ICT ADOPTION IN THE MANAGEMENT OF PUBLIC PRIMARY TEACHER TRAINING COLLEGES IN MERU COUNTY

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AUGUST 2015
DECLARATION AND RECOMMENDATION

Declaration
This report is my original work, and has not been submitted elsewhere for examination purposes.

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Recommendation
This project report is submitted with our approval as the university supervisors.

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DEDICATION

I dedicate this work to my husband Job Nkonge and my daughter Lorraine Joy Kinya, for standing with me during my entire study period.
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First, special thanks to the Almighty God for giving me the life opportunity and resources to manage this project report. I honestly and humbly acknowledge Kenyatta University for creating an enabling environment for the study. I also wish to pass my sincere gratitude to Dr. Martin Ogola and Dr. Florence Itegi, who have taken the time to assist and guide me through the entire period as my supervisors. Their support and guide through the whole supervision period has been an inspiration to me. My sincere gratitude also goes to my friend Mrs Hellen Guantai for the role she played when I was developing the proposal until the report stage. Also, my heartfelt gratitude goes to the professional colleagues, who have been supportive to me when I was developing the subject matter. Finally, my sincere appreciation goes to Martin Mwirigi and Lorraine Joy Kinya, who tirelessly assisted in preparing the manuscript.
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### ABBREVIATIONS AND ACRONYMS

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<th>ACRONYM</th>
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<tr>
<td>EMIS:</td>
<td>Education Management Information System</td>
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<td>ICT:</td>
<td>Information and Communication Technology</td>
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<td>IPR:</td>
<td>Intellectual Property Right</td>
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<td>LMS:</td>
<td>Library Management System</td>
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<td>MoEST:</td>
<td>Ministry of Education Science and Technology</td>
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<td>PC:</td>
<td>Personal Computer</td>
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<td>SMS:</td>
<td>Short Messaging Service</td>
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<td>TAM:</td>
<td>Technology Acceptance Model</td>
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ABSTRACT

For more than a decade now, Information and Communication Technology (ICT) has been the dream of many organizations. The shift from the manual, ineffective and inefficient way of managing organizations has placed ICT high in the ladder. Organizations can boast of the contribution made by adoption of ICT, in-terms of efficiency and effectiveness. However, despite its role in improving effectiveness and efficiency in the management of teacher training colleges, its adoption in most of these institutions has remained low and limited. This study, therefore, sought to investigate the adoption of ICT in primary teacher training colleges in Meru County. The researcher used descriptive survey design by utilizing both qualitative and quantitative data collection and analysis. The target population was 2362 respondents from the public primary teacher training colleges in Meru County. This population cut across principals, tutors and student teachers. Stratified random sampling was used to select the sample from the tutors and student teachers in the study. The sample size was 710 respondents who were 30% of the total population. Tools of data collection were questionnaires for the tutors and student teachers, and an interview schedule for the principals. Reliability of the instruments was ascertained using test-retest method and correlated using Cronbach’s Alpha, which gave a coefficient factor of 0.876. To test the validity of instruments, the researcher employed expert review judgement. Data analysis was done both qualitatively and quantitatively after data cleaning and coding. Percentages, means and frequency counts were used to analyse qualitative data. Results of data analysis were presented using frequency distribution tables and graphs. From the findings of the study, the research revealed that tutors and student teachers are not able to enjoy the full pleasure of technology due to inadequate or even lack of equipment. Tutors admitted some level of support from the managers in implementing ICT in TTCs. The support was by way of sending them for in-service training and procuring of ICT facilities. Beliefs and attitudes were the contributing factors to the adoption of technology in teacher training colleges. The study established that some teachers have a low attitude when it comes to technology, hence the slow rate of adoption. On the application of IT, the study revealed that it was used to manage students’ data, finances as well as analysing students’ assessment among other purposes.
CHAPTER ONE

INTRODUCTION

1.0 Introduction

The study sought to explore the adoption of Information Communication Technology (ICT) in the institutional management of public primary Teacher Training Colleges (TTCs) in Meru County. This chapter covers the background of the study, statement of the problem, the purpose of the study, objectives, and research questions. Other subthemes are the significance of the study, limitations to the study, delimitations, theoretical framework and the conceptual framework, and definition of operational terms.

1.2 Background of the Study

Use of information and communication technology in schools and universities has been adopted for a decade now (Fathi, Jahani & Nahid, 2010). The setup has been supporting crucial tasks like planning, budgeting, scheduling, grading and maintaining student records. The introduction of the computers and IT resources led to the evolution of ICT and the development ever since.

ICT is critical to economic and social development in most parts of the world today. Though, information technology is paramount to development, it has to be coupled with other dynamics for it to be effective. ICT use in developing countries is considered an effective way to improve the population’s life and well-being (Katitia, 2013). The introduction of ICT to the knowledge imparting institutions (education system) will improve the destiny of the third-world countries by linking them to the rest of the world (Fathi, 2008).
Information and communications technology are an integral component in the running and management of institutions currently, whether small business, companies or schools (McNergney, 2000). Information communication technology is promoting new approaches to working and learning, and new ways of interacting (Baloh, 2003).

Kipsoi, Changach & Sang (2012) notes that ICT played a significant role in improving management practices in educational systems. As a result, parents, students, teachers and the general public could access the institution’s database to seek information. Today, most organizations are adopting ICT for transformational ways to ensure effectiveness and efficiency in considering information technology in all the stages of product or service delivery. Educational institutions have not been left behind as they are trying to be at par with other organizations. According to Niyaz (2011), information communication technology offers vast potential for their use in institutional management. Therefore, educational institutions have a role in integrating these technologies to improve its efficiency and effectiveness aspects that have characterized the education sector.

Currently, colleges and universities are integrating IT into their educational offerings, back-office administration and marketing methods. IT has improved governance based on sound record keeping so that irrespective of the executive head, the records forms the basis for management, control, and decision-making (Ahmad, 2011). However, as administrators consider the importance of adopting ICT into their management, primary teacher training colleges in Meru County face countless challenges. The institutions have official websites but, they are not yet interactive to the expectation, leading to what we may say is the reduced rate of ICT integration in the management of the existing environment.
The training of teachers in the two public primary teacher training colleges in Meru County is on-going with most of the tutors showing little interest on ICT. Tutors feel that the teacher training colleges do not have enough computers and computer laboratories to cater for the needs of all students. Training of teachers should be considered important to help graduates have an understanding of the use of ICT. In turn, this may inculcate the interest and knowledge of technology adoption in the management of schools in future (Stephenson, 2001).

Information and communication technology offer worthwhile prizes: in particular, lower costs, time and wider access if used effectively for the improvement of delivery and management of education. But policy-makers increasingly want to see the value for money and clear evidence that educational investments will deliver commensurate benefits (Oliver, 2000). However, some of the early enthusiasts for ICTs in education have become more cautious, or even downright skeptical (Young, 2002). ICT in public primary teacher training colleges has been indefinable since most of the principals are either computer illiterate or technology ignorant. Based on the current global technological changes, organizations require modernization and digitization for efficient service delivery. Regardless of the benefits of ICT use in the education system, the management potential of information Technology by principals is not fully utilized in the management of TTCs. As evidenced ICT can play a significant role in equalizing opportunities for various teacher training institutions. But the paradox is that for these institutions that are unable to cope with the massive technological transformation, information technology can be another platform to sideline them and stall their efficiency and effectiveness. The result of failure to use information and communication technology is in itself a consequence of digital and knowledge divides that exist. The challenges and complexities facing principals in the
implementation of ICT are caused by this digital divide (National Council for Science and Technology, 2010).

This paper examines the adoption of ICT in the management of TTCs. Besides, the study will focus on the state of affairs at Egoji and Meru Teacher training colleges that need to be improved to justify the role of ICT. Where the adoption of ICT in the management of TTCs is not well embraced, the administrators may otherwise stick to the outdated management practices. As a result, TTCs may lag behind and disconnect with the rest of the digital world. As such, it is from this background that the researcher conceptualizes the study on the adoption of ICT in public primary teacher training colleges in Meru County.

1.3 Statement of the Problem

Information and Communication Technology use in the education systems in the developing countries remain very elusive despite a decade of substantial investment in information and communication technologies (Nchunge, Sakwa and Mwangi, 2012). Kenya like other developing countries struggles with the adoption and implementation of ICT in the management of institutions.

The initial aim of introducing ICTs in education was primarily at developing ICT skills (Nchunge et al., 2012). The drift has been to integrate ICT in the educational systems to improve the quality of teaching and learning as well as management, especially post-secondary levels (teacher training colleges) (ibid). Despite the evident goodwill, interest and commitment by the national government through the Ministry of Education, the availability and use of ICT (Johnson, 2012) in teacher education colleges is still patchy and limited.
Kenya ICT survey, (2007) observed that many school teachers are ill-equipped to integrate ICT effectively into the classroom. The inadequate number of computers, educational applications, training and acquisition of substandard or unfit equipment for use are among the challenge that tutors face. As a result, teachers hung at the mercy of external partners for determining what they learn and how. The absence of adequate funding to purchase ICT equipment retraining and developing requisite human capital for the teacher training colleges indicates a lag in ICT adoption and implementation. The processing speed that is very slow and may lead to all benefits of ICT integration in public teacher training colleges inequitably realized or not being realized soon.

Further, the recent report by the National Council for Science and Technology (2010) indicated “that computer use in the management of Kenyan institutions is still in its early phases. This research, therefore, is directed towards investigating the adoption of information communications technology in the management of Public Primary Teacher Training Colleges in Meru County.

1.4 Purpose of the Study

The study aimed at investigating the adoption of Information and Communication Technology (ICT) in the management of public primary Teacher Training Colleges (TTCs) in Meru County.

1.5 Objectives of the Study

i. To find out how the availability of equipment influences ICT implementation in public primary teacher training colleges in Meru County.

ii. To assess how institutional support influences implementation of ICT in the public Primary Teacher Training Colleges.
iii. To establish the perceptions of tutors in the adoption of ICT in public Primary Teacher Training Colleges in Meru County.

iv. To determine the areas of application of ICT in the management of public Primary Teacher Training Colleges.

1.6 Research Questions

i. How the availability of equipment influenced implementation of ICT in the management of public primary teacher training colleges in Meru County?

ii. Does the institutional support influence implementation of ICT in the public primary TTCs?

iii. What is the perception of tutors in the adoption of ICT in public primary teacher training colleges?

iv. In which areas is ICT applied in the management of public Primary Teacher Training Colleges?

1.7 Significance of the Study

This research study’s findings may have implications hypothetically and practically to the future of ICT in TTCs. Hypothetically, the study is anticipated to contribute to the advancement of ICT understanding by the managers and policy makers. The study will also highlight the hurdles that bound the adoption of ICT by the management. The study may also in a real situation lead to the improvement of strategies for implementation of ICT in public primary TTCs in the County.

