INFORMATION COMMUNICATION TECHNOLOGY INTEGRATION AND
PERFORMANCE OF PUBLIC SECONDARY SCHOOLS IN MOMBASA COUNTY,
KENYA

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OCTOBER, 2018
DECLARATION

This is my original work and has not been presented for examination in any other Institution/university. No part of this proposal should be reproduced without authority of the author or/and Kenyatta university

Signature……………………………………….. Date……………………………

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I confirm that the work in this project was done by the candidate under my supervision as the appointed university supervisor.

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DEDICATION

This project is dedicated to almighty God, husband Wesley Kibet, mother Naumi Soi and children Lesley and Bradley for the Knowledge, wisdom and encouragement.
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I sincerely thank Dr. John Kandiri, for his professional support and advice to ensure that the project meets the required standards. I also thank my family, colleagues and friends for endless guidance and support. Thanks to God for the wisdom to come up with this research.
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OPERATIONAL DEFINITION OF TERMS

ICT
Information Communication and Technologies. These are technological tools together with other resources for communicating. It involves management of information creating, disseminating and storing.

Attitude
It is a way to respond either positively or negatively to an idea, situation, object or person.

ICT Infrastructure
Refers to all the facilities that are used in the management, communication, sharing and collaboration of information using information technology. In the study it is the independent variable.

ICT User Skills
This is the ability to get your computer to do what you want it to do and understanding what your computer can do, and how it does it. In the study it is the independent variable.

School Performance
The attainment of either short term or long term educational goals by an institution, teacher or student. It includes efficiency in service delivery which results to improved academic performance.

Public School
This is a school that is financed by public funds through the government and educate the children from the community around. It includes both primary and secondary schools.

ICT Integration
The uses of ICT to introduce, reinforce, supplement and extend skills. These depend greatly on user skills, attitude and support.
Management Support  The degree to which senior management understands the importance of the ICT function and the extent to which they are involved in ICT activities.
**ABBREVIATIONS AND ACRONYMS**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>CD ROM</td>
<td>Compact Disc Read Only Memory</td>
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<tr>
<td>DoE</td>
<td>Department of Education</td>
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<td>DOI</td>
<td>Diffusion of Innovation</td>
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<td>ECOSOC</td>
<td>Economic and Social Council</td>
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<td>GIS</td>
<td>Geographic Information systems</td>
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<td>GOK</td>
<td>Government of Kenya</td>
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<td>Hi-Tech</td>
<td>High Technology</td>
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<td>ICT</td>
<td>Information Communication and Technology</td>
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<tr>
<td>K.I.C.D</td>
<td>Kenya Institute of Curriculum Development</td>
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<td>K-12</td>
<td>Kindergarten 12</td>
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<td>KESSP</td>
<td>Kenya Education Sector Support Programme</td>
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<td>KICD</td>
<td>Kenya Institute of Curriculum Development</td>
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<tr>
<td>NACOSTI</td>
<td>National Commission for Science, Technology and Innovation</td>
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<tr>
<td>SPSS</td>
<td>Statistical Package for Social Sciences</td>
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<tr>
<td>TAM</td>
<td>Technology Accepted Model</td>
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<td>UNDP</td>
<td>United Nations Development Programme</td>
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<td>ISP</td>
<td>Internet Service Providers</td>
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<td>PC</td>
<td>Personal Computers</td>
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ABSTRACT

In spite of all inputs on professional enhancement and ICT infrastructure to better education in several countries, ICT adoption and integration in teaching and learning have been minimal. Technological revolution in schools has been set by theoretical inadequacies that have kept educational technology at the margins of the established educational system. In spite the ICT policy for basic education in Kenya, minimal outcome is seen in the use of ICT as an educational tool in teaching. The general objective of this study was to assess the effects of ICT integration on the performance of public secondary schools in Mombasa County, Kenya. The specific objectives of the study were to assess the effect of ICT user skills on performance of public secondary schools in Mombasa County, Kenya, to establish the effect of ICT infrastructure on performance of public secondary schools in Mombasa County, Kenya, to assess the effect of teachers’ attitude to ICT on performance of public secondary schools in Mombasa County, Kenya and to assess the effect of managerial support on ICT on the performance of public secondary schools in Mombasa County, Kenya. This study employed a descriptive survey research design. The target population for this study constituted of 101 public secondary schools comprising of 24 Girls’ Secondary schools, 12 Boys’ Secondary schools and 65 Mixed Secondary schools. Therefore, the target population was 202 respondents comprising of 24 school principals and 24 teachers of computer from girls’ schools, 12 school principals and 12 teachers of computer from boys’ schools, 65 school principals and 65 teachers of computer from mixed’ schools. Stratified sampling method was used to select schools to ensure that all different subgroups are adequately represented in the sample. Proportionate sampling was used to select principals and teachers of computer from the sampled schools. The sample size used was 134 respondents comprising of 16 school principals and 16 teachers of computer from girls’ schools, 8 school principals and 8 teachers of computer from boys’ schools, 43 school principals and 43 teachers of computer from mixed’ schools. The main data collection tools for this were questionnaires for all the respondents then compiled, sorted, edited, classified and coded into a coding sheet and analysed using a computerized data analysis package known as Statistical Package for Social Sciences (IBM SPSS) version 2.0. The data was analysed using both descriptive and inferential statistic. The study concludes teachers develop their competence according to their educational goals they want to achieve with the support of ICT. The insufficient ICT infrastructure in many secondary schools in the area had contributed to the slow integration of ICT in the schools. Teachers’ attitude determines the success of initiating and implementing educational technology in school’s program and also teachers are fearful of trying new approaches which they perceive might have a negative impact on examination results respectively. Management support in the integration of ICT includes funding, training and provision of required ICT facilities. The study recommends that the educational policy makers should put into considerations various concerns from educational stakeholders so that they bring workable strategies that would serve as lessons for improvement of educational practices. The government should ensure that secondary schools are supplied with necessary ICT infrastructure. There is a need for teachers to have their personal initiatives towards the available digital learning tools so as to enhance the teaching and learning process and their professional development. There should be comprehensive in-service courses and the school management should practice leadership so as to promote the collaboration and dedication of teachers to student-centred learning through ICT.
CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Information Communication and Technology is utilized for ability improvement and citizen strengthening. Eventually, ICT can improve teaching openings and results for students, incorporating students with scholarly handicaps (Anderson & Dexter, 2014). Worldwide interest in Information Communication Technology (ICT) has been to enhance instructing and learning in schools. This has been started by numerous government administrations in a view to improve students' performance in academics. In spite of every one of these undertakings on ICT framework, gear and expert advancement to enhance instructing in numerous nations are lacking behind. Buabeng-Andoh (2012) guaranteed that the enormous educational investment have delivered little proof on change of government funded schools performance. Herold (2016) argues that there should be a general shift in thought by most school management to give necessary support through infrastructure, equipment and professional development for the realization and achievements of the desired ICT integration in school.

Wango (2012) recommended that the nature of educating and learning can be upgraded through enhanced instructing practices. The expanding changes in teaching practices and the requirement for imaginative, various and surprising solution to enhance educating and learning circumstances require a challenging approach to deal with the field of instructional practices (Steyn & Kamper, 2013). Liu (2016) carried out a study amongst elementary school lessons and found that integration of ICT in classroom teaching enhanced student commitment and inspiration, and helped the educators to make more writing based associations that were all the more engaging and fascinating to students. Enhancing school ICT offices is along these lines fundamental in perspective of the current worldwide revolution in instructing because of
the changing idea of instructors' work, the substances of the data age, new worldwide associations and consciousness of innovative changes (Feldner, 2014). Schools ought to give satisfactory ICT to improve integration of ICT in teaching.

1.1.1 ICT Integration

Reconciliation of Information Communication Technology (ICT) is the capacity to utilize innovation as an instrument to research, sort out, assess and convey data (Kenney, 2011). Amara (2013), then again, sees the integration of computers as the degree to which teachers utilize ICT in teaching by through use of mixed media projectors and overhead projectors as well as cell phones. The author additionally noticed that ICT coordination includes real utilization of ICT in training work and it implies applying computers and Internet innovation to improve the nature of teaching and learning. At long last, incorporation of new innovation is a multi-stage process and acknowledgment and utilization of such a structure permits school leaders to work all the more adequately with staff and students as they utilize innovation in the classroom and additionally in reality (Technology Integration 24 Matrix, 2014).

Latin America and Caribbean nations have likewise been characterizing progressive activity designs and arrangement systems that emphasis on the utilization of ICT for improvement, with the end goal to adjust for social disparities. This urges the schools to take up influential position in widening access, preparing and use of new advancements of technology (ECOSOC, 2011). A noteworthy challenge recognized in many developing nations in regards to usage and utilization of ICT in schools is that the staffs are lacking and where there are, they are undoubtedly Information Technology (IT) experts with no training. To viably saddle
ICT for school purposes, it requires maintained interests in supporting educators preparing with the end goal to make new learning experiences in ICT. (Jimoyiannis and Komis, 2012).

Bouck, and Richardson (2013) noticed that the innovation was effective, yet the expense was restrictive impeding far reaching incorporation of ICT in state funded schools. Anyway crosswise over Africa, numerous nations have begun contributing significant measure of cash and planning new arrangements all went for influencing educators to receive and utilize ICT in schools. In any case, there are numerous difficulties some of which could be credited to the educators' abilities in utilizing ICTs (Zaman et al., 2011). For ICT to be viably executed in schools, instructors ought to be set up to confront challenges that accompany its usage. In an ever-changing world, basic education is crucial for a person to be able to access and apply data. Such ability should initiate ICTs embracing within the village. The Economic Commission for Africa has indicated that the flexibility to access and use data is no longer a luxury, however a necessity for development. Sadly, several developing countries, particularly in Africa, are still low in ICT application and use (Aduwa-Ogiebean &Iyamu, 2013). In keeping with Bouck and Richardson (2013) in most developing countries the topic of helpful technology and its implementation is lacking. Neyland (2011), factors like, institutional help and additionally minimal factors, for example, teacher’s ability impact on the utilization of internet learning in secondary schools in Sydney. Teachers are encouraged to embrace and integrate ICT into the learning experiences, yet teachers' readiness to incorporate ICT into learning decides the effectiveness of the technology and not by only its presence in the classroom. The attitude of the teachers towards technology significantly impact on adoption and incorporation of computers into their teaching and learning. In this manner, a
comprehension of individual attributes that impact teachers' choice in integration of ICT into teaching is crucial.

The Ministry of Education policy clearly articulates the intention to integrate information technology into the education system (Sessional Paper No. 1, 2005). Integration of IT into education is intended to ensure that education, training services and delivery utilizes modern IT tools. The policy of integrating IT in education and training is aimed at preparing learners and education managers for the 21st century education and knowledge suitable for global competitive job market economy (Sessional Paper No. 1, 2005). However, numerous teachers are hesitant to roll out the change, and a large number of students are not spurred to attempt. In 2013, an overview was given to the Chicago Public Schools by Ehrlich, Sporte, Sebring, and the Consortium on Chicago Schools (2013). It was discovered that 92% of students had some type of technology and web access in their home, yet less than half of the students utilized that technology for work related to class.

Albirini (2015) observe that technological revolution in schools has been set by theoretical inadequacies that have kept educational technology at the margins of the established educational system. In spite of the fact that there is an ICT arrangement for essential instruction in Kenya, less could be found in the utilization of ICT as an educational apparatus in teaching. ICT integration in teaching and learning must be done effectively so as to achieve the secondary education development (UNDP, 2015). Although ICT is the engine for economic and technological development in the 21st century, a great deal of Kenyan secondary school curriculum instruction and administrative work is still manually executed.
The implementation of the national IT policy for education and training through multi-stakeholder participation in 2006 under the Kenya Education Sector Support Programme (KESSP), laid the foundation for developing the necessary capacity for skilled human resource required to achieve Kenya’s Vision 2030 in line with alignment of the education system with the Constitution of Kenya 2010 (GOK, 2012). A review by Kandiri (2012) on ICT availability and utilization in Kenya government to run secondary schools demonstrates that out of 2250 ICT instructors who graduated from colleges and universities in 2010, 1350 instructors employed in industries and ICT sectors and 900 employed as teachers of ICT in various educational foundations. Out of those in teaching, 189 were in technical establishments and 711 were in secondary schools. This shows a generally low number of qualified ICT instructors in Kenyan schools.

1.1.2 Performance of Public Secondary Schools

State funded schools are learning establishments where learning exercises are upheld by public funds. They are kept up at open cost for the education of the offspring of a community. The government meets costs related with teacher’s compensations, supervision, investigation and administration in state funded schools (Onsomu et al., 2015). The corporate governance structures in the government funded schools determine the circulation of rights and obligations among various members, for example, the board, administrators, and different partners. It likewise explains the principles and systems for settling on choices on the schools issues which may have been disregarded or neglected by the different partners at one time or other.

