questionnaire is therefore for the purposes of academic research only and the information gathered will be treated confidentially. Please answer all the questions provided as honestly as possible, to the best of your knowledge.

Do I have your consent to proceed? Yes [ ] No [ ]

Section A: Personal Information

1. What is the level of college education that you currently pursuing?

Diploma [ ] Certificate [ ]

2. What is your age?

Below 24 years [ ] 25 – 30 years [ ] 31 – 35 years [ ]
36 – 40 years [ ] 41 – 45 years [ ] 46 – 50 years [ ]
51 and above [ ]

Section B: Linkage between communication through ICT and female students' access to technical education

2. Does your institution have an ICT department that manages the institutions communication to its different stakeholders?

Yes [ ] No [ ]

3. Does the institution use Internet to advertise its courses to the students?

Yes [ ] No [ ]

4. Does the institution use website to advertise its courses to the students?

Yes [ ] No [ ]

5. Does the institution use Social Media (e.g. Whatsup, twitter, Instagram, Facebook) to advertise its courses to the students?

Yes [ ] No [ ]

6. Did you get to know of the vocational education being offered in this institution through?

Internet [ ]

Website [ ]

Social Media (e.g. Whatsup, twitter, Instagram, Facebook [ ]

7. To what extent do you use ICT during instruction?

Little extent [ ] Moderate extent [ ]
Great extent [ ] Very great extent [ ]

8. What is your level of agreement with the following statements on the linkage between communication through ICT and female students' access to technical education in Kiambu County? Use a scale of 1-5 where 1= strongly disagree, 2-disagree, 3-moderately agree, 4-agree and 5= strongly agree.

Linkage between communication through ICT and female students' access to technical education	**1**	**2**	**3**	**4**	**5**
There is adequate technological infrastructure in place					
Availability of technological infrastructure affects female students access to technical education					

ICT enhances collaboration and cooperation possibilities					
ICT promotes efficiency in lessons' delivery in our institution					
ICT promotes innovation and creativity in delivering lessons in our institution					
ICT has better prepared learners for long life learning					

Section C: Statistics of female students' access to technical education

9. How many students are there in your institution?

   Below 100 [ ] 101-200 [ ] 201-300 [ ] Over 300 [ ]

10. How many students in your institution are female?

    Below 100 [ ] 101-200 [ ] 201-300 [ ]

    Over 300 [ ]

11. Please evaluate your computer and internet skills

    Excellent [ ] good [ ] average [ ] poor [ ]

Section D: Factors influencing female students' access to technical education.

12. What is your level of agreement with the following statements on the factors influencing female students' access to technical education in Kiambu County? Use a scale of 1-5 where 1= strongly disagree, 2-disagree, 3-moderately agree, 4-agree and 5= strongly agree.

Factors influencing female students' access to technical education	**1**	**2**	**3**	**4**	**5**
Technical education courses are costly					
Learning materials for technical courses are very expensive					
Inability of some institutions to resource their schools and pay their teachers regularly leads to low morale					

Admission criteria favors boys					
Girls are supposed to be home makers					
Most female students pursue art based courses					
Technical courses are meant to be pursued by boys					

Section E: Strategies that would facilitate effective communication through ICT in enhancing female students' access to technical education

13. What is your level of agreement with the following statements on strategies that would facilitate effective communication through ICT in enhancing female students' access to technical education in Kiambu County, Kenya. Use a scale of 1-5 where 1= strongly disagree, 2-disagree, 3-moderately agree, 4-agree and 5= strongly agree.

Strategies that would facilitate effective communication through ICT in enhancing female students' access to technical education	**1**	**2**	**3**	**4**	**5**
Sharing experiences and opportunities to facilitate knowledge will increase access of ICT for women					
Establishing networks of community-based ICT learning centres to facilitate learning					
Insisting on specified minimum educational entry requirements into training could deter those that do not meet the criteria					
Development of ICT through integrating it in discipline teaching					
Females are more attracted to disciplines where there is application of technology rather than technical bits					
Curricula involving multidisciplinary applications will attract a higher percentage of women					
Interaction of industry, professional associations, educational institutions and media will help attract more female students					

Thank you for participating.

APPENDIX 2: CERTIFICATE OF FIELDWORK

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SCHOOL OF JOURNALISM & MASS COMMUNICATION

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REF: CERTIFICATE OF FIELDWORK

This is to certify that all corrections proposed at the Board of Examiners meeting held on 24/06/2016 in respect of M.A/PhD. Project/Thesis Proposal defence have been effected to my/our satisfaction and the project can be allowed to proceed for fieldwork.