1.8 Limitations of the Study

The study made use of primary data collected through the use of questionnaires administered to the respondents. Therefore, the accuracy of the data collected depended on the honesty of the respondents.
The researcher encountered a problem of concealment of information by the respondents because they were suspicious of the motive of the study. To deal with this, the researcher obtained a research permit and an introductory letter from the University specifying the purpose of the study and also assured confidentiality of the information sought, thus increased the response rate.

1.9 Delimitations of the Study

In this study, the researcher narrowed to Principals, tutors and Student teachers from the public Primary Teacher Training Colleges in Meru County.

1.10 Theoretical Framework

This research study adopted the theory of cultural lag. It states that within the society as a whole, while change takes place in the material culture, the adoptive non-material culture changes extremely slowly in spite of changes elsewhere (Orodho, 2010). Different rates of change in physical and non-material part of culture account for cultural lag. In this sense, Orodho conceptualizes cultural lags as the failure of ideas, attitudes, aspects of an institution, and practices to keep pace with changes in the material culture” (Orodho, 2010).

It was possible to adapt this theory in analysing the adoption of ICT in the public primary teacher training colleges in Meru County. The effects of these changes in the education sector would bring about corresponding changes in the formal organization of policy in the institutional pattern of various institutions worldwide.

1.11 Conceptual Framework

By conceptualizing the theory of cultural lags, it was possible to analyse the challenges principals have faced in the adoption of ICT in public primary teacher
training colleges. Therefore, by positively adopting ICT in the management of education as the service sector, ICT should offer many benefits at different levels of management.

**Independent variables**

- Lack of equipment
- Institutional support
- Perception on use of computers
- Areas of computer application

**Dependent variables**

- ICT Adoption

**Figure 1: Relationship of Factors Influencing ICT Implementation in Public Primary Teacher Training Colleges.**

The conceptual framework above shows the link between the independent variables and the dependent variables. The factors affecting ICT implementation, institutional support, perception on the use of computers and areas of computer application are the independent variables while ICT implementation is the dependent variable. With procuring of the relevant equipment for the institutions, implementation and adoption of the ICT will take centre stage in TTCs. Support by the administrators will determine whether the implementation of ICT will be a success. Many administrators and tutors in primary teacher training colleges have an adverse attitude on the idea of ICT integration in the management. They are ignorant of ICT in addition to having no training in ICT and, therefore, find it hard to them (Fathi et al., 2010). Besides, the
application of computers in the management of teacher training institutions has been a challenge for many of the stakeholders in the public primary teacher training colleges. They are reluctant to apply computers in their daily management practices (Kousha & Abdoli, 2004). If all the independent variables were addressed, the implementation of the ICT in public primary TTCs would be a success.
1.12 Definition of Operational Terms

**Behavioural Management:** This means how principals as the managers should behave to motivate the entire institution and encourage them to embrace ICT and commit to its implementation.

**Effectiveness:** A measure of the appropriateness of the implementation strategies in the public primary teacher training colleges and the degree to which they achieve the adoption goals.

**Information Technology:** This involves the use of computers in public primary teacher training colleges for acquiring, organizing, storing, manipulating and transmitting information.

**Adoption:** This is agreement to introduction of information and communication technology in the management of Public primary teacher training colleges.

**Principals’ beliefs:** This shows how administrators perceive ICT as a result of the experience and knowledge they have on the use of IT in the management of public primary teacher training colleges.
CHAPTER TWO

LITERATURE REVIEW

2.1 Background of the Study

This chapter discusses literature related to the adoption of information communications technology in the institutional management of public primary teacher training colleges. ICT is not used in the education system as well as teacher training in a consistent way as reviewed. Lack of positive role models, technical and institutional support has hindered ICT integration in TTCs. Other factors include; lack of confidence, lack of reliable ICT equipment in colleges or difficulty in accessing them.

2.1.1 Education Policy

Today information and communications technology are vital to educational management in schools, both globally and locally. Due to the demand for the ICT implementation in the education sector, the Kenyan government introduced the ICT policy. The education sector is a primary user of ICT, not only in education, training and research but also in the management. Katitia (2013) indicates that the ICT policies must be dynamic, cost-effective, adaptable, and differentiated between sectors and between the various segments of institutional management to contribute effectively to the management.

In Kenya, the Ministry of Education Science and Technology (MoEST) is dedicated to facilitating ICT implementation as a tool for education and training. Sikei, Mburu & Lagat, (2008) underscores that “ICT is the driving force for Countries in the modern world. Having a workforce armed with technology skills can not be underestimated as it directly contributes to economic development. Therefore, to meet the increasing demands in the 21st century it calls for transforming teaching and
learning. MoEST’s mission is to facilitate efficient use of ICT to improve access, teaching and administration in the delivery of education programmes and services (The Republic of Kenya, 2005:80).

According to the government draft paper of 2005, the government has provided guidelines for the transformation of the Kenya into a digital society. In these documents, the Government recognizes the nation is in dire need of an ICT literate workforce. However, we cannot achieve this vision if the root cause of the problem is not established. There is need to equip the learning institutions with ICT literacy so that those that are coming out of the institutions have knowledge and skills. *The keynote addressed by the cabinet secretary for education on July 29, 2014*, indicated the government’s commitment to making education a platform for equipping the country with ICT skills. The initiative will create a dynamic and sustainable economic growth (Ministry of Education Science and Technology, 2014).

### 2.1.2 Sessional Paper No. 1 of 2005

The government appreciates and recognizes (MoEST, 2004) that an ICT literate workforce is a foundation on which Kenya can acquire the status of the knowledge economy (The Republic of Kenya, 2005:79). Information communication technology has a direct role to play in education which, can impact the classroom as well as education management and training processes in general.

According to the Sessional Paper (2005), high poverty levels, limited rural electrification hinder implementation of ICT in some of the schools in rural areas (MoEST, 2004). *The Sessional paper’s final draft February 28, 2005*, proposed many strategies to deal with the challenges of high cost of internet provision, the cost associated with ICT equipment, inadequate infrastructure and support. These were;
stakeholders involvement in the development of the ICT strategy that addresses its use in all the educational institutions. Also, ICT use around the school neighbourhoods, incorporating access, content, and training of teachers are part of the strategy. The supply of ICT equipment to the systems is integrated into the plan (Republic of Kenya, 2005:80).

2.2 Availability of Equipment in Institutions

Most teacher training colleges lack a healthy human infrastructure that supports technology innovations in the management (Zhao et al., 2002). Owning computers by the administrators and tutors may be a significant aspect in support for implementation and adoption of technology in the management of TTCs. Managers provided with a computer are more likely to believe in internet use in the management and more liable to use it themselves.

Infrastructural development in terms of hardware, software, networks and internet access is mandatory for proper ICT implementation. Therefore, there is need to provide the required infrastructural support to the educational institutions. Appropriate hardware can be obtained by either upgrading old machines or by purchasing more powerful ones. Powerful software that requires little computing power should allow more exploration, collaboration and communication rather than the traditional drill-and-practice software (Jhurree, 2005). Administrators should equip their schools with computers and associated accessories and tools (ibid). These include appropriate educational software, printers, scanners and multimedia systems in laboratories and if budget allows, in the classrooms also.
2.2.1 Information Communication Technology as a Concept

Information communication technology (ICT) according to Unagha (2006) and Onyeka (2012) encompasses computer and telecommunication. It is the technology used in handling, acquiring, processing, storing and dissemination of information. ICT is any technology used in producing, organizing and passing information. Arinze, Okonkwo and Iwunor (2012), observed that ICT is an innovative device that can carry out such functions as receiving information presented to them and allowing for one-to-one or group communications among humans. Some of the ICT infrastructures include multi-media CD-ROMs, MP3 players, websites, discussion boards, emails and computer-aided assessment among many others (Onyeka, 2012).

2.3 Support for Use of Technology

Institutional support plays a critical role in the adoption of ICT in schools. Without an efficient management, staff members feel coerced into using ICT and, therefore, do not use it efficiently (Czerniewicz & Brown, 2010). Furthermore, the vision, leadership and management provided in well-managed institutions enable the staff members to use ICTs more productively. Contrary, their counterparts in schools that are not well managed are less motivated and, therefore, less productive (ibid).

According to Chigona et al. (2010), a critical factor in the efficient use of ICT is the existence of a school-level e-strategy. The e-strategy was embedded in the Sessional Paper No 10 of 2005 (MoE, 2005). It was meant to address the future of ICT in terms of development, sustainability and monitoring the progress. The school administrations need to be committed in terms of support and to act as role models in the whole issue of Technology. Innovativeness by both students and teachers can be a result of the support and motivation. Consequently, the idea of ICT adoption could be
a reality; hence usage in the running of the school management activities is achievable (Condie and Munro, 2007).

Software developers have been conscious of the need to make their programs easy for principals and other administrators to use. In spite of this, the power and flexibility of most computer applications inevitably requires the administrators and teachers to master new skills. Many schools provide formal staff development for teachers on computer skills. Moreover, others facilitate informal contact among teachers so that the understandings may spread in the ordinary course of their professional interactions (ibid).

**2.3.1 Training in ICT Skills**

Continuous and sustained preparation for teachers to utilize ICT in education is essential for successful integration of ICT in the education system. Teacher training courses, pre and in-service, can help teachers who are tentative to move faster and adopt the technology. Others could show the most enthusiastic teachers new ways of implementing ICT into the profession (Abuhmaid, 2011). According to Abuhmaid, “the Jordan education system has adopted several ICT training courses aiming to improve their use of ICT in the classroom. The courses were supposed to develop a passion and interest in ICT skills in curriculum and instruction” (Abuhmaid, 2011). The ICDL course focused on developing teachers’ ICT skills, including word-processing, spreadsheets, and surfing the internet (ibid).

In general there is the need for training to tutors and students at teacher training institutions. This training is more experienced in terms of time spent than the outcomes such as proficiency in the skills, comfort with technology or experience in integrating the use of the internet into the institutional management.
2.3.2 Budgeting for ICTs

Teacher training colleges have not dedicated adequate budget for implementation of ICTs. Computer maintenance has been ignored by the institutions as the set budget exists; it is used to purchase new computers and software. According to Kipsoi et al., (2012), the costs of installation, maintenance and expansion remain hidden. On the contrary, in the commercial sector, funds are set aside for the running of the PC when drafting their budgets (IDRC, 2003). Costs include training to the general administration, and additional advisory on technical staff as support, in the technological fields.

Less than 5 percent of South African institutions with computers budget for training in the use of ICTs. Initial expenditure should be considered along with the recurrent costs, in particular, the investment in the human capability. Kipsoi et al., (2012) claims that, “budgets tend to derive from fees, fundraising and donations, although, in some countries such as Nigeria the government provide funding”.