In Kenya, use of ICT has not reached optimum level and none of the empirical study has fully addressed the level of integration of ICT required. With such a large investment in ICT
infrastructure, teachers are expected to integrate ICT in their teaching and learning activities competently and effectively without caring about their perception, competency and challenges. Zimlich, (2015) even with regards to the level and use of specific technology in the classroom, many teachers still fail to find ways to integrate technology into the classroom to align with educational objectives. Berry and Westfall (2017) survey noted that there is less frequent ICT interaction in the classroom, compared to verbal interaction

A number of studies have been done concerning ICT in schools. For example, Palak and Walls (2012) study on teachers’ beliefs and technology practices using a mixed-methods approach discovered that technology is mainly used by teachers to enhance the already existing teaching methodologies rather than creating a student centred approach. Ebert (2015) also indicates that in the real world Constructivist learning situations are more motivating to students through practical application and integration of ICT and knowledge. Awuor and Kaburu (2014) study on e-learning in public institutions and proposed that e-learning should be incorporated in the curriculum with the support of software developers and teacher institutions should to enhance e-learning skills.

**Statement of the Problem**

Kenya has set up ICT strategies whose goal is to enhance the occupations of Kenyans by guaranteeing the accessibility of open, productive, dependable and moderate ICT services. ICT has entered numerous parts including managing an account, transportation, correspondences, and restorative administrations, the Kenyan education system appears to linger behind. Kiptalam et al., (2014) observed that access to ICT facilities is a major challenge facing most African countries, with a ratio of one computer to 150 students against
the ratio of 1:15 students in the developed countries. A survey by Kandiri (2012) demonstrated that utilization of computers in classrooms in Kenyan schools is at its initial stages, and summarizes that teachers play a big role in utilization of computers in the classroom.

The issue confronting the education system is ways to convert the curriculum and the process of teaching-learning to meet the increasing pressure to use the new ICT to teach students in the 21st century. According to Farrel (2014) many teachers put emphasis on teaching about technology rather than teaching with technology and also these teachers continue using non-ICT based approaches in teaching various subjects despite the effort being made by the government of Kenya to equip schools with computer infrastructure.

A report by Ministry of Higher Education, Science and Technology (GOK, 2015) on teachers in secondary schools on utilization of ICT likewise showed that the number of instructors equipped in ICT in secondary schools was less. The research uncovered that a few only had undergone ICT training that is viable to be utilized in the classroom. Out of the sample of 232 teachers (57%) certificate level trainees on computer basic skills, 73% were accounted for to have obtained ICT training through in-service courses and 43% had undergone ICT training courses in their institution where they teach. However Grismore (2012) states that it becomes ineffective for a teacher to use technology “for technology’s sake without much contribution towards the desired objectives.

In 2006 the policy in ICT on education was disseminated by the government having areas underlining that the government will empower execution and utilization of ICT in every single government funded school (GOK, 2005). Some of the accomplishments so far include; electrification of more than 300 schools in the rural areas, acquisition of computers to more
than 500 secondary schools, building up a unit at Kenya Institute of Curriculum Development (K.I.C.D) to give administration in usage of ICT in schools, Launching of e-content for schools in March 2010 by K.I.C.D, joining forces with other associations and private sectors in acquisition of computers for schools, among others (Laaria, 2013). Regardless of its significance and methodologies created by government to actualize ICT in schools a large portion of state funded schools in the nation are not adequately utilizing ICT to help picking up, learning, teaching and administration as proposed (Manduku et al., 2012).

Mombasa County is one of the 47 Counties in the Republic of Kenya. In this County, public schools have been equipped with computer facilities and all the teachers have been in-serviced through workshops organized by Kenya Institute if Curriculum Development (KICD) on how to integrate ICT in teaching and learning of all the subjects. Apart from this, an innovative teacher should be able to use other computer related software materials like internet, power point presentations, simulations among others to promote new learning environment in which enquiry and problem solving increases learners achievement. This is also likely to develop deeper understanding of subject skills and concepts by engaging them in active learning practices. Therefore, this study sought to investigate the effects of ICT integration on the performance of public secondary schools in Mombasa County, Kenya.

1.2 Objectives of the Study

1.2.1 General Objective

The general objective of this study was to assess the effects of ICT integration on the performance of public secondary schools in Mombasa County, Kenya.
1.2.2 Specific Objectives

The specific objectives of the study were:

i. To assess the effect of ICT user skills on the performance of public secondary schools in Mombasa County, Kenya.

ii. To establish the effect of ICT infrastructure on the performance of public secondary schools in Mombasa County, Kenya.

iii. To assess the effect of teachers’ attitude to ICT on the performance of public secondary schools in Mombasa County, Kenya.

iv. To assess the effect of managerial support of ICT on the performance of public secondary schools in Mombasa County, Kenya.

1.3 Research Questions

The study sought answers to the following research questions:

i. What is the effect of ICT user skills on the performance of public secondary schools in Mombasa County, Kenya?

ii. What is the effect of ICT infrastructure on the performance of public secondary schools in Mombasa County, Kenya?

iii. What is the effect of teachers’ attitude to ICT on the performance of public secondary schools in Mombasa County, Kenya?

iv. What is the effect of managerial support of ICT on the performance of public secondary schools in Mombasa County, Kenya?

1.4 Significance of the Study

This study would be of significance to the both public and private schools in Kenya in ensuring effective integration and use of ICT towards better school performance. It would
help the school management understand the factors affecting effective integration of ICT in public secondary schools and how to transform these hindrances. The findings of this study would also provide information to policy creators the government ministry of education in regard to policy regulations, formulation and implementation in the education sector on the integration of ICT in public educational institutions.

Scope of the Study

This study was carried out in Mombasa County, Kenya. The study looked at the effects of ICT user skills, ICT infrastructure, teachers’ attitude to ICT and managerial support of ICT on the performance of public secondary schools. Principals and teachers of computer subject participated in the study. Data was collected through the use of questionnaires. The study was based on the performance of public secondary for the last 5 years.

1.5 Limitations of the Study

This study was limited to public secondary schools in Mombasa County that are utilizing ICT. The study also was focused on computer teachers and the school principals only in public secondary schools in Mombasa County that are utilizing ICT.
CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter comprises of the theoretical literature review, empirical literature review, summary of literature reviewed, conceptual framework of the study and research gaps.

2.2 Theoretical Literature Review

2.2.1 Diffusion of Innovations Theory

The study depended on Roger's (2003) hypothesis of Diffusion of Innovations. The theory seeks to clarify how, why, and at what rate new thoughts and innovation spread through societies. The first diffusion research took place back in 1903 by the French sociologist Gabriel Tarde. Diffusion research organizations focuses on the conditions which improve or diminish the probability that another thought, item, or practice is received by individuals from a given culture or a social framework.

This was extended by Rogers (2003) hence at present is commonly known as Roger’s theory of diffusion of innovation. Advancement diffusion research has endeavoured to clarify the factors that impact how and why clients embrace another data medium, for example, the Internet. The diffusion of data, technology and broadcast communications equipment, programming, and administrations ends up being a ground-breaking driver of development, affecting labourer productivity (Bollou, 2002).

Every individual from the social framework faces his/her very own advancement choice that pursues a 5-step process; Knowledge; individual becomes aware of an innovation and has some idea of how it functions, Persuasion; individual structures a positive state of mind toward the advancement, Decision; individual participates in exercises that prompt a decision
to receive or dismiss the advancement, Implementation; individual puts a development into utilization, Confirmation; individual assesses the aftereffects of a development choice officially made (Sahin, 2006). This constrains the client to proceed with execution or later reject the innovation. The combination or dismissal of advancements is portrayed by; the relative preferred standpoint, similarity, straightforwardness, preliminary capacity and duration capacity. So understanding and using dispersion systems can help for rapidly inciting framework for wide change (Robinson, 2009). Given that education partners are aware of ICT developments worldwide, there is still poor integration of ICT in secondary schools. Rogers’ diffusion of innovations theory is the most appropriate for investigating the factors influencing integration of ICT in secondary schools.

This theory was relevant to the study as it tries to show how innovation, which may be inform of an idea, conduct, entity is accepted among given population. Diffusion of Innovations Theory provides appreciated understandings into the progression of social change. In this way, contended developments that are seen by people as having more noteworthy relative preferred standpoint, similarity, trial ability, observe ability, and less complexity will be accepted rapidly. However, in this context, because of the differences in personal experiences, environments, and technology needs, the teaching staff will certainly perceive the attributes of ICT differently.

2.2.2 System Theory
This study depended on Bertalanffy (1968) theory known as System Theory. The theory describes a system as an entity containing four entities. The first is objects – the fragments, components, or elements within the system. These might be physical or abstract or both, contingent upon the idea of the system. Second, a system comprises of characteristics or
properties of a system and its entities. Third, a system has inward connections among its entities. Fourth, system exists in a setting. A system, at that point, is an arrangement of things that influence each other inside its setting and shape a bigger set up that is unique in relation to any of the parts (Whitchurch and Constantine, 2009)

According to Whitchurch and Constantine (2009) the central frameworks intuitive worldview of hierarchical analysis includes the consistent phases of input, throughput, and output. The characteristics of a system include: wholeness and interrelationship (the entire is more than the total of all parts), correlations, seeing causes, chain of impact, order, super-systems and subsystems, self-direction and control, goal-oriented, exchange with the environment, change and flexibility.

This research was guided by the System Theory since schools are frameworks where the educating/learning process is seen as a throughput (process) used to change inputs understudies and assets into yields (graduates with various abilities and states of mind). In schools we likewise watch an interrelation between educators, assets and learners which establish a sine qui non condition for the viability of the instructing/learning process. Sensibly, any school has targets to accomplish and accomplishing them expects it to treat every one of the components associated with the procedure (inputs like understudies, instructors and assets; throughput like training techniques and yields like alumni with various aptitudes and states of mind) as related.
2.3 Empirical Literature Review

2.3.1 ICT user skills

Peralta and Costa (2014) study established that specialized ability affected Italian instructor's utilization of ICT in teaching. Nonetheless the instructors referred to academic plus instructional capabilities as very critical elements if fruitful and productive educational interventions are probably going to be realized. In Portugal, instructors revealed diverse perspectives in regards to the most essential capabilities for educating with ICT. The accomplished and new instructors focused on the requirement for specialized abilities and disposition, the inventive instructor's emphasized educational module and pedantic skills and the student – instructors cited technical fitness and academic proficiency as critical to coordinate ICT in teaching and learning forms.

The research by Mlambo (2012) on ICT in A-level material science teaching and learning at high schools in Manicaland Zimbabwe found the nonappearance of good models of best practice in the utilization of ICT in teaching physical science as there were only few teachers who even made sure to type notes for students or looked for previous examination papers. The author discovered physical science teachers utilizing old instructional techniques predominantly the address strategy and note dictation. This suggests ICT isn't successfully utilized as an academic apparatus in teaching. In another study by Wong and Li (2013) on bits of knowledge into imaginative classroom practices with ICT in China, it was discovered that ICT was not a basic device to change educating and learning. It ought to be noted that ICT as an educational device includes the utilization of programming application to tackle issues, to broaden students’ abilities, to make items or impart and share their viewpoints with one another.
Omary et al., (2011) attributes low adoption of ICT strategy among developing countries to lack of computer skills amongst the clinicians. There exists a training gap between high, medium, low and non-users. Computerized Health Records are modern systems and intricate hardware and software; therefore, a high confident level of computer knowledge is required for its effective use. Simon et al. (2012) similarly noted that health care professionals struggle to get appropriate technical training and support for the systems from the vendor and if they do get this support it comes at a cost.

Aasheim et al. (2012) advocate that absence of innovative technological ideas among the health care workers and their administration lead to capacity hindrance to the reception and expansion of ICT systems. The authors featured in their study, that some health professionals are worried about the adoption of ICT due to the dread that their workers probably won't be comfortable with it. Absence of skilled staff baffles fruitful ICT system usage. Usually announced that doctor's facilities can't utilize facilities successfully, in spite of the affirmation to the particulars. This is because of absence of human resource skills.

Bauer and Kenton (2010) studied about technology incorporation in the schools. They utilized a qualitative research to look at the classroom routine with regards to 30 "tech-savvy" teachers who utilized computer technology in their teaching. They found that the teachers were profoundly taught and gifted with technology, were creative and adept at conquering deterrents, yet that they did not coordinate technology consistently as both an educating and learning apparatus. They expressed two reasons with respect to these discoveries: students did not get enough time with computers, and teachers needed extra preparation time for
technology classes. Some other reasons include old ICT equipment, absence of proper software, lack of technical skills, and student expertise levels.