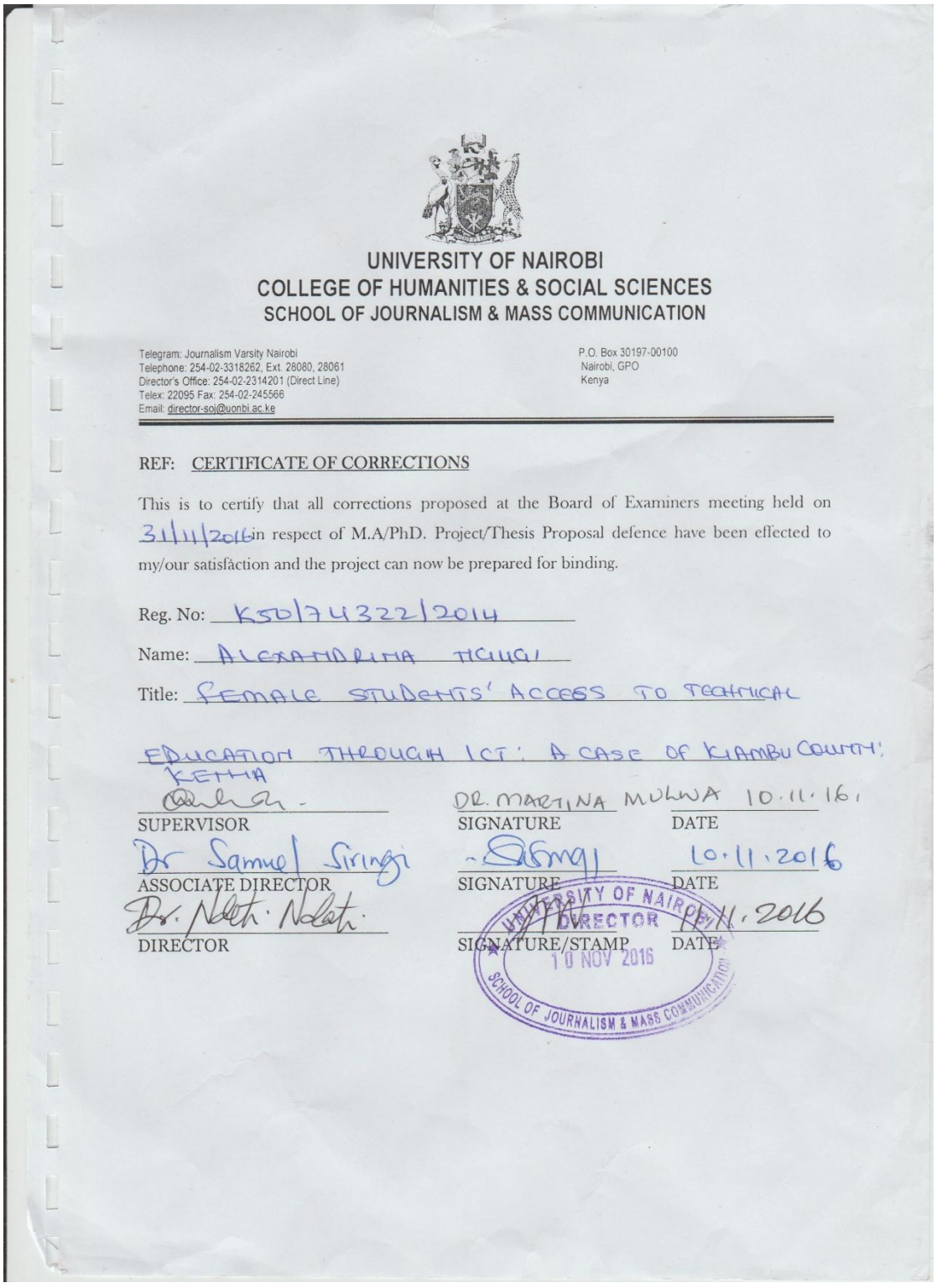
Reg. No: K50/74322/2014

Name: ALEXANDRINA HUGU

Title: FEMALE STUDENTS' ACCESS TO TECHNICAL EDUCATION THROUGH ICT: A CASE OF EMBU COUNTY, KENYA

Dr. Mokhia Mulwa.		14/07/16
SUPERVISOR	SIGNATURE	DATE
Dr. Samuel Sirngi		15/07/16
ASSOCIATE DIRECTOR	SIGNATURE	DATE
Dr Samuel Sirngi		15/07/16
DIRECTOR	SIGNATURE/STAMP	DATE

APPENDIX 3: CERTIFICATE OF CORRECTIONS



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REF: CERTIFICATE OF CORRECTIONS

This is to certify that all corrections proposed at the Board of Examiners meeting held on 31/11/2016 in respect of M.A/PhD. Project/Thesis Proposal defence have been effected to my/our satisfaction and the project can now be prepared for binding.

Reg. No: K50/74322/2014

Name: ALEXANDRINA MUHWA

Title: FEMALE STUDENTS' ACCESS TO TECHNICAL EDUCATION THROUGH ICT: A CASE OF KIAMBU COUNTY, KENYA

SUPERVISOR	SIGNATURE	DATE
Dr Samuel Siringi		10.11.2016
ASSOCIATE DIRECTOR	SIGNATURE	DATE
Dr. Ndati		10.11.2016
DIRECTOR	SIGNATURE/STAMP	DATE

DR. MARTINA MUHWA 10.11.16

UNIVERSITY OF NAIROBI DIRECTOR 10 NOV 2016 SCHOOL OF JOURNALISM & MASS COMMUNICATION

APPENDIX 4: DECLARATION OF ORIGINALITY FORM

UNIVERSITY OF NAIROBI

Declaration of Originality Form

This form must be completed and signed for all works submitted to the University for examination.

Name of Student ALEXANDRINA NGUGI

Registration Number K50/74322/2014

College HUMANITIES & SOCIAL STUDIES

Faculty/School/Institute SCHOOL OF JOURNALISM

Department SOJ

Course Name COMMUNICATION STUDIES

Title of the work FEMALE STUDENTS' ACCESS TO TECHNICAL EDUCATION THROUGH ICT: A CASE OF KIAMBU COUNTY, KENYA

DECLARATION

1. I understand what Plagiarism is and I am aware of the University's policy in this regard
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Signature Ngugi

Date 10/NOVEMBER/2016

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APPENDIX 5: PLAGIARISM REPORT

Turnitin Originality Report

FEMALE STUDENTS' ACCESS TO TECHNICAL EDUCATION THROUGH ICT:A CASE OF KIAMBU COUNTY, KENYA By by Ngugi Alexandrina Huine K50/74322/2014

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