2.4 Perceetion of the Use of ICT in the Management

2.4.1 Attitudes towards ICT

Attitude is a contributing factor to effective implementation and adoption of information and communication technology in schools. Most teachers and administrators have a negative attitude when it comes to ICT and its uses in learning and management of these institutions. Gu (2011) and Pelton & Pelton (2013) observed that “teachers with knowledge and experience with computers have a more positive attitude towards the potential of computers in education management”. Principals’ perspectives and expertise are major factors in adoption and successful use of computer technologies. Besides, training is an important factor fostering favourable
attitudes towards computers. Pelton & Pelton (2013) further observed that principals make positive statements about computers, but they tend to be far less confident about their use of computer technologies. Attitudes and prior training both influence perceived self-efficacy.

2.4.2 Fear and Lack of Personal Change

The use of ICT in enhancing efficiency in management is still a new concept, despite its practice, its effectiveness is still not known and hence the need for the study to bolster the perception. Computer illiteracy among most senior managers in Kenya cannot go challenged, for it denies the nation the vehicle for access to reliable and timely information. Being role models, these decision makers should lead the way in embracing ICT for effective communication. In some situations, the assistant or junior officer is the custodian of the Director’s email account. A director who constructs own email message is likely to give clearer statements on the way forward than one who relies on assistance. It is necessary and essential for the decision maker to learn how to use ICT to construct and communicate their urgent message (KESI, 2011).

2.4.3 Factors Affecting the Perceptions

a) Emerging Technologies

There is a broad range of innovations in ICT to support efficient and quality delivery of institutional management. According to the Republic of Kenya (2006), “there is a considerable lag in educational institutions in terms of Technology”. Nchunge et al., (2012) notes that “most schools are still lagging behind with the use of the same old age methods. These schools have witnessed the inability to exploit the emerging technologies to improve their efficiency and effectiveness in the management
practices. Embracing the new technologies can enhance the process management in teacher training colleges for effective management (MoEST, 2006).

b) Poor ICT Platform in the Ministry of Education

Poor ICT platform in the education sector is one of the factors that have led the lagging behind of IT in the education system. According to the Sessional Paper No. 1 of 2005, Education Planning and management would be more useful if there were an efficient Education Management Information System (EMIS) available. One, which provides a smooth flow of information to policy makers, planners, managers and other stakeholders at all levels of education. Information and communication to and from the ministry of education headquarters to the counties, district and school levels are normally through letters and circulars. These letters and circulars are sent by post or by faxes thus causing delays in decision making and follow-up actions (MoE, 2012). According to the MoE, “Education ministries lack an effective EMIS while electronic networking is very limited. Effective education management and planning using E-Systems will need to be enhanced so that county and national headquarters are electronically linked.”

2.5 Computers Application and Use in Management

For proper implementation of ICT in primary teacher training colleges, we cannot overlook the availability of computers. Considering computers as the root to ICT, TTCs should adopt policies to increase the number of computers which, is the pillar of the current wave towards adoption in various institutions and organizations.

ICT can be used to manage students’ records. It can also be used to track the students’ attendance and leave. Other areas include; fees management, keeping the record of
student performance and analysing the results. ICT can also be used to maintain the record of the teaching and the non-teaching staff. Information technology can be used to manage information such as attendance, leave, transfer, and training information. It can be used to monitor inventory and procurement as well as the grants and funds. The system must provide the fast and accurate access to the information for practical and efficient management. Parents, teachers, students’ management, and the entire community must use Institutional Administration/Management system (Institutional Administration Software). The software provides a single, secure, database structure that organizes stores and retrieves real time information (Niyaz, 2011).

2.5.1 Benefits of Introducing ICT in Institutional Management

Institutional management and development are an intricate process that requires reliable, timely, user-friendly data (Sang et al., 2012). ICTs can be valuable for storing and analysing data on management indicators; students’ assessments; educational, physical and human infrastructure; and cost and finance (ibid). Each situation can be examined and evaluated systematically, not only in terms of educational desirability but also in terms of financial affordability, feasibility and sustainability over a sufficient period to show results (ibid).

According to Kipsoi et al. (2012), the same elements of computing and telecommunications equipment and service that have made business more efficient and cost-effective can be applied to teacher training institutions and educational systems. ICT can help institutions’ administrators and principals to streamline operations, monitor performance, and improve the use of physical and human resources. More than other technologies, computer-related technologies have the
potential to support the management of complex, standards related instructional processes in relatively simple ways.

2.5.2 Management Information Systems (MISs)

Management information systems used effectively for school improvement can assist senior leaders in planning and evaluating the operation of their schools. Most schools are using Management Information Systems at a primary, data-entry level, and senior leaders will require training to make advanced use of these systems. An example is the ICT-based pupil assessment tracking and attendance systems, and the creation of in-house reporting and recording software. These would help to take schools beyond the current basic levels of use (Perry, 2003).

Research Gaps

ICT in education management in institutions in the developed countries is at advanced level. The reverse is true in the developing nations such as Kenya, where ICT integration in Education management is considerably more recent, small-scale and experimental. Despite the importance that accrues as a result of ICT Integration in Education Administration, its adoption remains limited in most teacher training colleges in Kenya. The absence of information about the availability of infrastructure, the level of institutional support, tutors perceptions on ICT and the areas of ICT application and its use in leveraging educational management activities in teacher training colleges. Moreover, No study has been done to establish those factors that have been affecting ICT adoption in Teacher training colleges in Meru County thus, possessing a knowledge gap that this study sought to fill.
CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the methodological framework used in the realization of this research study. It covers the research design, locale, target population, sampling and sample population, research instruments, pilot study, validity, reliability, data collection, and the data analysis.

3.2 Research Design

The researcher adopted descriptive survey design in this study. The design utilized a combination of both qualitative and quantitative data collection and analysis techniques. Quantitative data was derived from the questionnaires while qualitative data was derived from the interview schedule. The descriptive survey determines the relationship that exists between particular events (Orodho, 2009). It was, therefore, appropriate for the researcher to use the descriptive survey to find out the challenges facing principals in the adoption of ICT in the management of public primary TTCs. Using descriptive survey design, large population can be studied with only a portion of that population being used to provide data.

3.3 Locale of the Study

This research study was carried out in Meru County in the public primary TTCs. The location was ideal for the study, as the County has not been spared the challenge of adopting ICT in the management of educational institutions, TTCs among them. The researcher also targeted Meru County because of its accessibility as a resident of the county. According to the researcher, no similar study has been carried out in this area; hence the findings of this Research would be useful to the existing TTCs.
3.4 Target Population

The target population for this study constituted the two public teacher training colleges in Meru County (Egoji TTC and Meru TTC). The choice of the two colleges was due to the proximity of the two TTCs to the researcher. The study involved the top management that consisted of the Principals, Deans of curriculum and their assistants, Deans of students and their assistants from the two colleges because they were involved directly in the management of TTCs. The other category of respondents was the student teachers from the two colleges. Hence, the targeted population consisted of 2 principals, 90 male and female tutors and senior administrators (Deans and their assistants) from Egoji TTC. The target from Meru TTC was 70 male and female tutors and top administrators (Deans and their assistants). The targeted students were 800 male and 400 female student teachers from Egoji TTC and 650 male and 350 female student teachers from Meru TTC. The total sampling matrix, therefore, yields a total population of two thousand three hundred and sixty two (2362) subjects.

3.5 Sampling Procedures and the Sample

The researcher used stratified random sampling to select the tutors and student teachers involved in the study. Stratified random sampling provides greater sampling efficiency (or precision) (Orodho, 2009). The samples were divided into two strata: tutors and the student teachers in the two TTCs. The stratum consisting of tutors was further broken into sub-strata: top administrators and the classroom tutors. In each of the strata, 30% of the total population was included in the study. Therefore, a sample of 14 male tutors and 10 female tutors and 4 top managers from Egoji TTC. The sample of tutors from Meru TTC consisted of 10 male tutors, 10 female tutors and 2 top managers. The students teachers included in the sample were; 200 male student
and 160 female students from Egoji TTC and 180 male students and 120 female students from Meru TTC. The sample, therefore, yields 48 tutors and top managers, and 660 student teachers. The choice of the tutors and the student teacher was based on the understanding of ICT issues and considering their direct involvement in ICT issues from their college. The principals of both the institutions were picked to represent the two colleges. The whole sampling matrix yielded a total sample size of 710 subjects.

3.6 Research Instrument

The questionnaire was used as the primary tool to collect primary in this study. The questionnaires were administered to the sampled respondents from their respective teacher training colleges. The questionnaire contained both open, and close ended questions. The researcher visited the sampled teacher training colleges at a time and administered questionnaires to the respondents. Gall (2010) maintains that a questionnaire can collect a large amount of information in a relatively quick space of time, hence suitable for this study. According to Gall, with questionnaires, questions are standardized, allowing the researcher to collect a broad spectrum of views, seeking opinions from others. Tutors and other top administrators were involved in this study because of their input to the adoption of ICT in the management of TTCs. Involving the student trainees was because they were the beneficiaries of ICT adoption as they would be future practitioners of the ICT adoption after being posted to teach in schools.

3.7 Pilot Study

Before moving to the field for data collection, the researcher conducted a pilot study. The pilot study was meant to measure the validity and reliability of the research
instruments. Here the researcher consulted subject matter specialists and sought the sentiments of the supervisors to shape the instruments. The pre-test questionnaires were passed to 6 tutors to test the right delivery of the information. The researcher self-administered the questionnaires to maintain the anonymity of the participants. Piloting ensured that the instruments gave the intended results and in case of disparities, the instruments were adjusted accordingly.

3.7.1 Reliability of the Research Instruments

Test re-test method was used to ascertain the reliability of the instruments. Here, the researcher administered the questionnaires twice to a similar group of subjects. Questionnaires were passed to 6 respondents who were not included in the actual data collection. Results of the test were scored and analysed manually. The same questionnaires were issued to the same respondents after two weeks and scored manually again. According to Sakaran (2001), testing how best the data is by testing the reliability and validity of the measures is a pre-requisite for data analysis.

**Table 3.1: Reliability Statistics**

<table>
<thead>
<tr>
<th>Cronbach’s Alpha</th>
<th>Cronbach’s Alpha Based on Standardized Items</th>
<th>N of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>.861</td>
<td>.876</td>
<td>12</td>
</tr>
</tbody>
</table>

A comparison made between the two results was analysed. Cronbach’s Alpha correlation measure was employed to compute the correlation coefficient (r) where a coefficient of correlation of 0.8 was deemed reliable. Orodho (2009) indicates that a correlation coefficient (r) of about 0.75 is considered high enough to judge the reliability of the research instrument. The study had a figure of 0.876 which is
considered moderately high on a scale of 0.00- 1.00 on attitudinal measurement scales.