Baylor and Ritchie (2012) undertook a quantitative study that observed the variables encouraging teacher ability, teacher spirit, and student learning in technology utilizing classrooms. They found that expert advancement impacts how well ICT is grasped in the classroom. Likewise, they observed that teachers' training routines frequently concentrate more on fundamental education aptitudes and less on the integrated utilization of ICT in teaching. In spite of the various plans to utilize technology in schools, still, teachers have gotten little preparation in this area in their educator training programs.

### 2.3.2 ICT Infrastructure

Research by Beckinsale and Ram (2010) outlined that low adoption of ICT in health care sector is due to poor internet services by the service providers. The researchers observed that the internet service providers in Kenya provide poor services characterized by high monthly subscription, frequent disconnection and low speeds.

Earle (2012) connected integration ICT with the idea of fullness, when components of the system are linked together to be one. For example, the two imperative components of teaching plus learning are content and teaching method must be put together when technology is utilized in a class. Likewise, Aasheim et al.,(2012) depicted ICT integration as the methods of utilizing any ICT tools (e-learning technologies, CD drives, internet among others) to help in teaching and learning.
Gulbahar and Guven (2008) observe that, schools must be furnished with the fundamental ICT infrastructure with the end goal to furnish the following ages with the required devices and assets for accessing and using to achieve the anticipated expertise. Schools are equipped with various types of technological infrastructure and electronic assets which include the software, hardware and network connectivity must be accessible to integrate ICT in education. The study additionally found that constrained access to computers is an obstruction to successful utilization of computers in classes.

Mumtaz (2010) study found that numerous researchers recommended that the absence of funds to acquire the important hardware and software is one reason teachers do not utilize technology in their classes. Productive and viable utilization of technology relies upon the availability of hardware and software and the equitability of access to assets by teachers, students and administrative staff. Corresponding change in curriculum go in line with the adoption of ICT in teaching and learning.

As indicated by Visscher (2013) and Tearle (2014), research done in the United Kingdom, the Netherlands, Malaysia and South Africa collaborate the ways in which teachers require equipping them with suitable PC offices and related facilities to advance the use of ICT in classroom teaching and administrative work. For effective management of schools the management should be equipped with information systems. These studies identified also that for effective integration of ICT require extensive change in pedagogical element in the IT curriculum of any teacher education program. He further noted that teaching ICT independently as a subject is not an efficient way to promote the use of ICT in learning. For it to be adopted the curriculum must be redesigned to fit into ICT integration in all disciplines.
Concerning significance of a technical facilitator in school, the National Centre for Educational Statistics (2010) revealed that around 68% of the teachers reviewed trusted that absence of help with respect to methods for utilizing technology in class blocked technology utilization. The study additionally found that teachers in schools with no technical facilitator will probably refer to absence of specialized help as an obstruction to their utilization of technology than teachers in schools with a technical facilitator. Likewise, 64% of the teachers surveyed recognized absence of technical support or advice as a barrier to using technology in their classes. Subsequently, absence of on location help is one cause that teachers do not use technology in their classes.

2.3.3 Teachers’ Attitude to ICT

Demirci (2009) conducted a research on teachers’ attitudes towards the utilization of Geographic Information Systems in Turkey. Questionnaires were used to collect information from 55 diverse secondary schools with a sample of 79 geography teachers. The study uncovered that in spite the absence of equipment and software positive attitude thrived among teachers, uplifting demeanours towards GIS was a vital to the fruitful combination of GIS into geography lessons. A comparable report, Teo (2013) carried out a survey on pre-service teachers’ attitudes on utilization of computers in Singapore. A case of 139 pre-service educators was assessed for their attitudes towards using PC. Drent and Meelissen (2014) led an investigation about variables which impact the imaginative utilization of ICT by instructor teachers in the Netherlands. A survey was carried out on 210 educators. Their survey uncovered that student– focused instructive methodology, inspires the state of mind towards PCs. PC experience, and individual initiative of the instructor impact the imaginative utilization of ICT by the educator. To effectively start and actualize instructive innovation in
school's program depends firmly on the instructors' help and dispositions. It is trusted that if instructors saw innovation programs as neither satisfying their requirements nor their students' needs, it is likely that they won't coordinate the innovation into their teaching and learning.

Kandiri (2012), on Schoolnet 2010 review on educators' utilization of Acer net books which included six European Union nations, an expansive number of members trusted that the utilization of net book had positive effect on their learning, advanced individualized learning and extended investigation past school day. Nonetheless, proof proposes that modest number of educator’s trust that the advantages of ICT are not plainly observed. The Empirical review uncovered that a fifth of European educators trusted that the utilization of ICT in instructing did not profit their students' learning.

In a research led by Bakr (2011) on demeanour of secondary teachers of English in Syria towards ICT, he explored the connection among PC and five free factors: Computer qualities, social observations, computer fitness, computer access and individual; attributes including computer training foundation. The discoveries recommended that the educators had uplifting disposition towards ICT in training and their states of mind were anticipated by the made reference to five autonomous factors.

Gilbert et al., (2014) detailed e-Government selection obstructions to be end clients' states of mind towards online trust relationship foundation, security of monetary information and nature of data gave, and time and cash as appropriation benefits factors in foreseeing potential utilization of e-Government. Their model used builds adjusted from Diffusion of Innovation (DOI), Technology Accepted Model (TAM) and administration quality speculations. The creator additionally proposed an e-administration evaluation demonstrate dependent on
interest side capacities with measures, for example, scope of ICT applications, functionalities empowered, response of individuals to e-Government openings, and boundaries.

Drent and Meelissen (2014) carried out a research about components which animate or confine the inventive utilization of ICT by instructor teachers in the Netherlands. The research utilized questionnaires for 210 teachers and meetings for 4 of those educators who had reacted. Their discoveries demonstrated that few factors, for example, a student–situated instructive methodology, a constructive ICT state of mind, computer experience, and individual set of mind of the instructor teacher affect the imaginative utilization of ICT by the educator. Likewise, correlation between these components in anticipating PC utilize distinguished that state of mind toward PC contributed more in clarifying ICT use by teachers.

2.3.4 Managerial Support of ICT

Wong and Li (2013) led an investigation on components that affected transformational incorporation of ICT in eight schools in Singapore and Hong Kong. The study uncovered that the administration advancement of joint effort, experimentation and educators devotion to understudy focused learning impacted viable ICT change. In a quantitative report led by Ng (2008) on parts of transformational administration with 80 Singaporean auxiliary educators, he found that a transformational authority with characteristics of recognizing and articulating a dream, advancing acknowledgment of gathering objectives, giving individualized help, offering scholarly incitement, giving a suitable model, making superior desires, and reinforcing school culture could impact the incorporation of ICT.

Yuen, Law and Chan (2013) led contextual investigation in 18 schools in Hong Kong. They saw that in enhancing combination demonstrate schools, the school chief is the key change
specialist, displaying visionary administration, staff advancement and inclusion while in social development show schools, different initiative is shown where the school key isn't really engaged with ICT authority, and educators are allowed to actualize new thoughts in steady and upgrading society. Yee (2010) trust that a pioneer who actualizes innovation designs and furthermore imparts a typical vision to the educators animates them to utilize innovation in their exercises. The author likewise proposes that for powerful usage of ICT by instructors, there is the requirement for a solid administration to drive a very much outlined innovation designs in schools.

School administration arrangements and strategies additionally affect the selection of ICT in schools (Anderson et al., 2014). At times, school administration does not give motivations to instructors, nor does administration value the results of ICT reception. Identified with this is the inclination among instructors that the present educational programs do not expect them to utilize ICT for educational programs conveyance and, by suggestion, that the coordination of ICT isn't seen as critical by the Department of Education (DoE). By and large schools were furnished with a few PCs, yet the high number of students: PC proportion tested school administration to plan out lab centre sessions equally (Davids, 2009)

Bosley and Moon (2013) survey the writing on the utilization of Information and Communication Technology inside an instructive setting. They made reference to a contextual investigation look into in the UK that distinguished various components that empower educators to effectively participate in creative practice. These were: support at senior administration level for executing new practices and tending to budgetary ramifications where fitting; association of a few individuals from staff; encouraging society inside schools of coordinated effort and shared help; and ultimately readiness to go out on a limb. The job of
school authority is plainly focused in meeting a few of these preconditions. Indeed, educators require both specialized and managerial help when they choose to utilize innovation in their classes.

Telem (2010) displayed a system for school administration data framework usage, which included five segments, to be specific, specialized, auxiliary, psychosocial, and administrative, objectives and qualities. This five segment structure plainly shows that the change associated with ICT usage in schools is an intricate procedure and necessities extraordinary consideration notwithstanding when the change included is identified with administration and does not include instructing and learning in schools. This system can likewise fill in as a general conceptualization for understanding the nature and difficulties of progress associated with ICT execution in schools.

2.3.5 Performance of Public Secondary Schools and ICT Integration

State funded schools are learning establishments where learning exercises are upheld by public funds. They are kept up at open cost for the education of the offspring of a community. The government meets costs related with teacher’s compensations, supervision, investigation and administration in state funded schools (Onsomu et al., 2015). The corporate governance structures in the government funded schools determine the circulation of rights and obligations among various members, for example, the board, administrators, and different partners. It likewise explains the principles and systems for settling on choices on the schools issues which may have been disregarded or neglected by the different partners at one time or other.
Integration of Information Communication Technology (ICT) is the capacity to utilize innovation as an instrument to research, sort out, assess and convey data (Kenney, 2011). Amara (2013), then again, sees the integration of computers as the degree to which teachers utilize ICT in teaching by through use of mixed media projectors and overhead projectors as well as cell phones. The author additionally noticed that ICT coordination includes real utilization of ICT in training work and it implies applying computers and Internet innovation to improve the nature of teaching and learning. At long last, incorporation of new innovation is a multi-stage process and acknowledgment and utilization of such a structure permits school leaders to work all the more adequately with staff and students as they utilize innovation in the classroom and additionally in reality (Technology Integration 24 Matrix, 2014).

Latin America and Caribbean nations have likewise been characterizing progressive activity designs and arrangement systems that emphasis on the utilization of ICT for improvement, with the end goal to adjust for social disparities. This urges the schools to take up influential position in widening access, preparing and use of new advancements of technology (ECOSOC, 2011). A noteworthy challenge recognized in many developing nations in regards to usage and utilization of ICT in schools is that the staffs are lacking and where there are, they are undoubtedly Information Technology (IT) experts with no training. To viably saddle ICT for school purposes, it requires maintained interests in supporting educators preparing with the end goal to make new learning experiences in ICT. (Jimoyiannis and Komis, 2012).
2.4 Summary of Literature Reviewed and Research Gaps

Table 2.1: Summary of Literature Reviewed and Research Gaps

<table>
<thead>
<tr>
<th>Author</th>
<th>Focus of the Study</th>
<th>Findings</th>
<th>Knowledge gap</th>
<th>Focus of the current study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peralta and Costa (2014)</td>
<td>Teachers’ skills and confidence regarding the use of ICT</td>
<td>Technical skills impacted Italian teacher’s use of ICT in teaching</td>
<td>Teachers use ICT without a full understanding of learning principles</td>
<td>ICT user skills and performance of public secondary schools</td>
</tr>
<tr>
<td>Bauer and Kenton (2010)</td>
<td>Technology integration in the schools</td>
<td>Teachers were highly educated and skilled with technology, were innovative and adept at overcoming obstacles</td>
<td>Teachers did not integrate technology on a consistent basis as both a teaching and learning tool</td>
<td>Teachers’ attitude and performance of public secondary schools</td>
</tr>
<tr>
<td>Albirini (2016)</td>
<td>Teachers’ attitudes toward information and communication technologies: The case of Syrian EFL teachers</td>
<td>Teachers’ attitudes were predicted by computer attributes, cultural perceptions and computer competence</td>
<td>The study did not focus on teachers’ attitude on school performance</td>
<td>Teachers’ attitude and performance of public secondary schools</td>
</tr>
<tr>
<td>Adomi and Kpangban (2010).</td>
<td>Application of ICTs in Nigerian secondary schools.</td>
<td>Problems such as poor policy and project implementation policies, and inadequate or poor information infrastructure influence against these struggles</td>
<td>The commission should be financed and given the right to deliver ICT facilities in the schools and observe their utilization.</td>
<td>Management support and performance of public secondary schools</td>
</tr>
<tr>
<td>Drent and Meelissen (2014)</td>
<td>Variables which animate or restrict the inventive utilization of ICT by instructor teachers in the Netherlands</td>
<td>Student–arranged educative methodology, a constructive ICT disposition, computer experience, and individual initiative of the instructor teacher affect the imaginative utilization of ICT by the educator</td>
<td>The study did not focus on teachers attitude towards ICT integration</td>
<td>Teachers’ attitude and performance of public secondary schools</td>
</tr>
<tr>
<td>Source: Researcher (2017)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------------------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gulbahar and Guven (2008)</td>
<td>A study on ICT utilization and the perceptions of social studies teachers in Turkey.</td>
<td>Schools have to be equipped with the necessary ICT infrastructure in order to provide the next generations with the needed tools and resources for use and to acquire the perceived skills.</td>
<td>Limited access to PCs is a hindrance to efficient use of PCs in classrooms</td>
<td>ICT infrastructure and performance of public secondary schools</td>
</tr>
<tr>
<td>Afshari et al. (2015)</td>
<td>Variables Affecting educators' utilization of Information Communication Technology.</td>
<td>Most teachers neither use technology as an instructional delivery system nor integrate technology into their curriculum.</td>
<td>The study did not focus on the influence of ICT infrastructure on performance</td>
<td>ICT infrastructure and performance of public secondary schools</td>
</tr>
</tbody>
</table>
2.5. Conceptual Framework

**Independent Variables**

**ICT User Skills**
- Word processor
- Spread sheets
- Database
- Power point
- Internet and e-mail

**ICT Infrastructure**
- Hardware
- Software
- Computer Laboratory

**Teachers’ Attitude to ICT**
- Perceived usefulness
- Perceived control
- Behavioural intention

**Managerial Support of ICT**
- Planning
- Coordinating
- Organizing

**Dependent Variable**

**Performance of Public Secondary Schools**
- Operational Efficiency
- Academic Performance

**Source:** Researcher (2017)

**Figure 2.1: Conceptual Framework**

Figure 2.1 shows the relationship between independent variables and dependent variable. The independent variables are ICT user skills, ICT infrastructure, teachers’ attitude and management support and dependent variable is the performance of public secondary schools.
CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter comprises of research design, target population, sampling design and sample size, data collection instruments, pilot study, data collection procedure, data analysis and ethical consideration.

3.2 Research Design

The study used descriptive research to collect information on the subject under study by observing the environment and describing their behaviour and demonstrate relationships that exist between them. Descriptive research is a process of collecting data in order to test a hypothesis or to answer questions concerning the current status of the subject in the study (Mugenda and mugenda, 2009). This research method helped to gain more insight about subject of study and define the relationship between the variables. Therefore, the descriptive design was adapted to describe the variables affecting ICT integration and their relation to performance of public secondary schools in Mombasa County.

3.3 Target Population

The target population for this study constituted of 101 public secondary schools comprising of 24 Girls’ Secondary schools, 12 Boys’ Secondary schools and 65 Mixed Secondary schools. Therefore, population target was 202 respondents composed of 101 school principals and 101 teachers of computer. This is shown in Table 3.1.
Table 3.1: Target Population

<table>
<thead>
<tr>
<th>Category</th>
<th>No. of Schools</th>
<th>Targeted Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Girls’ Schools</td>
<td>24</td>
<td>48</td>
</tr>
<tr>
<td>Boys’ Schools</td>
<td>12</td>
<td>24</td>
</tr>
<tr>
<td>Mixed Schools</td>
<td>65</td>
<td>130</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>101</strong></td>
<td><strong>202</strong></td>
</tr>
</tbody>
</table>

*Source: Mombasa Sub-County Education Office report (2017)*

3.4 Sampling Design and Sample Size

3.4.1 Sampling Design

Stratified sampling method was used to select schools to ensure that all different subgroups are adequately represented in the sample. Sampling is a procedure, process or technique of choosing a sub-group from a population to participate in the study (Mugenda & Mugenda, 2009). It is the process of selecting a number of individuals for a study in such a way that the individuals selected represent the large group from which they were selected. For the purpose of this study the identified strata was Girls’ School, Boys’ Schools and Mixed secondary schools. Proportionate sampling was used to select principals and teachers of computer from the sampled schools.

3.4.2 Sample Size

A sample is a smaller group or sub-group obtained from the accessible population (Mugenda & Mugenda, 2009). Taro Yamane’s formula was used to determine the sample size. the components assumes distribution and taken into consideration appropriate for figuring out the proper sample size from the complete population due to the fact the study will comprise all of the categories of schools. According to Hussey and Hussey (1997) a sampling error of less
than 10% and confidence levels of more than 90% is acceptable, the study therefore adopted a sampling error of 5% to determine the minimum sample size that was used for the purposes of this study gathering or sub-bunch got from the open population (Mugenda and Mugenda, 2009). Taro Yamane's formula was utilized to decide the sample size. The components adopts dissemination and taken over suitable for making sense of the best possible sample size from the entire population because of the reality the study will include all the categories of schools.

As indicated by Hussey and Hussey (1997) a sampling error under 10% and confidence levels of over 90% is acceptable. The study adopted of 5% to decide the minimum sample size that was utilized for the purpose of the study.

The formula for obtaining the sample size is shown below:

\[ n = \frac{N}{1+N(e)^2} \] ................................. Eq. 1

Where: 
- \( n \) = sample size
- \( N \) = population size
- \( e \) = level of precision/sampling error at .05

\[ n = \frac{202}{1+202(0.05)^2} = 134 \]

The sample size used was 134 respondents comprising of 67 school principals and 67 teachers of computer which forms 66.3% of the target population (202). The sample size was differentiated in their strata based on the ratio of 0.663. This was done in line with stratified technique. This was best for the reason that respondents belonged to one of a kind categories and each category has one-of-a-kind function from every other. This is shown in Table 3.2
Table 3.2: Sample Size

<table>
<thead>
<tr>
<th>Category</th>
<th>Targeted Population</th>
<th>Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Girls’ Schools</td>
<td>48*0.663</td>
<td>32</td>
</tr>
<tr>
<td>Boys’ Schools</td>
<td>24*0.663</td>
<td>16</td>
</tr>
<tr>
<td>Mixed Schools</td>
<td>130*0.663</td>
<td>86</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>202</strong></td>
<td><strong>134</strong></td>
</tr>
</tbody>
</table>

Source: Researcher (2017)

3.5 Data Collection Instruments

The main data collection tools for this were questionnaires for all the respondents.

3.6 Questionnaires

Essential quantitative information was collected using questionnaires. Moreover, the questionnaires was utilized for the accompanying reasons: its potential in contacting a substantial number of respondents inside a brief timeframe, ready to give the respondents satisfactory time to react to the things, offers a conviction of security (confidentiality) to the respondent and it is a target strategy henceforth no inclination coming about because of the individual qualities (as in a meeting) (Owens, 2002). The surveys were partitioned into sections of the study with the exception of the initial segment which catches the demographic characteristics of the respondents. Different segments were composed by the objectives.

3.6 Reliability

Reliability is the ability of an instrument to provide consistent results after several trials (Mugenda & Mugenda, 2009). The reliability analysis was tested using Cronbach’s alpha (α).

\[
\alpha = \frac{rk}{[1 + (k-1)r]} \tag{2}
\]

Where \( k \) = number of items
r = mean of inter item correlation

The coefficient closer to 1.0 demonstrates greater reliability.

### 3.7 Pilot Study

Pilot study was done in 10 open auxiliary schools in Mombasa County that were not associated with the last investigation. As indicated by Mugenda and Mugenda (2009), a tenth of the total sample size with similar characteristics is suitable for the pilot study. Pilot testing is an essential advance in research process since it uncovers obscure inquiries and indistinct directions in the instruments. It likewise catches vital remarks and recommendations from the respondents that empower the specialist to enhance the productivity of research instrument.

### 3.8 Validity of Research Instruments

The instrument was validated in terms of face and content validity. The instrument measures the level in which content related technique reflected the specific areas covered. Validity is achieved when evidence and theory back up the interpretation of test scores entailed by use of tests, and when it does measure what it is supposed to measure. According to Mugenda and Mugenda (2009), Validity is the correctness and relevance of inferences, which are founded on the research output. It is the level to which output received from the analysis of the data really reflects the variables of the study.

### Data Collection Procedure

Preceding the beginning of data collection, the researcher got all the vital documents; comprising an introduction letter from the University and permit to carry out research obtained from the National Commission for Science, Technology and Innovation (NACOSTI). Sort clarification and authority from all stakeholders which include; the local
authorities in the area. After getting clearance, the researcher in person circulated the data collection instruments to the sampled respondents. Utilization of questionnaires was relied upon to collect data from the respondents because it was first to reach the respondents and also to outline the purpose of the research during distribution.

3.9 Data Analysis and Presentation

After collection of the responses questionnaires were reviewed for consistence and completeness. Coding was done to group responses into various categories. The data was analysed by descriptive analysis such as means and standard deviations with the use of Statistical Package for Social Sciences (SPSS) version 2.0. The study conducted a multiple regression analysis to test the relationship between independent variables and dependent variable.

The regression equation was in the following form:

\[ Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon \]  

\[ \text{Eq. 3} \]

Where

\[ Y = \text{Performance of Public Secondary Schools} \]

\[ X_1 = \text{ICT User Skills} \]

\[ X_2 = \text{ICT Infrastructure} \]

\[ X_3 = \text{Teachers’ Attitude to ICT} \]

\[ X_4 = \text{Managerial Support of ICT} \]

\[ \beta_1, \beta_2, \beta_3, \beta_4 \text{ and } \beta_5 \text{ are coefficients of determination} \]

\[ \varepsilon = \text{Error} \]
3.10 Ethical Consideration

In an attempt to regard the experts and moral guidelines, the respondents consent was first sought to answer to the questionnaires by enlightening on the significance of the study to them and were guaranteed that the information disclosed by them would not be disclosed to the third party. The authorization letters from the university and National Commission for Science, Technology and Innovation (NACOSTI) were acquired.
CHAPTER FOUR: FINDINGS AND DISCUSSIONS

4.1 Introduction

This chapter presents research findings and discussions of the study findings. The general objective of this study was to assess the effects of ICT integration on the performance of public secondary schools in Mombasa County, Kenya. The findings of the research were presented based on the four research objectives which were to assess the effect of ICT user skills on performance of public secondary schools in Mombasa County, Kenya, ICT infrastructure on performance of public secondary schools in Mombasa County, Kenya, teachers’ attitude to ICT on performance of public secondary schools in Mombasa County, Kenya and managerial support of ICT on the performance of public secondary schools in Mombasa County, Kenya. Data was analysed using Statistical Package for Social Sciences (SPSS). Questionnaire return rate is given first followed by the reliability analysis, background data of the respondents, descriptive statistics and then the inferential statistics.

4.2 Response Rate

Questionnaires were administered to the school principals and teachers of computer. The response rate of computer teachers accounted for 48.5% while school principals had a response rate of 44.7%. The response rate for school principals was slightly lower than that of computer teachers due to their busy schedule and unavailability most of the agreed time to collect the questionnaires. However it was due to persistent follow-up even through the phone that the gap of response rate was slightly low. The computer teachers were very cooperative as most of the time they were present and majority honoured the agreed time for questionnaires collection and this contributed to a higher overall response rate of 93.2%. According to Mugenda and Mugenda, (2009) a response rate of 50% is adequate for analysis and reporting,
while a response rate of 60% is good and that of 70% and above is very good. A response rate of 93.2% was therefore appropriate for the study and this justified further analysis for the study to be conducted. The higher response rate for the questionnaire was attributed to the fact that the respondents had been sensitized prior to administration of the questionnaires and the researcher had relevant authorization letters from the relevant authorities.

4.3 Background Information

This section outlines the general characteristics of the respondents in terms of their gender, age, education level, training and work experience in the teaching profession.

4.3.1. Respondents’ Gender

Analysis in terms of gender was conducted from the respondent to find out whether the respondents were gender balanced to avoid collecting information that was gender biased. The analysis is presented in Table 4.1

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>53</td>
<td>42.4%</td>
</tr>
<tr>
<td>Female</td>
<td>72</td>
<td>57.6%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>125</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

To have a clear picture of response rate in terms of genders a pie chart was also drawn as presented in figure 4.1.
Figure 4.1 Respondents’ Gender

Source: Survey Data (2017)

Figure 4.1 shows that there was a fairly balanced response rate in terms of gender as (57.6%) of the respondents were male while female respondents accounted for 42.4%. This is an indication that the study collected balanced views from the respondents and did not suffer from gender biasness.