### 3.7.2 Validity of the Research Instruments

To test the validity of the instruments, the researcher used judgement by the supervisors who were the experts. They used their expertise to guide on the relevance, accuracy, entirety and completeness of the content in the research instruments. Expert judgement from the supervisors was used to maintain questionnaires with a high degree of validity. Ensuring that it measured what it was intended to measure. Validating the research instruments helped the researcher to remain focused on the study.

### 3.8 Data Collection

The questionnaires were administered personally to the administrators, tutors and student teachers. Additionally, the researcher conducted an interview to the principals of the two Teacher Training Colleges. The collection of data was carried out in three phases as pointed by Orodho (2008) as the pre-field logistical phase, the fieldwork phase and the post-field phase.

At the pre-field phase, the researcher did the layout of the research instruments. Further, the researcher sought the permit from the ministry of higher education. Finally, the letter of approval from the university to verify that consent had been granted to the researcher. The fieldwork phase entailed actual data collection from the selected group of subjects. Finally, the post-field phase involved collecting of the instruments from the field coded them in preparation for analysis.
3.9 Data Analysis

The researcher analysed the data both quantitatively and qualitatively after data cleaning and coding. Percentages, means and frequency counts were employed to analyse quantitative data. Statistical Package for Social Sciences (SPSS), the software was used to analyse the coded data. This generated average and standard deviations, which were discussed according to the study objectives, addressing the research questions appropriately. Presentation of the results of the data analysis was by use of frequency distribution tables and graphs. From this analysis, key findings, conclusions and recommendations were made.
CHAPTER FOUR
DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.1 Introduction
This chapter presents the results of the data collected from the field, presented analysed, and interpreted by the researcher. The research was based on the adoption of ICT in the institutional management of public primary Teacher Training Colleges (TTCs) in Meru County. The respondents in the study were: principals, tutors and student teachers.

4.1.1 The Questionnaire Response Rate
The researcher distributed 710 questionnaires: 660 questionnaires for student trainees and 50 questionnaires for the tutors. The student trainee’s questionnaire response rate was 59%, of which, 52% were valid, and 7% were not valid. The tutor’s questionnaire response rate was 68% whereby 64% of the responses were valid and 4% were invalid. The invalid was derived from those respondents who did not respond to the questions or were incomplete.

4.1.2 Background Information
The respondents were categorized into tutors and student trainees from both Egoji and Meru teachers training colleges. The number of tutors who took part in the study was 32 out 50 (20 males and 12 females) which was 64%. Specifically, the responses were from 3 heads of department, 8 heads of the subjects, and 21 classroom tutors. The student trainees were 343 out of 660 (200 males and 143 females) which was 51.9% of the sample size. Out of the 343 student trainees, 64% of the student sample was in the first year of study, and 36% was in their second year of study.
Table 4.1: Tutors’ Qualifications in IT (N=32)

<table>
<thead>
<tr>
<th>Qualifications</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degree</td>
<td>3</td>
<td>9%</td>
</tr>
<tr>
<td>Diploma</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Certificate</td>
<td>14</td>
<td>44%</td>
</tr>
<tr>
<td>Workshops/ Seminars</td>
<td>14</td>
<td>44%</td>
</tr>
<tr>
<td>None</td>
<td>1</td>
<td>3%</td>
</tr>
</tbody>
</table>

Figure 4.1: Tutors’ Qualifications in IT

About figure 4.1, most tutors had certificates from workshops/ seminars. Forty four percent of the tutors had a certificate in computer studies, and 44% had attended workshops and seminars on ICT training. Tutors with a degree in IT were 9% and 3% had no training in IT at all. None of the respondents had a Diploma in IT.

For successful incorporation of computers and IT in Teacher Training Colleges, managers should embrace the professional development of the tutors. According to Keengwe and Onchwari (2008), ICT-related training programs develop teacher’s competencies in computer use. With relevant competence, teachers will have a positive attitude towards computers. Hence, development of a culture of computer use in their daily activities. According to Plair (2008), this will as well assist teachers to
reorganise the task of technology and how technology tools are significant in student learning.

4.1.3 Tutors’ Teaching Experience and Duration in the Current College

Tutors’ teaching experience and the duration at the current college is presented in Table 4.2

<table>
<thead>
<tr>
<th>Duration in years</th>
<th>Teaching experience</th>
<th>Duration in the current college</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-5</td>
<td>9%</td>
<td>19%</td>
</tr>
<tr>
<td>5-10</td>
<td>19%</td>
<td>56%</td>
</tr>
<tr>
<td>10-15</td>
<td>25%</td>
<td>13%</td>
</tr>
<tr>
<td>15-20</td>
<td>19%</td>
<td>9%</td>
</tr>
<tr>
<td>20-25</td>
<td>15%</td>
<td>0</td>
</tr>
<tr>
<td>25-30</td>
<td>13%</td>
<td>3%</td>
</tr>
</tbody>
</table>

Table 4.2 shows that most of the tutors had been working as tutors for a period of between 10-15 years (25%). Those with less than 5 years were 3%, 5 to 10 years were 19%, 15 to 20 years were 19%, 20 to 25 years were 15% and more than 25 years were 13%. The category 5-10 years had the highest number of respondents (56%) having worked in the current college. It came out clearly that they had better understanding about their respective colleges and, therefore, offered credible information towards the study. The results added relevant information when correlated with other data.

About ICT and teaching experience, the more experienced tutors with 15 to 30 years, representing 19%, 15% and 13% respectively were of low opinion on ICT terming it as hectic to them. Therefore, this information gives evidence that respondent’s with more years of experience in teaching were reluctant to cope with new technological
devices. According to Baek, Jong and Kim (2008) experienced teachers are less ready to integrate ICT into their daily roles in the colleges. This disparity may be because teachers with less teaching experience have graduated recently and hence have more knowledge on ICT than their colleagues who graduated earlier.

4.1.4 Subject Taken by Tutors and Student Trainees in the Institution

The subjects taught by tutors and the ones taken by the student trainees indicates that ICT was not prioritized like other subjects as shown in Table 4.3.

Table 4. 3: Subject Taken in the Institution (N=32 for tutors, N=343 for student trainees)

<table>
<thead>
<tr>
<th>Subject area</th>
<th>Tutors</th>
<th>% of tutors’ teaching subjects</th>
<th>Student trainees</th>
<th>% of subjects taken by student trainees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Languages</td>
<td>8</td>
<td>25%</td>
<td>66</td>
<td>19.3%</td>
</tr>
<tr>
<td>Sciences</td>
<td>8</td>
<td>25%</td>
<td>63</td>
<td>18.4%</td>
</tr>
<tr>
<td>Social Studies</td>
<td>6</td>
<td>18.6%</td>
<td>78</td>
<td>22.7%</td>
</tr>
<tr>
<td>Mathematics</td>
<td>4</td>
<td>12.5%</td>
<td>92</td>
<td>26.8%</td>
</tr>
<tr>
<td>Foreign Languages</td>
<td>2</td>
<td>6.3%</td>
<td>5</td>
<td>1.5%</td>
</tr>
<tr>
<td>ICT</td>
<td>2</td>
<td>6.3%</td>
<td>32</td>
<td>9.3%</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
<td>6.3%</td>
<td>7</td>
<td>2.0% S</td>
</tr>
</tbody>
</table>

From the tutors and student trainees, Languages had the highest population at 25% tutors and 19.3% student trainees, followed by sciences with 25% tutors and 18.4% student trainees. Others were: social studies at 18.6% tutors and 22.7% students; mathematics at 12.5% of the tutors and 26.8% of the students; foreign languages at 6.3% tutors and 1.5% students; and ICT at 6.3% tutors and 9.3% student trainees from
both TTCs. This show low priority on ICT as a subject as there are few teachers on IT compared to other subjects like in sciences that have 25% of tutors. Additionally, a small number of student trainees are studying ICT as a subject.

Most teacher training colleges in Kenya teach computer literacy as a technical subject and in most cases with little practical application. Computers have not been well represented in the teaching and learning that would extend automatically to the management of TTCs (Kipsoi, Changach & Sang, 2012). Brecko and Vehovar (2008) found out that the inclusion of ICT in schools as a subject helps students develop skills that are necessary for their life in the 21st century.

4.2 Impact of Availability of Equipment on ICT Integration

The first objective of the study sought to assess how the availability of ICT equipment influences adoption and implementation. It was established that there are situations in which tutors and other administrators fail to implement and use ICT in their work due to lack of equipment. It is also common that equipment may be there but not in operation. Besides, ICT equipment and systems maintenance were not carried out on a regular basis by the TTCs, thus hindering access to more reliable, efficient and content rich resources for tutors and student trainees. Figure 4.2 shows data on the technological equipment for use in TTCs.
Figure 4.2 presents information on ICT equipment available in public primary teacher training colleges. This equipment is accessible to both the teachers and student trainees.

![Figure 4.2: Technological Equipment Available for Use in Public Primary Teacher Training College](image)

Figure 4.2 indicates that the commonly used ICT equipment in the TTCs was mobile phones presented as 32% by tutors and 47% by the student trainees. Interactive whiteboards were rated second by 19% of the tutors and 10% of the student trainees. The projection system was rated by 19% tutors and 9% student trainees as commonly used ICT equipment. Digital cameras, video cameras, video conferencing and scanners were hardly used. Only 9% of the tutors and 4% of the student teachers used personal computers in their teaching, management and learning. It was a clear indication that there was low a priority on the use of IT in their daily undertakings. Therefore, if TTCs does not embrace the use of ICT in their day-to-day activities,
there will be a delay in ICT adoption and integration. When interviewed, principals linked the poor usage of the computers by the tutors to lack of dedication and commitment to IT.

On the most frequently used computer applications, it was established by the principals that word processing and Excel were employed in the management of student results, administration purposes and for personal consumption. Previous findings by Wu (2008) and Moore & Iida et al. (2010), indicates that use of ICT equipment is influenced by access to available resources.

![Figure 4.3: Availability and Access to Computer and Internet Connection](image)

Figure 4.3 indicates that 66% of the tutors and 83% of the student trainees had access to the desktop computer at the institution. Also, 81% of the tutors indeed had the computers at the departments for use though unlimited as the department would have only one or two computers. Asked about broadband access to the internet, 44% of the tutors and 28% of the student trainees indicated that there is internet connectivity in the institution. Therefore, we can deduce that teacher training colleges have embraced
Internet technology in the management of their daily activities. The contribution brought by internet technology is not only in enhancing staff capacity and morale but also in opening up the institution to the global trends in education and human development. Emphasize being on the importance of the internet to the school curriculum in that it enriches content and makes learners more enthusiastic during the learning process.