4.3.2. Respondent Age

Analysis in terms of age response rate was also done and presented in Table 4.2:

Table 4.2: Respondents’ Age

<table>
<thead>
<tr>
<th>Age Bracket</th>
<th>20-29</th>
<th>30-39</th>
<th>40-49</th>
<th>Over 50</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>18</td>
<td>33</td>
<td>44</td>
<td>30</td>
<td>125</td>
</tr>
<tr>
<td>Percent</td>
<td>14.4</td>
<td>26.4</td>
<td>35.2</td>
<td>24.0</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Survey Data (2017)

Table 4.2 shows that majority of the respondents were aged between 40 to 49 years with (35.2%), followed by 30 to 39 with 26.4% while those over 50 were 24% and those between 20 to 29 were only 14.4%. This shows that majority of the respondents were not in the youth
brackets, which is mainly between the age of 20 to 29 years. This is evidenced by the fact that the Government is no longer employing many teachers as they graduate from school as it used to absorb almost 100%. On the other hand only few respondents were above fifty years which is supported by the fact that most teachers has advanced their careers and moved to greener pastures or exit through either voluntary exit or employer initiated early retirement.

4.3.3. Respondents Education level

Respondent’s level of education analysis was done and presented in Table 4.3

Table 4.3 Respondents Education level

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diploma</td>
<td>40</td>
<td>32</td>
</tr>
<tr>
<td>Post graduate Diploma</td>
<td>16</td>
<td>12.8</td>
</tr>
<tr>
<td>Bachelors</td>
<td>51</td>
<td>40.8</td>
</tr>
<tr>
<td>Masters</td>
<td>15</td>
<td>12</td>
</tr>
<tr>
<td>PhDs</td>
<td>3</td>
<td>2.4</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>125</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Source: Survey Data (2017)

The results in Table 4.3 shows that majority (40.80%) of the respondents had attained a Bachelor’s Degree level of education, followed by 32% those who had Diploma, 12.80% post graduate diploma, 12.0% master’s degree and only 2.4% who had PhDs. Most of the respondents engaged in this study had Bachelors and Diploma Certificate as their highest levels of education because most of the computer teachers come from technical colleges and those who advanced to masters and PhDs were either absorbed in higher institutions of learning or in the corporate world.

4.3.4. Work Experience

Work experience of the respondent was also analysed and presented on Table 4.4
The results in Table 4.4 shows that majority (38.4%) had worked for a period of between 10 to 15 years, 26.4% between 5 to 9 years, 24.8% above 15 years and 10.4% below 5 years. This is supported by the fact that the Government through the Teachers service commission is no longer employing many teachers as evidenced by a low percentage of 20.4% of the teachers who had worked for less than five years. However the justification of employing new teachers is to support introduction of computer studies which is done as an elective and not compulsory in secondary school. This can also be supported by the fact that majority of schools are still either at early stages of introducing computer studies or are facing challenges introducing. However with government support through introduction of lap-tops in primary schools and installation of electricity in school the number of new teachers teaching computers is expected to rise.

### 4.3.5. Respondents’ attendance to Computer Workshop

Analysis of respondents attendance to workshop was also carried out and the study established that majority (84.0%) of the respondents agreed that they had attended computer workshop for the last three years while 16.0% disagreed as shown Table 4.7. This is supported by the government policy to promote information technology in line with vision 2030 and to anchor ICT platform to enhance education sector The analysis are presented on Table 4.5

<table>
<thead>
<tr>
<th>Years</th>
<th>Below 5yrs</th>
<th>5-9yrs</th>
<th>10 -15yrs</th>
<th>Over 15yrs</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>13</td>
<td>33</td>
<td>48</td>
<td>31</td>
<td>125</td>
</tr>
<tr>
<td>Percent</td>
<td>10.4</td>
<td>26.4</td>
<td>38.4</td>
<td>24.8</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Survey Data (2017)
Table 4.5: Attendance to Computer Workshop

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attended Workshop</td>
<td>105</td>
<td>84</td>
</tr>
<tr>
<td>Have not attended</td>
<td>20</td>
<td>16</td>
</tr>
<tr>
<td>Totals</td>
<td>125</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Research Data (2017)

4.4 Reliability Analysis

Reliability analysis was used to evaluate internal consistency among the items of the variables of study. The dependability of the study measures were surveyed by registering Cronbach's Alpha coefficient for all items in the questionnaire and the overall evaluation was given. Cronbach's alpha coefficient goes somewhere in the range of 0 and 1 with higher alpha coefficient estimations of 0.7 or more being more solid (Sekaran & Bougie, 2010). This questionnaire had a good internal consistency because it had overall alpha coefficient of 0.846. The reliability results are presented in Table 4.6
Table 4.6 Reliability analysis

<table>
<thead>
<tr>
<th>Variable</th>
<th>Cronbach’s Alpha</th>
<th>Number of items</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICT user skills</td>
<td>0.884</td>
<td>6</td>
</tr>
<tr>
<td>Managerial support of ICT</td>
<td>0.905</td>
<td>7</td>
</tr>
<tr>
<td>Teachers’ attitude to ICT</td>
<td>0.784</td>
<td>6</td>
</tr>
<tr>
<td>Performances of secondary schools</td>
<td>0.813</td>
<td>2</td>
</tr>
<tr>
<td><strong>Overall</strong></td>
<td><strong>0.846</strong></td>
<td><strong>21</strong></td>
</tr>
</tbody>
</table>

Source: Survey Data, (2017)

Table 4.6 indicates that managerial support of ICT had the highest reliability (α=0.905), followed by performances of secondary (α=0.813), user skills (α=0.848) while Teachers’ attitude to ICT had (α=0.784). The overall was (α=0.846), which justified further statistical analysis as it indicated that a high level of internal consistency for the scale used.

4.5 Study Variables Data Analysis

This area exhibits the discoveries and discourse in the request of the four objectives of the investigation. Frequencies and clear insights are displayed first pursued by inferential statistics. The survey reactions depended on a likert scale which was coded without lifting a finger of information of the study. The values assigned to the likert were 1=strongly disagree, 2=disagree, 3=Undecided, 4=agree and 5=strongly agree.
4.5.1 ICT User Skills

The first research objective was to assess the effect of ICT user skills on the performance of public secondary schools in Mombasa County, Kenya. The objective was assessed both by yes or no question and a likert scale by use of statements which were on the questionnaire where the respondents indicated their degree of agreement with the statements.

Analysis of respondents on users skills influence the integration of ICT in public secondary schools was also carried out and the study established that majority (96.0%) of the respondents agreed that users skills influence the integration of ICT in public secondary schools while 4.0% disagreed. Therefore there is need for individual teachers to update their skills and the government should make a policy to encourage or sponsor teachers programme to update their ICT skills as they are vital for successful integration of ICT in public secondary schools. The results are shown Table 4.7

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Influence</td>
<td>120</td>
<td>96</td>
</tr>
<tr>
<td>Have no influence</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>125</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>
### Table 4.8: ICT User Skills

<table>
<thead>
<tr>
<th>STATEMENT</th>
<th>SA</th>
<th>A</th>
<th>U</th>
<th>D</th>
<th>SD</th>
<th>M</th>
<th>STD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staff level of knowledge on Word processing (e.g. Microsoft word)</td>
<td>46.4</td>
<td>27.2</td>
<td>9.4</td>
<td>12</td>
<td>5.0</td>
<td>2.25</td>
<td>0.781</td>
</tr>
<tr>
<td>Staff level of knowledge on Data processing (e.g. Microsoft Access)</td>
<td>37.6</td>
<td>52.8</td>
<td>3.2</td>
<td>2.4</td>
<td>4.0</td>
<td>3.84</td>
<td>0.917</td>
</tr>
<tr>
<td>Staff level of knowledge on Presentation (PowerPoint)</td>
<td>45.3</td>
<td>35.6</td>
<td>2.1</td>
<td>14</td>
<td>3</td>
<td>3.31</td>
<td>0.837</td>
</tr>
<tr>
<td>Staff level of knowledge on Spreadsheet (e.g. Microsoft Excel)</td>
<td>40.0</td>
<td>48.0</td>
<td>4</td>
<td>5.6</td>
<td>2.4</td>
<td>2.72</td>
<td>0.774</td>
</tr>
<tr>
<td>Staff level of knowledge on Internet (WWW)</td>
<td>43.6</td>
<td>39.8</td>
<td>3</td>
<td>4.8</td>
<td>8.8</td>
<td>2.81</td>
<td>0.787</td>
</tr>
<tr>
<td>Staff level of knowledge on E-mail</td>
<td>38.2</td>
<td>46.2</td>
<td>8</td>
<td>5.6</td>
<td>2</td>
<td>2.93</td>
<td>0.896</td>
</tr>
<tr>
<td><strong>AVERAGE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>2.98</strong></td>
<td><strong>0.832</strong></td>
</tr>
</tbody>
</table>

**Key:** SA – Strongly Agree, A – Agree; U – Undecided; SD – Strongly Disagree, D – Disagree; M – Mean; Std.Dev– Standard Deviation

**Source:** Survey Data (2017)

As per the results in Table 4.8, shows that 83.6% of the respondents agreed that staff level of knowledge on Word processing (e.g. Microsoft word) contributes to effective integration of ICT while 90% of the respondents agreed on Staff level of knowledge on Data processing (e.g. Microsoft Access) and 80.9% of the respondents emphasized on Staff level of knowledge
on Presentation (PowerPoint). However 88% of the respondent supported that Staff level of knowledge on Spreadsheet (e.g. Microsoft Excel) was necessary while 83% of the respondents acknowledged Staff level of knowledge on Internet (WWW) was very crucial and that Staff level of knowledge on E-mail was pivotal for ICT integration as supported by 84.4% of the respondents. With an overall mean of 2.98 and a standard deviation of 0.832 it can be concluded that all those issues raised on staff knowledge and skills were necessary for effective integration of ICT in public secondary skills and lack of the can negatively affect performance in such schools. The finding of Omary et al. (2011) is in line with study as they attributed low adoption of ICT strategy among developing countries to lack of computer skills amongst the clinicians. There exists a training gap between high, medium, low and non-users. Computerized Health Records are hi-tech systems and complex hardware and software; therefore, a certain level of computer knowledge is required for its effective use. Bouck, and Richardson (2013) noted that the cost was prohibitive especially in developing countries making the technology less effective.

The respondents further indicated that equipping the staff with the necessary skills is a key factor to effective coordination of PCs into classroom. Insufficient preparation to utilize technology is one reason that teachers don't efficiently utilize PCs in their classes. Teachers should be offered chances to work on utilizing technology amid their teacher training programs with the goal that they can see manners by which innovation can be utilized to increase their classroom exercises. The findings are in line with the findings of Baylor and Ritchie (2012) who under took a quantitative study that observed the variables encouraging teacher ability, teacher spirit, and student learning in technology utilizing classrooms. They found that expert advancement impacts how well ICT is grasped in the classroom. Likewise,
they observed that teachers' training routines frequently concentrate more on fundamental education aptitudes and less on the integrated utilization of ICT in teaching. In spite of the various plans to utilize technology in schools, still, teachers have gotten little preparation in this area in their educator training programs.

4.4.2. ICT Infrastructure

Analysis of whether ICT infrastructure influence the integration of ICT in public secondary schools was also carried out and the study established that majority (80.0%) of the respondents agreed that they influence while 20.0% disagreed as shown Table 4.10. This is supported by the government policy to promote information technology in line with vision 2030 and to anchor ICT platform to enhance education sector. This is further evidenced by the government support on schools electrification programme to ensure at least majority of schools have access to electricity. The analysis are presented on Table 4.9

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have influence</td>
<td>100</td>
<td>80</td>
</tr>
<tr>
<td>Have no influence</td>
<td>25</td>
<td>20</td>
</tr>
<tr>
<td>Totals</td>
<td>125</td>
<td>100</td>
</tr>
</tbody>
</table>
Table 4.10: ICT Infrastructure

<table>
<thead>
<tr>
<th>STATEMENT</th>
<th>SA</th>
<th>A</th>
<th>U</th>
<th>D</th>
<th>SD</th>
<th>M</th>
<th>STD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of power backup systems (e.g generator, solar)</td>
<td>49.6</td>
<td>30.4</td>
<td>5.4</td>
<td>10.6</td>
<td>4</td>
<td>3.40</td>
<td>0.684</td>
</tr>
<tr>
<td>Lack of enough computers</td>
<td>40</td>
<td>36.0</td>
<td>11.2</td>
<td>5.6</td>
<td>7.2</td>
<td>2.96</td>
<td>0.880</td>
</tr>
<tr>
<td>Limited information on infrastructure</td>
<td>35.2</td>
<td>31.2</td>
<td>15.2</td>
<td>7.2</td>
<td>11.2</td>
<td>3.72</td>
<td>0.917</td>
</tr>
<tr>
<td>Inadequate ICT manpower in the schools</td>
<td>60.4</td>
<td>13.6</td>
<td>8</td>
<td>2.4</td>
<td>15.6</td>
<td>3.29</td>
<td>0.749</td>
</tr>
<tr>
<td>Inadequate educational software</td>
<td>53.2</td>
<td>22.8</td>
<td>6</td>
<td>11.6</td>
<td>6.4</td>
<td>2.97</td>
<td>0.831</td>
</tr>
<tr>
<td>Lack of computer laboratory</td>
<td>42</td>
<td>32.4</td>
<td>9</td>
<td>12.6</td>
<td>4</td>
<td>3.06</td>
<td>0.795</td>
</tr>
<tr>
<td><strong>AVERAGE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>3.23</strong></td>
<td><strong>0.809</strong></td>
</tr>
</tbody>
</table>

**Key:** SA – Strongly Agree, A – Agree; U – Undecided; SD – Strongly Disagree, D – Disagree; M – Mean; Std.Dev – Standard Deviation

**Source:** Survey Data (2017)

From the results in Table 4.10, 80% of the respondents agreed that Lack of power backup systems (e.g generator, solar) has negatively affected integration of ICT in public secondary schools which has contributed to lack of enough computers as supported by 76% of the respondents. Limited information on infrastructure has also negatively impacted on ICT integration as supported by 66.4% of the respondents. Further 74% of the respondents agreed that inadequate ICT manpower in the schools has also affected negatively integration of ICT in public secondary school while 76% of the respondents attributed this to inadequate educational software and the fact that lack of computer laboratory in public secondary schools has also been a major bottleneck of ICT integration as supported by 74.4% of the respondents.
With an overall mean grade of 3.23 and a standard deviation of 0.809 means that those issues rose have negatively affected the integration of ICT in public secondary schools and has negatively impacted on their performance. The discoveries are upheld by Mumtaz (2010) who found that numerous researchers recommended that the absence of assets to acquire the important equipment and programming is one reason educators don't utilize innovation in their classes. Proficient and compelling utilization of innovation relies upon the accessibility of equipment and software and the value of access to assets by educators, learners and management staff. Utilization of ICT in educating and learning must be joined by a relating change in educational programs.

These discoveries are also upheld by Gulbahar and Guven (2008) who saw that, schools must be equipped with the essential ICT infrastructure with the end goal to furnish the following ages with the required instruments and assets for access and utilize and to accomplish and acquire expertise skills. Schools are furnished with various types of innovative infrastructure and electronic assets accessible; equipment, programming and system foundation must be accessible to incorporate ICT in training. The study additionally found that constrained access to PCs is a hindrance to adequately utilize PCs in classes. Anyway the discoveries repudiate with the discoveries of Earle (2012), who connected ICT with the idea of wholeness, where all components of the framework are associated together to end up an entirety. For example, the two critical components of educating and realizing which are substance and instructional method must be joined when innovation is utilized in an exercise. Accordingly, it very well may be summarized that use of PCs, new software and equipment are key components to fruitful reception and adoption of ICT innovation.
4.5.3 Teachers’ Attitude to ICT

The third research objective was to identify the effect of teachers’ attitude on the performance of public secondary schools in Mombasa County, Kenya. Analysis of teachers’ attitude influence on the integration of ICT was also carried out and the study established that majority (65.60%) of the respondents agreed that they had attended computer workshop for the last three years while 34.4% disagreed as shown Table 4.12. This is supported by the fact that there is self-denial among the teachers as most of them are not fully computer literate and the few workshop they have attended have not equipped them with necessary skill to make them competent. The analysis are presented on Table 4.11.

**Table 4.11 Yes or No Question on Teachers’ attitude**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Influence</td>
<td>82</td>
<td>65.6</td>
</tr>
<tr>
<td>Have no influence</td>
<td>43</td>
<td>34.4</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>125</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>
Table 4.12: Teachers’ Attitude to ICT

<table>
<thead>
<tr>
<th>STATEMENT</th>
<th>SA</th>
<th>A</th>
<th>U</th>
<th>D</th>
<th>SD</th>
<th>M</th>
<th>STD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use of ICT can enhance remedial instruction</td>
<td>52.6</td>
<td>26.0</td>
<td>3</td>
<td>6</td>
<td>12.4</td>
<td>3.06</td>
<td>0.912</td>
</tr>
<tr>
<td>teachers are dreadful of attempting new methodologies which they see may negatively affect examination results</td>
<td>55.6</td>
<td>34.2</td>
<td>2</td>
<td>3.2</td>
<td>5</td>
<td>2.51</td>
<td>0.667</td>
</tr>
<tr>
<td>Information of how to utilize ICT devices by understudies and instructors is a beneficial aptitude</td>
<td>54.4</td>
<td>32.8</td>
<td>0.0</td>
<td>5.6</td>
<td>7.2</td>
<td>3.27</td>
<td>0.788</td>
</tr>
<tr>
<td>Selection and utilization of ICT in school can't add to learning since it doesn't animate students</td>
<td>30.1</td>
<td>51.6</td>
<td>5</td>
<td>7</td>
<td>6.3</td>
<td>2.16</td>
<td>0.954</td>
</tr>
<tr>
<td>Usage of ICT in schools can lessen individual contact among educators and students</td>
<td>43.2</td>
<td>39.4</td>
<td>3.4</td>
<td>5.8</td>
<td>8.2</td>
<td>2.18</td>
<td>0.855</td>
</tr>
<tr>
<td>ICT is helpful for instructors work arrangement (registers, exams, typesetting and so forth)</td>
<td>49.6</td>
<td>28</td>
<td>5</td>
<td>3.8</td>
<td>13.6</td>
<td>3.48</td>
<td>0.767</td>
</tr>
<tr>
<td>Utilization of ICT will put more work on the shoulders of instructors</td>
<td>41.6</td>
<td>35.4</td>
<td>7</td>
<td>4.0</td>
<td>12.0</td>
<td>2.98</td>
<td>0.892</td>
</tr>
<tr>
<td>AVERAGE</td>
<td>2.81</td>
<td>0.834</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Key:** SA – Strongly Agree, A – Agree; U– Undecided; SD – Strongly Disagree, D – Disagree; M – Mean; Std.Dev– Standard Deviation

**Source:** Survey Data (2017)
From the results in Table 4.12 of the study findings, shows that majority of respondents totalling to 78.4% agreed that use of ICT can enhance remedial instruction while 89.8% of the respondent agreed that teachers are dreadful of trying new methodologies which they think might have a negative impact on examination results. Anyway 82.7% of the respondents concurred that information of how to utilize ICT devices by learners and teachers as a beneficial skill and that selection and utilization of ICT in school can add to learning since it invigorate understudies was upheld by 81.7% of the respondents. Usage of ICT in schools can decrease individual contact among educators and learners was supported by 82.6% of the respondents and concurred that ICT is helpful for instructors work readiness (registers, exams, typesetting and so forth) as upheld by 87.6% of the respondents. However 87% of the respondent agreed that utilization of ICT will put more work on the shoulders of educators. With the general mean of 2.81 and a standard deviation of 0.834 it very well may be presumed that larger part of the respondents supported that joining of ICT in broad daylight auxiliary school assumed an essential job in upgrading execution. These findings agree with the discoveries of Meelissen (2014) who found that to effectively start and execute instructive innovation in school's program depends emphatically on the instructors' help and states of mind.

On the other hand the discoveries negate with the discoveries of Demici (2015) who found that educators were more positive about their state of mind towards PCs and aim to utilize PC than their impression of the value of the PC and their control of the PC. Gilbert et al. (2014) revealed e-Government selection hindrances to be end clients' mentalities towards online trust relationship foundation, security of monetary information and nature of data gave, and time and cash as appropriation benefits factors in anticipating potential utilization of e-
Government. Their model used develops changed from Diffusion of Innovation (DOI), TAM and administration quality speculations. The author likewise proposed an e-administration evaluation, demonstrate dependent on interest side abilities with measures, for example, scope of ICT applications, functionalities empowered, response of individuals to e-Government openings, and hindrances.

4.5.4 Managerial Support of ICT

The fourth research objective was to investigate the effect of managerial support of ICT on the performance of public secondary schools in Mombasa County, Kenya. Analysis of whether Management support influence the integration of ICT in public secondary schools was also carried out and the study established that majority (88.0%) of the respondents agreed that Management support has influence in the integration of ICT in public secondary schools while 12.0% disagreed as shown Table 4.14. This is supported by the fact that the management may not have the necessary funds required and ICT integration is an expensive process. However there is need for government intervention as it’s the government policy to promote information technology in line with vision 2030 and to anchor ICT platform to enhance education sector The analysis are presented on Table 4.13

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management support</td>
<td>110</td>
<td>88</td>
</tr>
<tr>
<td>Management does not support</td>
<td>15</td>
<td>12</td>
</tr>
<tr>
<td>Totals</td>
<td>125</td>
<td>100</td>
</tr>
</tbody>
</table>
Table 4.14: Managerial Support of ICT

<table>
<thead>
<tr>
<th>STATEMENT</th>
<th>SA</th>
<th>A</th>
<th>U</th>
<th>D</th>
<th>SD</th>
<th>M</th>
<th>STD</th>
</tr>
</thead>
<tbody>
<tr>
<td>School technology leadership is a more grounded indicator of instructors’ utilization of computer innovation in teaching</td>
<td>49.6</td>
<td>37</td>
<td>2</td>
<td>3.8</td>
<td>7.6</td>
<td>3.18</td>
<td>0.662</td>
</tr>
<tr>
<td>A pioneer who executes innovation designs and furthermore imparts a typical vision to the instructors and invigorate them to utilize innovation in their exercises</td>
<td>38.8</td>
<td>40.6</td>
<td>6</td>
<td>5.6</td>
<td>9</td>
<td>3.20</td>
<td>0.781</td>
</tr>
<tr>
<td>For powerful use of ICT by instructors, there is the requirement for a solid administration to drive a very much structured innovation designs in schools</td>
<td>52.6</td>
<td>33.0</td>
<td>3</td>
<td>6.4</td>
<td>5.0</td>
<td>3.25</td>
<td>0.833</td>
</tr>
<tr>
<td>Administration advancement of joint effort and experimentation and instructors commitment to student focused learning impact powerful ICT incorporation</td>
<td>48.0</td>
<td>30.4</td>
<td>4</td>
<td>11.2</td>
<td>6.4</td>
<td>2.18</td>
<td>0.758</td>
</tr>
<tr>
<td>Transformational initiative could help enhance the joining of ICT into instructing and learning forms</td>
<td>49.2</td>
<td>34.3</td>
<td>6</td>
<td>3.7</td>
<td>6.8</td>
<td>2.67</td>
<td>0.738</td>
</tr>
<tr>
<td>Important regulatory administration and innovation authority impact effective utilization of ICT in schools</td>
<td>35.2</td>
<td>41.5</td>
<td>7</td>
<td>12.0</td>
<td>4.3</td>
<td>2.23</td>
<td>0.867</td>
</tr>
<tr>
<td>School innovation authority is a more grounded indicator of educators’ utilization of computer innovation in teaching</td>
<td>47.2</td>
<td>31.3</td>
<td>3</td>
<td>13.0</td>
<td>5.5</td>
<td>3.2</td>
<td>0.897</td>
</tr>
</tbody>
</table>

AVERAGE 2.84 0.791

Key: SA – Strongly Agree, A – Agree; U– Undecided; SD – Strongly Disagree, D – Disagree;
M – Mean; Std.Dev– Standard Deviation

Source: Survey Data (2017)
From the results in Table 4.14, shows that managerial support is a stronger predictor of teachers’ use of computer technology in teaching as evidenced by 49.6% respondents who strongly agreed while 37% agreed giving an overwhelming percentage of 86% of the total respondents who supported that a pioneer who executes innovation designs and furthermore imparts a typical vision to the instructors animates them to utilize innovation in their exercises. For successful use of ICT by educators, there is the requirement for a solid administration to drive a very much structured innovation designs in schools, this was bolstered by 85% of the respondent who concurred or emphatically concurred. Administration advancement of cooperation and experimentation and instructors devotion to understudy focused learning impact compelling ICT reconciliation out in the open auxiliary school was bolstered by 78.4% of the respondents who concurred or emphatically concurred. Transformational authority could help enhance the reconciliation of ICT into educating and learning forms was upheld by 83.5% of the respondents. Foremost authoritative administration and innovation initiative impact fruitful utilization of ICT in schools was bolstered by 78.5% of the respondent. With overall mean grade of 2.84 and a standard deviation of 0.791 we can conclude that majority of the respondent supported integration of ICT in public secondary school to improve performance. These findings agree with the discoveries of Wong and Li (2013) who found that a transformational administration with characteristics of recognizing and articulating a vision, advancing acknowledgment of gathering objectives, giving individualized help, offering scholarly incitement, giving a fitting model, making elite desires, and fortifying school culture could impact the integration of ICT.
The study findings are also supported by the findings of Yee (2010) who found that a pioneer who executes innovation designs and furthermore imparts a typical vision to the teachers invigorate them to utilize technology in their exercises. The author additionally recommends that for successful use of ICT by teacher, there is the requirement for a solid administration to drive an all-around outlined technology designs in schools.