Availability and access to ICT equipment refer to the administrator’s, tutors and student trainee’s disposal of computers and other equipment at home and at work and access to the internet. Also, it may entail if they use the available equipment in class and the administration and how often they use them. Kipsoi, Changach and Sang (2012) observed that the development of ICT use in Africa is very uneven. According to them some countries like South Africa, are using computers to an extent at par with the developed world while others are only beginning to explore the possibilities of introducing school networking (Tina IDRC, 2004).

4.3 Institutional Support Influence on Implementation of ICT in Public Primary Teacher Training Colleges

The second objective of the study sought to assess how institutional support influences implementation of ICT in the public primary teacher training colleges. The respondents were presented with various statements and asked to rate the level of acceptance to the declarations. Table 4.4 shows the responses from both the tutors and the student trainees on the institutional support of ICT.
Table 4.4: ICT Support from the Institution as Reported by Tutors (N=32 for tutors, N=342 for the student trainees)

<table>
<thead>
<tr>
<th>Statement</th>
<th>Tutors</th>
<th></th>
<th>Student trainees</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>Percentage</td>
<td>Yes</td>
<td>Percentage</td>
</tr>
<tr>
<td>ICT Department</td>
<td>27</td>
<td>84%</td>
<td>189</td>
<td>55%</td>
</tr>
<tr>
<td>Training on IT after appointment</td>
<td>24</td>
<td>75%</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>IT technicians in the institution</td>
<td>23</td>
<td>72%</td>
<td>247</td>
<td>72%</td>
</tr>
<tr>
<td>Principals’ support for IT</td>
<td>20</td>
<td>63%</td>
<td>206</td>
<td>60%</td>
</tr>
<tr>
<td>Help in case of technical difficulties in IT</td>
<td>19</td>
<td>59%</td>
<td>192</td>
<td>56%</td>
</tr>
<tr>
<td>Policies to promote or support ICT adoption</td>
<td>17</td>
<td>53%</td>
<td>205</td>
<td>60%</td>
</tr>
<tr>
<td>Training on IT before joining institution</td>
<td>15</td>
<td>47%</td>
<td>90</td>
<td>26%</td>
</tr>
</tbody>
</table>

Institutional support of ICT was above average as reported by 84% of the tutors and 55% of the student trainees. They both acknowledged having ICT departments in operation. Seventy five percent (75%) of the tutors admitted they had no training on IT on starting the tutoring career.

It was accounted for 72% of the tutors and the student trainees that they had IT technicians in their various departments. On interviewing the principals, they indicated that the number of the IT technicians was not enough. Their workload was enormous and, therefore, could not meet the demands by tutors and student trainees. Insufficiency of funds to employ more ICT technicians has led to this shortage that has contributed to the delay of the ICT adoption and integration. Tutors and students attested to getting support from the principal in various ways. When asked if they had had training before joining the current institution, 53% of the tutors and 60% of the students had no training.
On the availability and effectiveness of ICT technicians, 59% of the tutors and 56% of the students admitted getting immediate help. The respondents also admitted that the technicians were few and therefore on high demand. Tutors and teacher trainees accounted for 53% and 60% respectively on the availability of institutional policies to promote or support ICT adoption in the institution. According to Kipsoi, Changach and Sang (2012), more advisory and technical staff as support both in technological and pedagogical fields need to be budgeted. There is the need for proper support to have a fully integrated ICT network in the teacher training colleges. The National level, County level and the institutional level have to take responsibility to see this happen. TTCs require funds for hardware, software acquisitions, infrastructure–utilities, connectivity and services costs. By showing the will to implement the integration of ICT in TTCs, principals influence the rest of the institution to adopt ICT.

4.3.1 ICT Training and Competence as Reported by the Tutors and Student Trainees

The existing competency in Information Technology affects the ICT adoption for educational management and related activities in TTCs. Training ranges from basic computer literacy, emailing, search engines, and website design to the instructional technology in the classroom. The attribute used to assess competency and its effects included: access to literacy courses by both staff and students and ease of use of computer aided applications. Figure 4.4 presents the data on the training and competency of both the tutors and the student trainees.
Figure 4.4: Training and Competence for Tutors and Student Trainees (N=32 for tutors and N=343 for student trainees)

The study established that computer training influenced the level of competence on ICT. In all, 66% of the tutors and 10% of the student teachers got training from workshops. Besides, 63% of the students got their computer training and competence from the mandatory courses offered at the institution. The high number of teachers who have their training from workshops is because it is the easiest way to engage them. To the students, there are mandatory courses that are offered by the institution as common courses and hence the high number of students trainees who responded to the mandatory course. Other responses that were recorded were; 9% of the tutors and 5% of the student trainees who got training from seminars. The rest, 3% of tutors and 12% of the students, got training from other means that included, being taught by friends or self-taught. Some of the tutors had no ICT training as accounted for 22% of the tutors, indicating low levels of IT competency in TTCs. As a result, it has led to
the absence of ICT driven instructions in classes and the management, therefore, the slow rate of ICT adoption.

According to Doga (2010), teacher training on ICT is important for the future conception of computer use for teaching, learning process and management. Mandatory courses for all the tutors should be included for them to use ICT actively in their daily activities in the school. Bigum (2000) pointed out that training goals vary based on training schedules using workshops to cover the various skills. According to Bigum, training is seen more in terms of time spent on training than in terms of outcomes (Tina IDRC, 2004). Unavailability of the ICT literacy training in TTCs is a wide barrier for attaining requisite skills and a huge impediment to ICT integration.

4.3.2 Number of IT Technicians

Forty five percent of the tutors and 65% of the students reported having one information technology technician who assisted them when in need. Thirty five percent (35%) of the tutors and 20% of the students said that there were 2 IT technicians. Also, 13% of the tutors and 12% of the student trainees reported having 3 IT technicians. Finally, 7% of the tutors and 3% of the students reported having 4 IT technicians. These findings are shown in figure 4.5
Figure 4. 5: Number of IT Technicians as Reported by Tutors and Student Trainees (N=30 for tutors and N= 340 for student trainees)

The study has established a trend of one IT personnel from various departments in every TTC with a few having two and is replicated in both TTCs. Consequently, having challenges in requisite ICT integration skills and low IT teacher, Student ratio. Therefore, inadequacy human capital in teacher training colleges has lead to low levels of IT competencies.

Analyzing the opinions of those tutors who stated getting assistance by information technology technicians, it was clear that they got a considerable assistance. The technician were dedicated to assisting them, but mostly their workload was high therefore they were not reliable and efficient as expected.

4.3.3 Support from the Principal in Terms of Adoption and Implementation of ICT

Sixty three percent (63%) of the tutors acknowledged receiving support from their principal. A substantial number of tutors (37%) reported not getting any support from the principal and the whole line of management. Analyzing the opinions of those
teachers who reported that they receive support from their managers, it was learnt that the principals motivate the teachers to attend in-service training courses. On the managements’ investment capital, most of the respondents (59%) noted that it was not well budgeted. This is a clear indication that teacher training institutions provide ICT facilities for access in a variety of ways but are not as effective as would be expected. Table 4.5 presents the data on strategies put in place to motivate use of ICT in the management of teacher training colleges.

**Table 4.5: Strategies Put in Place by the Institution to Motivate use of ICT (N=32 for tutors and N= 343 for student trainees)**

<table>
<thead>
<tr>
<th>Strategies</th>
<th>Tutors</th>
<th>Student trainees</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>Percent</td>
</tr>
<tr>
<td>Sensitization and awareness</td>
<td>13</td>
<td>40%</td>
</tr>
<tr>
<td>Training</td>
<td>9</td>
<td>28%</td>
</tr>
<tr>
<td>ICT Policy</td>
<td>4</td>
<td>13%</td>
</tr>
<tr>
<td>Technical support</td>
<td>4</td>
<td>13%</td>
</tr>
<tr>
<td>None</td>
<td>2</td>
<td>6%</td>
</tr>
</tbody>
</table>

On the strategies used by the institution to motivate use of ICT by the management, 40% of the tutors ranked use of sensitization and awareness as the technique used and that should be adopted to motivate use of IT in the institution. Among the student trainees, 74% pointed use of training as the way the institution is using to motivate use of ICT. ICT policy and technical support by tutors was used to support ICT in their respective teacher training colleges about ICT training.

**4.4 How Tutor’s Perceptions Affects the Adoption of ICT in Public Primary Teacher Training Colleges**

To integrate and ensure that technology is adopted in the education system, teachers’ support and attitudes must be at the center stage. Attitude and beliefs towards IT are
some of the factors that influence effective ICT integration in the education system.

Table 4.6 presents data on the level of importance of ICT as rated by teacher trainees.

**Table 4.6: Importance of ICT in Management as Reported by Teacher Trainees (N=343 respondents)**

<table>
<thead>
<tr>
<th>Importance</th>
<th>No. of respondents</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Of some importance</td>
<td>202</td>
<td>59%</td>
</tr>
<tr>
<td>Quite great importance</td>
<td>125</td>
<td>36%</td>
</tr>
<tr>
<td>No importance</td>
<td>16</td>
<td>5%</td>
</tr>
</tbody>
</table>

About the importance of ICT, 59% of the teacher trainees accounted that ICT in teaching is of some importance, 36% indicated that it was of quite great importance, while 5% noted that it is of no importance. ICT in regard is important in the TTCs as a learning and management tool.

**4.4.1 Motivation to ICT Compliance by the Institutions**

The study established that most of the respondents were unsatisfied by the institutions’ motivation on ICT as accounted by 69% and 57% of the tutors and teacher trainees respectively. The data is presented in table 4.7.

**Table 4.7: Satisfaction Level by Tutors and Teacher Trainees on the Institutions’ Motivation towards ICT Compliance**

<table>
<thead>
<tr>
<th>Respondent</th>
<th>Satisfaction level on the institution’s motivation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Very satisfactory</td>
</tr>
<tr>
<td>Tutors N=32</td>
<td>10%</td>
</tr>
<tr>
<td>Teacher trainees</td>
<td>15%</td>
</tr>
</tbody>
</table>

Other accounts by the respondents were; very unsatisfactory at 10% for tutors and 12% for teacher trainees. Only 10% for tutors and 15% for teacher trainees indicated
that they were very satisfied with institution’s motivation on the ICT implementation. The tutors felt that the approach to ICT adoption was not done in a regular way. This was because the principals organize for workshops and training for the tutors to sharpen their ICT skills but very limited to the extent that some tutors do not even attend due to their work load. However, 9% of the tutors and 12% of the teacher trainees were satisfied that the institution is motivated to integrate and adopt ICT in the management of TTCs. This is by way of buying more computers, organizing training for the tutors, mandatory courses for all the students, internet connectivity employing more technicians to assist when there is a problem and encouraging the tutors to use IT in their daily activities.