Fullan (2013) provides an exceptionally helpful system that considers the intricacy of the change procedure in schools, which contended for the plan of a typical vision as a most basic advance in the execution procedure. This casing work can likewise fill in as a general conceptualization for understanding the nature and difficulties of progress associated with ICT execution in schools.

### 4.5.5 Performance of Public Secondary Schools

On the measurement of performance of public secondary schools in Mombasa County, Kenya as the dependent variable, the respondents were given a list of statements on a five-point likert scale to indicate their extent to which they concur. This is shown in Table 4.15.

<table>
<thead>
<tr>
<th>STATEMENT</th>
<th>SA</th>
<th>A</th>
<th>U</th>
<th>D</th>
<th>SD</th>
<th>M</th>
<th>STD</th>
</tr>
</thead>
<tbody>
<tr>
<td>There is efficiency in operation</td>
<td>33.6</td>
<td>41.8</td>
<td>5</td>
<td>12.0</td>
<td>7.6</td>
<td>3.79</td>
<td>0.864</td>
</tr>
<tr>
<td>There is improved academic performance</td>
<td>35.4</td>
<td>48.0</td>
<td>6</td>
<td>5.6</td>
<td>5.0</td>
<td>3.87</td>
<td>0.783</td>
</tr>
</tbody>
</table>

| AVERAGE                               | 3.83| 0.824|

**Key:** **SA** – Strongly Agree, **A** – Agree; **U**– Undecided; **SD** – Strongly Disagree, **D** – Disagree; **M** – Mean; **Std.Dev**– Standard Deviation

**Source:** Survey Data (2017)
The results in Table 4.15 indicate 33.6% strongly agreed while 41.8% agreed that there has been efficiency in operation with integration of ICT in public secondary school. Therefore the total respondent who supported the statement amounted to 75.4% who are the majority of the respondents. On the other hand concerning improvement in academic performance 35.4% strongly agreed while 48% agreed totalling to 83.4% of the respondent who supported that with integration of ICT in public secondary schools academic performance has improved. With the overall mean of 3.83 and standard deviation of 0.824 we can conclude that with integration of ICT in public secondary school both efficiency in operation and academic improvement has been realized as evidenced by support of majority of the respondents. Laaria (2013) revealed that regardless of endeavours made by different partners and significance of the ICT in education division, the National ICT policy on instruction of 2006 has not been successfully executed as was planned. Palak and Dividers (2012) think about on instructors’ convictions and innovation works on utilizing a blended strategies approach found that teachers predominantly utilize innovation to help their current teaching methodologies and once in a while to encourage learner focused learning. Amara (2013), then again, sees the combination of PCs as the degree to which teachers utilize ICT for instructing and it incorporates the utilization of interactive media projectors and overhead projectors for teaching and utilization of cell phones. The author additionally takes note of that ICT combination includes genuine utilization of ICT in instructing work and it implies applying PC and Web innovation to improve the nature of teaching and learning.

4.6 Relationship between ICT integration and performance of public secondary school

A correlation investigation was done to build up the relationship that exists between ICT integration and execution of public secondary schools. Maina et al., (2016) contended Pearson
Correlation Coefficient is the most broadly utilized technique for estimating the level of connection between two factors. This reaches from -1 to +1, where -1 shows an ideal negative connection, 0 no relationship and +1 an ideal positive relationship. This helps an analyst in deciding the greatness and course of the connection between two factors. The results of the correlation analysis are presented in Table 4.16

Table 4.16 Relationship between ICT integration and Performance

<table>
<thead>
<tr>
<th></th>
<th>Performance of Public Secondary Schools</th>
<th>ICT user skills</th>
<th>ICT infrastructure</th>
<th>Teachers' Attitude to ICT</th>
<th>Managerial support of ICT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance of Public Secondary Schools</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ICT user skills</td>
<td>0.536</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ICT infrastructure</td>
<td>0.526</td>
<td>0.29</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teachers' Attitude to ICT</td>
<td>0.265</td>
<td>0.085</td>
<td>0.485</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Managerial support of ICT</td>
<td>0.275</td>
<td>0.032</td>
<td>0.233</td>
<td>0.578</td>
<td>1</td>
</tr>
</tbody>
</table>

From the findings shown ICT user skills and public secondary schools performance are positively related (0.536), ICT infrastructure is positively related with the public secondary schools performance (0.526) while Teachers attitude to ICT is positively related at (0.526). Managerial support of ICT is positively related with public secondary schools performance (0.275). The use of ICT user skills in public secondary schools was positively related with
ICT infrastructure (0.29), Teachers' Attitude to ICT (0.085) and Managerial support of ICT (0.032). The use of ICT infrastructure was positively related with Teachers attitude to ICT (0.485) and Managerial support of ICT (0.233). Lastly Managerial support of ICT had a positive relation with Teachers attitude to ICT (0.578). This indicates any of the ICT integration had a positive correlation with performance of public secondary schools and ICT integrations had positive correlations among themselves.

4.6. Regression Analysis

Regression analysis was used to model, examine, and explore the relationships between performance of public secondary schools against the four independent variables (ICT user skills, ICT infrastructure, teachers’ attitude and management support) used for the study, this was important in measuring the extent to which changes in one or more variables jointly affected changes in another variable. The results are presented on Table 4.17

<table>
<thead>
<tr>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>.672a</td>
<td>.651</td>
<td>.433</td>
<td>.515</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), Managerial support of ICT, ICT user skills, Teachers' Attitude to ICT, ICT infrastructure

Source: Survey Data (2017)

The findings shown in Table 4.18 indicate the extent of variations on the public secondary schools performance which are explained by the independent variables. The R square value is 0.651. This means that the independent variables explain 65.1% of the variations in dependent variable. The rest 34.9% are explained by other factors.
Table 4.18: Analysis of Variance (ANOVA)

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>3.213</td>
<td>5</td>
<td>.6546</td>
<td>24.691</td>
<td>.000*</td>
</tr>
<tr>
<td>Residual</td>
<td>1.879</td>
<td>120</td>
<td>.265</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>5.315</td>
<td>125</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), Managerial support of ICT, ICT user skills, Teachers' Attitude to ICT, ICT infrastructure

b. Dependent Variable: Performance of Public Secondary School

Source: Survey Data (2017)

The findings on table 4.18 demonstrate importance value is 0.00 which is under 0.05 in this manner the model is measurably significance in anticipating how different variables influence the execution of public secondary schools in Mombasa Kenya. The F basic at 5% level of hugeness was 24.691. Since F figured is more noteworthy than the F basic (esteem = 6.546), this demonstrates the general model was critical. The relationship (p < 0.05) demonstrated a direct relationship among the factors under the examination significance there was 95% shot that the relationship among the factors was not because of possibility.
Table 4.19: Regression Coefficients of Performance of Public Secondary School

<table>
<thead>
<tr>
<th></th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
</tr>
<tr>
<td>(Constant)</td>
<td>6.458</td>
<td></td>
</tr>
<tr>
<td>ICT user skills</td>
<td>0.626</td>
<td>.331</td>
</tr>
<tr>
<td>ICT infrastructure</td>
<td>.539</td>
<td>.075</td>
</tr>
<tr>
<td>Teachers' Attitude to ICT</td>
<td>.606</td>
<td>.104</td>
</tr>
<tr>
<td>Managerial support of ICT</td>
<td>.412</td>
<td>.054</td>
</tr>
</tbody>
</table>

As per the SPSS generated table above, the equation \( Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon \) becomes: \( Y = 6.548 + 0.626 X_1 + 0.539 X_3 + 0.606 X_3 + 0.412 X_4 \)

Where  
\( Y = \) Performance of Public Secondary Schools  
\( X_1 = \) ICT user skills  
\( X_2 = \) ICT competence  
\( X_3 = \) Teachers’ attitude to ICT  
\( X_4 = \) Managerial support of ICT

The findings on the table 4.19 indicate that when all the factors are held constant public secondary performance will increase by 6.458 units. When all the factors are held constant one unit use of ICT user skills increases the public secondary performance by 0.626 units.
When all the factors are held constant a unit increase in the use of ICT infrastructure increases the public secondary performance 0.539 units. Similarly, a unit increase in the use of Teachers' Attitude to ICT holding other factors constant increases the public secondary performance by 0.606 units. The use of Managerial support of ICT holding the rest factors constant increases the public secondary performance by 0.412 units. This shows that the use of ICT have had a great impact on performance of public secondary school in Kenya.

Wango (2012) recommended that the nature of teaching and learning can be upgraded through enhanced teaching practices. The expanding changes in showing rehearses and the requirement for innovative, unique and surprising answers for enhance educating and learning circumstances, require a testing way to deal with the field of instructional practices (Steyn and Kamper, 2013). Enhancing school ICT offices is fundamental in perspective of the current worldwide upheaval in instructing because of the changing idea of educators' work, the substances of the data age, new worldwide associations and attention to innovative changes (Feldner, 2014). Schools should provide adequate ICT to enhance integration of ICT in teaching.
CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1. Introduction

The findings outlined in chapter four are reviewed in connection to the formulated research questions. The chapter is divided into five segments: Introduction, discussion, conclusion and recommendations for enhancement of ICT integration in public secondary schools in Kenya. The chapter concludes up with proposals for further research.

5.2. Summary

ICT user skill was the first independent variable in this study. The objective was to evaluate the effects of ICT user skill on integration of ICT in public secondary school performance in Kenya. Descriptive statistics results indicated that 83.6% of the respondents agreed that staff level of knowledge on Word processing contributes to effective integration of ICT while 90% of the respondents agreed on Staff level of knowledge on Data processing and 80.9% of the respondents emphasized on Staff level of knowledge on Presentation (PowerPoint). The other responses followed the same positive trend and were also above 80%. However an overall summary question of yes or no on users skills influence the integration of ICT in public secondary schools established that majority (96.0%) of the respondents agreed that users skills influence the integration of ICT in public secondary schools. In the inferential statistics the Pearson Correlation coefficient of ICT user skill and versus integration of ICT in public secondary school in Kenya was computed and established as 0.536 0 (p-value=0.000) thus concluding that there is a moderate positive linear relationship between the two variables. The overall regression analysis where ICT user skill is one of the variables is R²= 0.651.meaning that ICT integration can explain 65.1% variation in the performance of public secondary
It can be concluded that there is a relationship between ICT user skill and ICT integration in public secondary school.

ICT infrastructure was the second independent variable in this study. The research objective was to establish the effect of ICT infrastructure on the performance of public secondary schools in Mombasa County, Kenya. Descriptive statistics results showed that 80% of the respondent’s concurred that Lack of power backup systems has negatively affected integration of ICT in public secondary schools which has contributed to lack of enough computers as supported by 76% of the respondents. Limited information on infrastructure has also negatively impacted on ICT integration as supported by 66.4% of the respondents. Further responses on other sentiments followed similar responses and were above 70%. In summary a yes or no question on whether ICT infrastructure influence the performance of public secondary schools in Mombasa County, Majority of the respondents, 80% agreed that ICT infrastructures influence the integration of ICT in public secondary schools. In the inferential statistics the Pearson Correlation coefficient of ICT infrastructure versus integration of ICT in public secondary school in Kenya was computed and established as 0.526 (p-value=0.000) thus concluding that there is a moderate positive linear relationship between the two variables. The overall regression analysis where ICT infrastructure is one of the variables showed a relationship $R^2= 0.651$ meaning that ICT infrastructure and the other variables can explain 65.1% variation in the performance of public secondary school. It can concluded that there is a relationship between ICT infrastructure and ICT integration in public secondary school.

Teacher’s attitude was the third independent variable in this study. The research objective was to identify the effect of teachers’ attitude on the performance of public secondary schools in Mombasa County, Kenya. Descriptive statistics results indicated that majority of respondents
totalling to 78.4% agreed that use of ICT can enhance remedial instruction while 89.8% of the respondent agreed that teachers are dreadful of attempting new methodologies which they see may negatively affect examination results. Anyway 82.7% of the respondents concurred that information of how to utilize ICT apparatuses by students and teachers is an advantageous skill and an overall yes or no question on whether teachers’ attitude affects the performance of public secondary schools in Mombasa County, 65% of the respondents agreed and supported teachers’ attitude influences the integration of ICT and affects the overall performance of public secondary schools. In the inferential statistics the Pearson Correlation coefficient of teachers’ attitude versus integration of ICT in public secondary school in Kenya was computed and established as 0.265 (p-value=0.000) thus concluding that there is a positive linear relationship between the two variables. The overall regression analysis where teachers attitude is one of the variables showed a relationship $R^2=0.651$.meaning that teachers’ attitude together with other variables can explain 65.1% variation in the performance of public secondary school. It can concluded that there is a relationship between teachers’ attitude and ICT integration in public secondary school.

Managerial support was the fourth independent variable in this study. The research objective was to investigate the effect of managerial support of ICT on the performance of public secondary schools in Mombasa County, Kenya. Descriptive statistics results indicated that that managerial support is a stronger predictor of teachers’ use of computer technology in teaching as evidenced by 49.6% respondents who strongly agreed while 37% agreed giving an overwhelming percentage of 86% of the total respondents who supported that technology governance is a more grounded indicator of teachers’ utilization of computer technology in teaching in the government owned secondary schools. A pioneer who actualizes technology
designs and furthermore imparts a typical vision to the teachers and stimulate them to utilize technology in their exercises was upheld by 38.8% unequivocally concurred and 40.6% concurred giving an aggregate of 79.4% of the respondents who supported that a pioneer who executes technology designs and furthermore imparts a typical vision to the educators animates them to utilize innovation in their lessons. A general inquiry on whether administrative help of ICT influences joining of ICT in government owned secondary schools in Mombasa County was overpower bolstered by 88% of the respondents proving that administrative help assumed a crucial job in ICT integration in government owned secondary schools.

5.3 Conclusions

Conclusion of the study findings was done as per study objectives

5.3.1 ICT user skills

The achievement of educational advancements depends to a great extent on the skills and know-how of teachers. Along these lines, teachers ought to build up their ability dependent on the educational objectives they need to achieve with the assistance of ICT. The level of ICT preparing of dominant part of the teachers is a long way from being acceptable because of absence of legitimate presentation amid developmental preparing in beginning educators preparing establishments. Preparing through workshops/gatherings amid in-service courses did not give enough time for teachers to rehearse well with ICT tools

5.3.2 ICT Infrastructures

The deficient power supply in the vast majority of the government owned secondary schools in the district had added to the slow reconciliation of ICTs in the schools. This was because most of the secondary schools, especially in the day schools had inadequate power backup.
ICT spending is mostly on hardware, software, infrastructure and training. ICT integration in schools therefore requires investment in equipment, professional development and teacher training, technical support, connectivity and digital learning process. The ICT innovation and infrastructure in schools include hardware, software, internet connectivity and electrification. The kind of infrastructure available in schools depends on the users and their knowledge and skills which is pre-service and the in-service training.

5.3.3 Teachers attitude

To effectively start and actualize ICT in school's program depends unequivocally on the teachers' help and attitude. Teachers are dreadful of attempting new methodologies which they see may negatively affect examination results separately. Teachers who are not utilizing new technology, for example, computers in the classroom are still of the opinion that the use of ICT has no advantages or indistinct advantages. On the off chance that teacher' states of mind are certain toward the utilization of educational technology then they can without much of a stretch give helpful understanding about adoption and integration of ICT into teaching and learning forms.

5.3.4 Managerial support

Factors, for example, support, subsidizing, training and offices impact teachers 'selection and integration of technologies into their classrooms. Teachers' expert improvement is a key factor to effective integration of computers into classroom teaching. Teachers should be guaranteed by their superiors that innovation can make their teaching intriguing, less demanding, more pleasing for them and students, all the more rousing and more enjoyable.
5.4 Recommendations

The educational strategy producers should put into contemplations different worries from educational partners with the goal that they bring functional systems that would fill in as exercises for development of educational practices. However, there is a requirement for teachers to have their own drives towards the accessible advanced learning apparatuses in order to upgrade the teaching, learning process and their expert improvement.

The government ought to guarantee that secondary schools are provided with power and alternative power back up. ICT activities require consistent power for its most extreme utilization. In this way, control supply ought to be hugely expanded, enhanced and worked upon in order to improve the utilization of ICT in secondary schools. Schools ought to secure an up to-date ICT foundation that teachers and students could prepare and learn on. There should be ICT technician at the regional education levels to help teachers with the computer hardware or the software problems.

There is a requirement for teachers to have their own drives towards the accessible advanced learning devices to upgrade the educating and learning process and their expert improvement. More ICT tools to be utilized in auxiliary schools and prepared in ICT abilities to make them successfully convey ICT based educational programs. There ought to be far reaching in-service courses.

The school administration should rehearse authority advancement of cooperation and experimentation to teacher's commitment to student focused learning for successful ICT change. There ought to be a decent connection between the head's level of PC capacity and transformational activity practises as this could help improve the joining of ICT into educating and learning framework.
5.5 Suggestion for Further Studies

This study focused on the influence of ICT integration on the performance of public secondary schools based on four variables namely; ICT user skills, ICT infrastructure, teachers’ attitude to ICT and managerial support of ICT. Therefore, a comparative study should be carried out to cover other variables that influence ICT integration on the performance of both public and private secondary in Kenya. Further a study should also be conducted on student’s perception on adoption of ICT in the learning process.
REFERENCES


Owens S, 2002, A collision of adverse opinions? 'Major projects, planning inquiries, and policy change" Environment and Planning A 34 949 ^ 957


APPENDICES

Appendix I: Letter of Introduction

Dear Respondent,

I am a postgraduate student of Kenyatta University in my final year of master program in Business Administration. I am in the process of collecting data concerning effects of ICT integration on performance of public secondary schools in Mombasa County, Kenya.

It is my sincere request that you participate in filling in the questionnaires. Your information confidentiality will be highly guaranteed. The identity of your response will be treated anonymously and will be used only for academic purposes and thereby do not include your name anywhere.

Your participation is highly appreciated.

Yours Faithfully

Leonida Chepkorir Soi

MBA Student – Kenyatta University
Appendix II: Questionnaire

Instructions:
You are kindly requested to provide answers to these questions as honestly and precisely as possible. Please do not write your name or that of your school anywhere on this questionnaire.

Please tick [✓] where appropriate or fill in the required information on the spaces provided.

NB// Responses to these questions will be treated as confidential

Section A: Background Information

1. Your gender: [ ] Male [ ] Female
2. Your age (in years)
   [ ] 20-29 [ ] 40-49
   [ ] 30-39 [ ] 50 plus
3. Level of education
   [ ] Diploma [ ] Bachelor’s Degree
   [ ] Master’s Degree [ ] PhD
4. How many years have you been a teacher?
   [ ] below 5 [ ] 5 – 9
   [ ] 10 – 15 [ ] above 15
5. Have you attended any computer workshop for the last three yes? [ ] Yes [ ] No

Section A: ICT User Skills

6) Do ICT user skills influence the integration of ICT on the performance of public secondary schools in Mombasa County, Kenya? Yes [ ] No [ ]

The statements below relate to ICT user skills factors that could influence the integration of ICT on the performance of public secondary schools in Mombasa County, Kenya. Supplied also are five options corresponding to these statements: Strongly agree(SA)=5, Agree(A)=4, Undecided(U)=3, Disagree(D)=2, and Strongly Disagree(SD)=1.

Please tick the option that best suits your opinion on the statement given
Section C: ICT Infrastructure

7) Does ICT infrastructure influence the integration of ICT on the performance of public secondary schools in Mombasa County, Kenya? Yes [ ] No [ ]

The statements below relate to ICT infrastructure factors that influence the integration of ICT on the performance of public secondary schools in Mombasa County, Kenya. Supplied also are five options corresponding to these statements: Strongly agree(SA)=5, Agree(A)=4, Undecided(U)=3, Disagree(D)=2, and Strongly Disagree(SD)=1.

Please tick the option that best suits your opinion on the statement given

<table>
<thead>
<tr>
<th>Factors</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of power backup systems(e.g generator, solar)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lack of enough computers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Limited information on infrastructure</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inadequate ICT manpower in the schools</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inadequate educational software</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lack of computer laboratory</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Section D: Teacher’s Attitude To ICT

8) Does teachers’ attitude influence the integration of ICT on the performance of public secondary schools in Mombasa County, Kenya? Yes [ ] No [ ]

The statements below relate to teacher’s attitude factors that influence the integration of ICT on the performance of public secondary schools in Mombasa County, Kenya. Supplied also
are five options corresponding to these statements: Strongly agree (SA)=5, Agree (A)=4, Undecided (U)=3, Disagree (D)=2, and Strongly Disagree (SD)=1.

Please tick the option that best suits your opinion on the statement given

<table>
<thead>
<tr>
<th>Factors</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use of ICT can enhance remedial instruction</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teachers are fearful of trying new approaches which they perceive might have a negative impact on examination results</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knowledge of how to use ICT tools by students and teachers is a worthwhile skill</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adoption and use of ICT in school cannot contribute to learning because it does not stimulate students</td>
<td></td>
<td></td>
<td></td>
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<td>Implementation of ICT in schools can reduce personal contact between teachers and students</td>
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<td>ICT is useful for teachers work preparation (registers, exams, typesetting etc) only</td>
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<td>Use of ICT will put more work on the shoulders of teachers</td>
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Section E: Managerial Support Of ICT

9) Does management support influence the integration of ICT on the performance of public secondary schools in Mombasa County, Kenya? Yes [ ] No [ ]

The statements below relate to management support factors that influence the integration of ICT on the performance of public secondary schools in Mombasa County, Kenya. Supplied also are five options corresponding to these statements: Strongly agree (SA)=5, Agree (A)=4, Undecided (U)=3, Disagree (D)=2, and Strongly Disagree (SD)=1.

Please tick the option that best suits your opinion on the statement given

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<tr>
<th>Factors</th>
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<td>School technology leadership is a stronger predictor of teachers’ use of computer technology in teaching</td>
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<td>A leader who implements technology plans and also shares a common vision with the teachers and stimulate them to use technology in their lessons</td>
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<td>For effective utilization of ICT by teachers, there is the need for a strong leadership to drive a well-designed technology plans in schools</td>
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<td>Leadership promotion of collaboration and experimentation and</td>
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</table>
teachers dedication to student-centred learning influence effective ICT integration
Transformational leadership could help improve the integration of ICT into teaching and learning processes
Principal administrative leadership and technology leadership influence successful use of ICT in schools

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<tr>
<th>Statement</th>
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<td>There is efficiency in operation</td>
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<td>There is improved academic performance</td>
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**Section F: Performance of Public Secondary Schools**

Using a scale of 1-5, please indicate your agreement/disagreement levels with the following statements on the influence of ICT integration on the performance of public secondary schools in Mombasa County, Kenya.

Thank You
Appendix III: Letter of Approval of Research Proposal

KENYATTA UNIVERSITY
GRADUATE SCHOOL

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

FROM: Dean, Graduate School
TO: Leonida Chepkorir Soi
     C/o Accounting & Finance Dept.

DATE: 27th April, 2017
REF: D53/OL/25210/2012

SUBJECT: APPROVAL OF RESEARCH PROJECT PROPOSAL

This is to inform you that Graduate School Board at its meeting of 19th April, 2017 approved your Research Project Proposal for the M.B.A Degree Entitled, “Efficacy of Information Communication Technology on Performance of Secondary Schools in Mombasa County, Kenya”.

You may now proceed with your Data Collection, Subject to Clearance with Director General, National Commission for Science, Technology and Innovation.

As you embark on your data collection, please note that you will be required to submit to Graduate School completed Supervision Tracking Forms per semester. The form has been developed to replace the Progress Report Forms. The Supervision Tracking Forms are available at the University’s Website under Graduate School webpage downloads.

Thank you:

JACKSON LUVUSI
FOR: DEAN, GRADUATE SCHOOL

c.c. Chairman, Accounting and Finance Department
     Supervisors:

1. Dr. John Kandiri
   C/o Department of Computing and Information Technology
   Kenyatta University
Appendix IV: Research Authorization Letter NACOSTI

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone: +254-20-2213471, 224149, 3310857, 2219420
Fax: +254-20-318245, 318249
Email: dgs@nacosti.go.ke
Website: www.nacosti.go.ke
When replying please quote:

Ref No: NACOSTI/P/17/51851/17305

Date 3rd July, 2017

Leonida Chepkorir Soi
Kenyatta University
P.O. Box 43844-00100
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on “Efficacy of Information Communication Technology on performance of secondary schools in Mombasa County, Kenya,” I am pleased to inform you that you have been authorized to undertake research in Mombasa County for the period ending 22nd June, 2018.

You are advised to report to the County Commissioner and the County Director of Education, Mombasa 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.

GODFREY P. KALERWA MSc., MBA, MKIM
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioner
Mombasa County.

The County Director of Education
Mombasa County.