4.4.2 Effectiveness and Efficiency of ICT Use as Reported by Tutors

Table 4.8: Perception of ICT Use by the Tutors N=32

<table>
<thead>
<tr>
<th>Perception of ICT Use</th>
<th>Yes</th>
<th>Percent (%)</th>
<th>No</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Using ICT eases my workload</td>
<td>22</td>
<td>69%</td>
<td>10</td>
<td>31%</td>
</tr>
<tr>
<td>Using ICT makes me more productive</td>
<td>28</td>
<td>88%</td>
<td>4</td>
<td>12%</td>
</tr>
<tr>
<td>I work better when I work with ICT</td>
<td>28</td>
<td>88%</td>
<td>4</td>
<td>12%</td>
</tr>
</tbody>
</table>

As asked about the effect of ICT use, 69% of the tutors accounted that using ICT eases workload and 88% noted that it enhances productivity and better working. This was supported by Devon (2000) who observed that ICT has had an effect on the management of education institutions; it increases efficiency and accountability to institutional resources.

Information technology reduces loss of data like student marks as established from the study. According to Matovu (2009), “it has always been difficult for tutors to give a
proper accountability or justification for loss of marks and for students to be under marked”. The tutors and the entire management in the public primary teacher training colleges recognize the benefits related to the use if ICT. All the tutors felt that there are reasons to embrace ICT in the public primary TTCs. The researcher established that ICT use in management activities is mandatory; however, those in tasked with the running of these institutions have not realized this importance.

The study revealed according to 12.5% of the tutors, that there have been changes in technology in term of software procuring and equipment, while 87.5% noted that there have not been many changes in the software and equipment. In addition, the researcher learnt that several additional equipment such a desktop computer, laptops, printers, storage medias and software such as LMS have been acquired, installed and are in use at various departments in the teacher colleges, though slowly.

On relevance and usefulness, the study findings revealed that 75% of the tutors attested to understanding of the relevance and usefulness of ICT. Tutors admitted that the school principals supported ICT integration due to their beliefs in the usefulness of ICT. Forty seven percent (47%) of the tutors also admitted that the quality of technological support by the institution was fair. Forty percent (40%) agreed with the quality of the support as good while 6% felt that the support was mediocre. Tutors were of the opinion that ICT integration in the management of TTCs was still low among the principals themselves. This was evident because of their failure to use the internet effectively.

Of the tutors, 84% agreed that ICT use generally improve the management practices in the institutions. Only 16% does not agree with the IT for improved management practices. According to Kidimbo & Nderitu (2012), “most of the existing technology
acceptance theories focus on the cognitive aspects of human beings, presuming that users must discard their effective selves to work efficiently and rationally with ICTs”.

4.5 How Areas of ICT is Applied in the Management of Teacher Training College Influences the Adoption of ICT

The fourth objective sought to find out the areas of ICT application in the management of teacher training colleges in Meru County. The respondents were presented with various statements and were asked to point out the areas of computer use in the TTCs. The respondents gave the following data as shown in table 4.9

<table>
<thead>
<tr>
<th>Area</th>
<th>Tutors</th>
<th>Teacher trainees</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. of respondents</td>
<td>Percent</td>
</tr>
<tr>
<td>Management of students results</td>
<td>30</td>
<td>94%</td>
</tr>
<tr>
<td>Management of finances</td>
<td>30</td>
<td>94%</td>
</tr>
<tr>
<td>Management of students’ data</td>
<td>32</td>
<td>98%</td>
</tr>
<tr>
<td>Registration of students</td>
<td>30</td>
<td>94%</td>
</tr>
<tr>
<td>Personnel management</td>
<td>17</td>
<td>53%</td>
</tr>
</tbody>
</table>

Computers may be used to perform many activities in a school setting. They can be adopted to perform simple as well as complex functions relating the management of the education.

Asked about ICT application in performing management functions in their institutions, most of the tutors (98%) agreed that they use IT to manage students’ data and 94% noted that it is used in the registration of students, management of student results and management of finances respectively. Of the sampled tutors and student trainees (98%) agreed on use of ICT in the management of student results, 96%
pointed management of finances, 95% indicated use of IT for the management of student data, and 53% indicated that they used ICT in the personnel management in their institution. The findings of the study shows that ICT is mostly used for management of student data, registration of students, management of student results, management of finances and personnel management.

Ajayi & Ekundayo (2009) notes that, “adoption of ICT by the teachers will enhance effective management and teaching. Issues like good course organization, effective class management, content creation, self-assessment, self-study, collaborative learning, task oriented activities, and effective communication between the actors of teaching learning process and research activities will be enhanced by the use of ICT based technology”.

In relation to communication, 56% of the tutors and 31% of the students acknowledged the use of technology for communication and networking with the school management. In addition, 44% of the tutors and 69% of the students felt that technology use for communication purposes in the institutions was not adequate.

<table>
<thead>
<tr>
<th>Area</th>
<th>Tutors</th>
<th>Teacher trainees</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. of respondents</td>
<td>Percent</td>
</tr>
<tr>
<td>Short Messaging Service (SMS)</td>
<td>31</td>
<td>99%</td>
</tr>
<tr>
<td>Memos</td>
<td>23</td>
<td>72%</td>
</tr>
<tr>
<td>Telephone</td>
<td>13</td>
<td>41%</td>
</tr>
<tr>
<td>Emails</td>
<td>2</td>
<td>6%</td>
</tr>
<tr>
<td>College website</td>
<td>2</td>
<td>6%</td>
</tr>
<tr>
<td>None</td>
<td>2</td>
<td>6%</td>
</tr>
</tbody>
</table>
On the common mode of communication by the tutors and student trainees, 99% of the tutors signified that they use short messaging (SMS) as a form of communication occasionally. Use of Memos was the highest among the tutors and students with a total of 72% and 99% respectively. This shows that ICT is used daily in the TTCs. Use of telephone was identified by 41% of the tutors and 47% of the student trainees as a form of communication. In regard to communication, E-mails were used for personal communication, by 6% of the tutors and 12% of the students, college website 6% for tutors and 14% for student trainees. According to Jung (2005), ICT in teacher training colleges connects teachers to a larger international teaching community. Moreover, they invite expert to provide expertise to teachers through online forums or emails.

Information communication use for other purposes in the public primary teacher training colleges is as shown in Table 4.11

<table>
<thead>
<tr>
<th>Other uses of technology</th>
<th>Tutors No. of respondents</th>
<th>Tutors Percent</th>
<th>Teacher trainees No. of respondents</th>
<th>Teacher trainees Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organizing work and keeping records</td>
<td>31</td>
<td>99%</td>
<td>342</td>
<td>99%</td>
</tr>
<tr>
<td>Finding digital learning materials</td>
<td>10</td>
<td>31%</td>
<td>110</td>
<td>32%</td>
</tr>
<tr>
<td>Preparing Lessons</td>
<td>8</td>
<td>25%</td>
<td>91</td>
<td>27%</td>
</tr>
<tr>
<td>Designing various student learning styles and personalize learning</td>
<td>6</td>
<td>19%</td>
<td>65</td>
<td>19%</td>
</tr>
<tr>
<td>Support creativity</td>
<td>8</td>
<td>25%</td>
<td>91</td>
<td>27%</td>
</tr>
<tr>
<td>Support activities that facilitate higher order learning</td>
<td>8</td>
<td>25%</td>
<td>46</td>
<td>13%</td>
</tr>
</tbody>
</table>
The study established that majority (99%) of tutors and teacher trainees used ICT for organizing work and keeping records such as student results and the student details. Of the respondents, 25% of the tutors and 27% of the teacher trainees pointed that ICT use was for preparing lessons, 31% of tutors and 32% of student trainees noted that ICT use was for finding digital learning materials. This is through use of internet to search for learning materials. Other areas of ICT use in the management were; designing various student-learning styles and personalize learning, to support creativity and to support activities that facilitate higher order learning. The results from the data above show that a considerable number of respondents appreciate the importance of using ICT for organizing work and keep records as a management practice in the public primary teacher training colleges.

Jung (2005), points out that "whereas the use of ICT as core technology for delivering teacher training can be found in limited contexts, there are many examples of ICT, particularly internet and web-based communication technologies, being used to support teachers ongoing professional development and networking".
CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter will cover summary of the findings, conclusions and recommendations. This research study raises some issues about adoption of information and communication technology in public primary teacher training colleges. The variables accessed were; influence of availability of IT equipment on ICT implementation, influence of institutional support, tutors perception on the ICT adoption and the areas of ICT application in the management.

5.2 Summary

Information and Communication Technology (ICT) has taken a critical role in education sector for enhancing the management of institutions. ICT has potential to integrate; political, economic and social aspects of developing economies thus demolishing the barriers created by time and distance. However despite recognition of its role by government through national ICT policy, e-government and ICT for education strategies in improving effectiveness and efficiency in management, its adoption in teacher training colleges has taken a snail’s pace. This study assessed the adoption of ICT in the management of public primary teacher training colleges in Meru County.

5.2.1 Availability of ICT Equipment as an Influence on ICT Implementation

This research study revealed that there are instances in which tutors and other administrators in the management are not able to integrate ICT in their work due to inadequate or even lack of equipment. According to the study findings, 66% of the tutors and 83% of the student trainees indicated that they had access to desktop
computer at the institution. In addition, 81% of the tutors indicated that indeed the computers use at the departments is partly in some management practices.

There is high student to IT teacher ratio, with an average of two IT personnel against entire department including other teachers in need of basic skills; high teacher trainees to computer ratio, with most of departments having only one computer laboratory containing less than 20 computers against a population of between 200 to 450 students. However the departments with these facilities, very few have fast and efficient internet access and utilize less than 40% of available infrastructure due to lack of connectivity and requisite human capital.

The test statistics using chi-square gave a value of 0.003<0.05. Therefore, concluding that there was statistically a significant relationship between influence of availability of ICT equipment and adoption of ICT in the management of PPTTCs.

5.2.2 Influence of Institutional Support on ICT

The findings show lack of sufficient funds for ICT driven activities in TTCs in Meru County. There are few resources that are directed towards ICT enabled programmes to implement ICT to support education activities.

On support by principals, 63% of the tutors accounted that they were supported by the heads of the TTCs in embracing ICT use in the classes, while 37% were of the contrary opinion. Seventy two percent (72%) of both the tutors and the students pointed that they had IT technicians in their various departments. In addition to having them in their department, 59% of the tutors and 56% of the students attested to getting immediate help from the technicians.

The study also revealed that there are IT departments in the current colleges, 84% of the tutors, and 55% of the students acknowledged having ICT departments in
operation. Asked about policies to promote or support ICT adoption in the institution, 53% of the tutors and 60% of the students agreed that there are policies in support of ICT.

Sixty three percent (63%) of the tutors and 60% of the students attested getting support from the principal in various ways. Specifically, 9% of the tutors and 5% of the students got training from seminars. About 66% of the tutors and 10% of the students got training from workshops, 63% of the students from the mandatory courses, and 3% of tutors and 12% of the students from other means which include; either were taught by friends or self-taught while 22% of the tutor and 10% of the students did not receive any training at all. This has greatly influenced ICT adoption and integration in the public primary teacher training colleges.

5.2.3 Perception of Tutors in the Adoption and Integration of ICT

The findings show that an average number of teachers are not certain about the potential benefits of ICT integration in the management as pedagogy tool as they acknowledged the use of ICT activities as too complex to adopt. This implies inadequate psychological preparedness that leads to a somehow disfigured user attitude which slows the rate of new technology acceptance and ICT diffusion in schools.

Some of the factors that influence adoption of ICT in education system are the teachers’ attitudes and the beliefs. When the student trainees were asked about the importance of ICT, (59%) indicated ICT in teaching as of some importance, 36% agreed that it is of quite great importance, while 5% noted that it is of no importance. This indicates that ICT is regarded important in the TTCs as a learning and management tool.
Sixty nine percent (69%) of the tutors felt that there is no motivation on integration of IT. Only 31% of the respondents acknowledged the institution’ motivation to tutors for the ICT integration in the learning and management processes. Almost all the tutors (99%) felt that there are reasons to embrace ICT in the public primary TTCs.

5.2.4 Areas of ICT Application in the Management

Information technology including computers, telecommunications and internet as not only changed ways of carrying out business and communication but as led to immense opportunities in social, economic and political pillars of life.

Integration of these highly potential technologies in learning institutions and in particular teacher training colleges is not only important but a necessary requirement for a visionary nation that is keen in achieving a techno-savvy workforce sufficient for knowledge economy creation and sustenance.

The study revealed IT is mandatory in the management of institutions. Most of the tutors (98%) agreed that they use it to manage students’ data, 94% noted that it is used in the registration of students, management of student results and management of finances respectively. Of the tutors sampled, 53% indicated that they use ICT in the personnel management. Most of the responses from the student trainees (98%) agreed that ICT is used in the management of students’ results, 95% agreed that they use IT in the management of students’ data and 96% pointed management of finances as use of IT in their institution. The findings of the study shows that ICT is mostly used for management of students’ data, registration of students results, management of student results, management of finances and personnel management.

Majority of tutors and student trainees indicated that ICT in use was for organizing work and keeping records. Of the respondents, 25% of the tutors and 27% of the
student trainees pointed that ICT was used for preparing lessons, 31% of tutors and 32% of student trainees noted that ICT was used for finding digital learning materials. From the 32 tutors and 343 student participants, 56% of the tutors and 31% of the students acknowledged the use of technology for communication and networking with the school management. In addition, 44% of the tutors and 69% of the students felt that technology was not used for communication purposes in the institutions.

5.3 Conclusions

The report concludes that Egoji and Meru teacher training colleges within Meru County have partially integrated modern technology in the running of the institutions. However, though these TTCs have computers and other IT equipment, they are not effectively used in performing management functions. The study established that the level of institutional support for ICT in Egoji and Meru TTCs is still low. This was evident because of the challenges such as; lack of technical skills to integrate ICT in management. Lack of motivation, inadequate computers and computer labs, few IT technicians, poor internet connectivity, and lack of technical support are some of the challenges that hindered adoption of ICT. As a result, the two teacher training colleges have maintained the traditional ways of performing management tasks.

Based on the study, it can be concluded that ICT adoption in Egoji and Meru teacher training colleges is very slow as characterized by inadequate IT literacy, lack of psychological and technical readiness and insufficient policy guidelines. The study further concludes that inadequate preparedness has hindered the tutors and managements’ perception which has hampered technology acceptance and usefulness in the public primary teacher training colleges in Meru County.
In relation to ICT use in the management of Egoji and Meru teacher training colleges, it can be concluded that computers and the internet were commonly used. Other forms of technology that were used are the management information system and the library management system. Use of the computers was mostly to process student examination results, tracking students’ progress, grading of students according to their performance and keeping fee records. This was made possible by use of computer software such as word, excel etc. Communication of the tutors was also via emails of course with internet connectivity.

5.4 Recommendations

The study has revealed the importance of ICT in performing management of public primary teacher training colleges. To improve the adoption and integration of ICT, the study has recommended the following:

1. The government to increase the ICT budget to address adoption challenges in teacher training colleges as the survey found that inadequate and obsolete equipment influenced ICT integration. In addition, the government needs to set an ICT funds kitty for teacher training colleges to address specifics like; maintenance cost of ICT, cost of facilities and equipment, cost of support services that enhance ICT learning activities, prices of educational support software and funds to hire and sustain ICT personnel in schools since these were found to slow the rate of ICT adoption and implementation in teacher training colleges.

2. The principal and the management of TTCs need to organize mass training and retraining of tutors on e-learning skills to enhance use, sustenance and care of systems as study established rigidity in none sustainable ICT programs. Achieving this is through organizing computer training sessions, workshops,
and conferences. These training can impart the needed skills to tutors and boast sustainability.

3. Tutors in the TTCs should make use of computers, projectors, the internet and the management soft wares in their daily undertakings. This will enhance their skills and build confidence in the use of ICT.

4. Trainee teachers should make effective use of the presence of the ICT platform in the training institutions. This will in turn help them develop skills that will enable them to use the acquired skills in the practice of teaching.
REFERENCES


Perry, D., (2003). Handheld Computers (PDAs) in Schools


APPENDICES

APPENDIX I: QUESTIONNAIRE FOR THE TUTORS

This research is to find out the challenges that principals face in the adoption of Information and Communication Technology (ICT) in the institutional management of public primary teacher training colleges in Meru County. It is for academic purpose and you are requested to provide answers to these questions as honestly and precisely as possible. Please do not write your name anywhere on this questionnaire. Tick where appropriate or fill in the required information on the spaces provided.

SECTION A

1. Your title:
   - Head of Department [    ]
   - Dean of student [    ]
   - Dean of curriculum [    ]
   - Tutor [    ]
   - Head of Subject [    ]

2. Your gender
   - Male [    ]
   - Female [    ]

3. Name of your institution_____________________________

4. (i) How long have you been teaching? [    ] yrs. [    ] months
   (ii) For what duration have you been in the current college? [    ] yrs. [    ] months

5. What subjects do you teach in your institution? Tick all that apply
   - Science [    ]
   - Mathematics [    ]
   - Languages [    ]
   - Foreign languages [    ]
   - Social studies [    ]
   - ICT [    ]
   - Other (Please specify) ________________________________
SECTION B: INFLUENCE OF AVAILABILITY OF ICT EQUIPMENT

6. Do you have access to a desktop computer in your institution?

7. How many computers are in use in your department?

8. Do you have computers in your department?

   Yes [    ]     No [    ]

   If yes, how many______________________________?

9. Does the institution have internet connectivity?

   Yes [    ]     No [    ]

10. Do you have access to your own office computer at the institution?

    Yes [    ]     No [    ]

11. ICT equipment available for use in the classroom? Tick against all that is applicable

    Personal computers [    ]
    Interactive whiteboard [    ]
    Video conferencing systems [    ]
    Audio equipment [    ]
    Digital photo cameras [    ]
    Mobile phones [    ]
    Projection system [    ]

    Other (Please specify)_________________________________________________________________

12. a) Do you use computers in class?

    Yes [    ]     No [    ]
b) If yes, how frequently do you use it?

All the time [ ]

Once a week [ ]

SECTION C: INFLUENCE OF INSTITUTIONAL SUPPORT ON ICT

13. Did you receive any IT training prior to joining the current institution?

Yes [ ] No [ ]

14. After your appointment to the organization, did you receive any training?

Yes [ ] No [ ]

15. a) What kind of training is provided by the institution?

Seminars [ ]

Workshops [ ]

Mandatory courses [ ]

Other (Please specify)________________________________________________________

b) How often does your institution carry out trainings and ICT workshops for staff on technology use?

Quarterly [ ]

Mid-year [ ]

Annually [ ]

16. Does your institution have IT technicians?

Yes [ ] No [ ] If yes, how many? ________________

17. Do you as tutors get immediate help when you face technical difficulties in the use of IT technology?

Yes [ ] No [ ]

18. How would you approximate the managements’ investment of capital/ money in ICT equipment in your institution?
19. a) Is there a special academic ICT department in your institution?
   Yes [ ] No [ ]

b) How do you rate its effectiveness?
   Not effective [ ]
   Effective [ ]
   Very effective [ ]
   No idea [ ]

20. In your opinion, does your institution have a policy to promote or support the adoption of ICT by tutors in their activities? (E.g. use of projectors, video conferencing, online communication).
   Yes [ ] No [ ]

21. Do you get principals’ support for technology use in your college?
   Yes [ ] No [ ]

22. What kind of support do you get from the principal in terms of adoption and implementation of ICT

__________________________________________________________________
__________________________________________________________________
__________________________________________________________________
__________________________________________________________________
__________________________________________________________________

23. What strategies has your institution put in place to motivate use of ICT?
   Sensitization and awareness [ ]
   Training [ ]
   Policy [ ]
   Technical support [ ]
SECTION D: TUTORS PERCEPTION ON USE OF ICT

24. Based on the duration of your service, do you feel staff has been sufficiently motivated to ICT compliance since its introduction?

Yes [ ]  No [ ]

25. What are your qualifications in terms of IT?

Degree [ ]
Diploma [ ]
Certificate [ ]
Workshops/Seminars [ ]
None [ ]

26. Is staff confident enough in the ability to use ICT in general functions?

Yes [ ]  No [ ]

27. Do tutors understand the relevance and usefulness of ICT in their daily activities?

Yes [ ]  No [ ]

28. In your own view, does ICT generally improve the management practices in your institution?

Yes [ ]  No [ ]

If yes, how__________________________________________________________

_________________________________________________________________

29. How conversant are you with the use of ICT in your institution?

I find it easy to use computers Yes [ ]  No [ ]
Working with ICT makes me nervous Yes [ ]  No [ ]
ICT makes work enjoyable Yes [ ]  No [ ]

30. a) How do you perceive ICT use to influence effectiveness and efficiency in your institution?
Using ICT eases my workload  
Yes [ ] No [ ]

Using ICT makes me more productive  
Yes [ ] No [ ]

I work better when I work with IT  
Yes [ ] No [ ]

ICT is used effectively by my college  
Yes [ ] No [ ]

ICT is used effectively in decision making  
Yes [ ] No [ ]

b) Based on the options selected above do you feel it is a reason enough to embrace ICT in your institution?

Yes [ ] No [ ]

SECTION E: AREAS OF COMPUTER APPLICATION IN MANAGEMENT

31. Is ICT applied in the following areas of management? Check where applicable

Management of students’ data [ ]
Registration of students [ ]
Management of student results [ ]
Management of finances [ ]
Personnel management [ ]

32. a) Based on the duration of service in the institution, where in particular do you as an individual employ technology in undertaking your activities?

Classroom [ ]
Personnel management [ ]
Performance management and ranking [ ]

b) In your own opinion, does the use of ICT make your work easier?

Yes [ ] No [ ]

33. Do you use technology for communication with the school management and your colleagues?

Yes [ ] No [ ]
34. What is the common mode of communication within the departments in the whole institution?

Through memos [ ]
Emails [ ]
College website [ ]
Telephone [ ]
Short Messaging Service (SMS) [ ]
Others (specify) ______________________________________________

35. What is the extent of importance of the use of technology?

Very important [ ]
Less important [ ]
Not important at all [ ]

36. How do you use technology as a management tool in your institution? (Mark all that is applicable)

Finding digital learning materials [ ]
Organizing work and keeping records [ ]
Preparing lessons [ ]
Designing various student learning styles [ ]
Supporting Creative thinking [ ]
Support activities that facilitate higher order thinking [ ]

37. What are some of the challenges that you face in ICT use in management roles in the institution?

__________________________________________________________________
__________________________________________________________________
__________________________________________________________________

THANK YOU FOR YOUR COOPERATION
APPENDIX II: STUDENT QUESTIONNAIRE

This research is meant to find out the challenges facing principals in the adoption of Information Communication Technology (ICT) in the institutional management of public primary teacher training colleges in Meru County. It is for academic purpose and you are required to provide answers to these questions as honestly and precisely as possible. Please do not write your name anywhere on the questionnaire. Tick where appropriate or fill in the required information on the space provided.

SECTION A

1. What is the name of your institution?__________________________________

2. Your gender
   Male [    ]  Female [    ]

3. Year of study
   First year [    ]  Second year [    ]

4. Where did you first encounter or use computers?
   i) High school [    ]
   ii) In college [    ]
   iii) Computer Training college [    ]
   iv) Elsewhere [    ]  Specify____________________

5. What subjects are you training to teach for your career?
   i) Mathematics [    ]
   ii) Languages [    ]
   iii) Foreign language [    ]
   iv) Social studies [    ]
   v) Science [    ]
   vi) ICT [    ]
   vii) Other (specify)____________________________________________

6. What is the age of the children will you teach?
   5 – 7 years old [    ]
   6 – 8 years old [    ]
SECTION B: INFLUENCE OF AVAILABILITY OF ICT EQUIPMENT

7. Do you have an access to a desktop computer in your institution?
   Yes [ ]  No [ ]

8. How many computers are in use in your department?
   ________________________________

9. Do you have computers in your department?
   Yes [ ]  No [ ]
   If yes, how many__________________?

10. Is your institution connected to the internet?
    Yes [ ]  No [ ]

11. Do you have your own computer at the institution?
    Yes [ ]  No [ ]

12. What ICT equipment is used in your institution? (Tick all that is applicable)
    Personal Computers [ ]
    Interactive Whiteboards [ ]
    Video Conferencing Systems [ ]
    Audio Equipment [ ]
    Digital Cameras [ ]
    Digital Video Cameras [ ]
    Mobile Phones [ ]
    Projection System [ ]
    Other (Please specify) ________________________________
13. Do you use computers in class?

Yes [ ]    No [ ]

If yes, how frequently do you use it?

All the time [ ]

Once a week [ ]

14. What is the approximate number of computer to student ratio in your college?

(_______________________)

15. In your own view is the ratio above adequate for training the students on technology adoption in the institution?

Yes [ ]    No [ ]

SECTION C: INFLUENCE OF INSTITUTIONAL SUPPORT ON ICT

16. Did you receive any IT training prior to joining the current institution?

Yes [ ]    No [ ]

17. a) What kind of training is provided by the institution?

Seminars [ ]

Workshops [ ]

Mandatory courses [ ]

Other (Please specify) ________________________________

b) How often does your institution carry out trainings and IT workshops for students?

Quarterly [ ]

Mid-year [ ]

Annually [ ]

18. Does your institution have IT technicians?

Yes [ ]    No [ ]

If yes, how many? ________________________________
19. Do you as students get immediate help when you face technical difficulties in the use of IT technology?
   Yes [ ] No [ ]

20. (a) Is there a special academic department in your institution?
   Yes [ ] No [ ]

   b) How do you rate its effectiveness?
   Not effective [ ]
   Effective [ ]
   Very effective [ ]
   No idea [ ]

21. Does your institution have policies to promote or support the adoption of ICT?
   Yes [ ] No [ ]

22. Do you get principals’ support for technology use in your college?
   Yes [ ] No [ ]

23. What kind of support do you get from the principal in terms of adoption and implementation of ICT?

   ______________________________________________________________
   ______________________________________________________________
   ______________________________________________________________
   ______________________________________________________________
   ______________________________________________________________

24. What strategies has your institution put in place to motivate use of ICT?
   Sensitization and awareness [ ]
   Training [ ]
   Policy [ ]
   Technical support [ ]
SECTION D: PERCEPTION ON USE OF ICT

25. Is teacher trainers’ confidence on using ICT?
   Yes [ ] No [ ]

26. What importance do teacher trainers place on the relevance of ICT in teaching?
   Quite great importance [ ]
   Of some importance [ ]
   No importance [ ]

27. In your own view, is the management doing all it can to ensure adoption of ICT in the management?
   Yes [ ] No [ ]
   If yes, in what ways_____________________________________________________________
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________

28. In what ways are the tutors and administration as a whole embracing the introduction of ICT in the management processes?
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________

29. Based on the duration of study in the institution, have there been changes in technology in terms of software and equipment?
   Yes [ ] No [ ]
   If yes, mention a few__________________________________________
30. In your own opinion, how have these changes affected the use of ICT in the institution? ____________________________________________________

31. What is the extent of technological support by the institution?

   Good [ ]    Fair [ ]    poor [ ]

SECTION E: APPLICATION OF ICT IN THE MANAGEMENT

32. Is ICT applied in the following areas of management? Check where applicable

   Management of students’ data [ ]

   Registration of students [ ]

   Management of student results [ ]

   Management of finances [ ]

   Personnel management [ ]

33. Do you use technology for communication with school management and other students?

   Yes [ ]    No [ ]

34. What is the common mode of communication within the departments in the whole institution?

   Through memos [ ]

   Emails [ ]

   College website [ ]

   Telephone [ ]

   Short Messaging Service (SMS) [ ]

   Mention others, if any______________________________________

35. How is technology used as a management tool in your institution? (Mark all that is applicable)

   Organizing work and keeping records [ ]
Finding digital learning resources [ ]
Preparing lessons [ ]
Designing learning styles [ ]
Supporting creative thinking [ ]

36. What are some of the challenges that you face in ICT use in the institution?
________________________________________________________________________________
________________________________________________________________________________
________________________________________________________________________________
________________________________________________________________________________
________________________________________________________________________________

37. Estimate the time you spend on ICT for personal use?

Hours [ ] Daily [ ] Weekly [ ]

THANK YOU VERY MUCH FOR YOUR COOPERATION
APPENDIX III: INTERVIEW SCHEDULE FOR PRINCIPALS

This interview is meant to investigate the challenges that principals face in the adoption of Information Communication Technology (ICT) in the institutional management of public primary teacher training colleges in Meru County. The researcher is a student at Kenyatta University pursuing her master degree in Education. You are kindly requested to provide the researcher with accurate information. Your responses will be confidential.

1. Approximately how many computers are installed and operating in the college?
2. How are these computers used by the entire institution?
3. What is the other ICT support equipment in the institution?
4. What is your level of expertise in dealing with the technology?
5. How do you find use of technology in your management roles?
6. How is the internet connectivity in the college?
7. Is there internet connectivity in all the areas where computers are installed?
8. How do you communicate with various departments in the college?
9. In your own view, what is the level of use of technology in the administration of the whole college?
10. In your own opinion, is ICT integration of importance in the management of the institution? If yes, give some of the importance
11. Has there been any training for the tutors in the recent past?
12. What are the policy interventions in place to implement the adoption of ICT in the college?
13. Does the government grant an extra budget for the ICT education at your school?
14. What is the perception of the teachers and the student trainees regarding the introduction of ICT in management?
15. How has changes in technologies affected the adoption of ICT in the management processes?
16. Do you experience any challenge in the adoption of ICT in the institution? If yes, what are some of these challenges?

17. Generally, what are the shortcomings you experience in implementing ICT policies on learning, teaching, and management of the institution?

18. What are some of the areas where ICT is used in the management of the school activities?

19. Finally, what is the way forward for the institution regarding use of ICT?
APPENDIX IV: LETTER OF INTRODUCTION

KENYATTA UNIVERSITY
GRADUATE SCHOOL

E-mail: dean-graduate@ku.ac.ke
Website: www.ku.ac.ke

OUR REF: E55/EG/CE/24198/11

P.O. Box 43844, 00100
NAIROBI, KENYA
Tel. 8710901 Ext. 57580

Date: 26th September, 2014

The Principal Secretary,
Higher Education, Science & Technology,
P.O. Box 30040,
NAIROBI

Dear Sir/Madam,

RE: RESEARCH AUTHORIZATION FOR MS. NKONGE JANET KATHURE REG. NO. E55/EG/CE/24198/11

I write to introduce Ms. Kasure who is a Postgraduate Student of this University. She is registered for M.Ed. Degree programme in the Department of Educational Management, Policy & Curriculum Studies in the School of Education.

Ms. Kasure intends to conduct research for a proposal entitled, “Adoption of Information and Communication Technology in the Management of Public Primary Teacher Training Colleges in Meru County”.

Any assistance given will be highly appreciated.

Committed to Creativity, Excellence & Self-Reliance
APPENDIX V: RESEARCH AUTHORIZATION

NATIONAL COMMISSION FOR SCIENCE,
TECHNOLOGY AND INNOVATION

Telephone: +254-20-2213471,
2241349, 310571, 2219420
Fax: +254-20-318245, 318249
Email: secretary@nacostit.go.ke
Website: www.nacostit.go.ke
When replying please quote

Ref: No. NACOSTI/P/14/5671/3684

Date: 21st October, 2014

Janet Kathure Nkonge
Kenyatta University
P.O. Box 43844-00100
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on “Adoption of Information and Communication Technology in the management of public primary teacher training colleges in Meru County,” I am pleased to inform you that you have been authorized to undertake research in Meru County for a period ending 5th December, 2014.

You are advised to report to the County Commissioner and the County Director of Education, Meru County before embarking on the research project.

On completion of the research, you are expected to submit two hard copies and one soft copy in pdf of the research report/thesis to our office.

DR. S. K. LANGAT, OGW
FOR: SECRETARY/CEO

Copy to:
The County Commissioner
The County Director of Education
Meru County.