LEADERSHIP CHALLENGES FACED BY SCHOOL PRINCIPALS WHEN IMPLEMENTING ICT-BASED CURRICULUM AND INSTRUCTIONS IN SECONDARY SCHOOLS IN ELGEYO MARAKWET COUNTY

By

LAMBAINO EUNICE

A THESIS SUBMITTED TO THE SCHOOL OF POSTGRADUATE IN PARTIAL FULFILLMENT OF THE REQUIREMENTS OF THE DEGREE OF MASTERS OF EDUCATION IN CURRICULUM AND INSTRUCTION, FACULTY OF EDUCATION AND HUMAN RESOURCE DEVELOPMENT, KISII UNIVERSITY.

NOVEMBER, 2016
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DEDICATION

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I would not forget all the expected participants of secondary schools from Elgeyo Marakwet County in who were important in obtaining relevant information. Moreover, Kisii University deserves my mention since without it; I would not have gotten this chance to rebuild my postgraduate path.
ABSTRACT

Many schools in Kenya are still using traditional methods of teaching with old curriculum that lack ICT contents despite the government desire to have all schools in the country be ICT compliant. These institutions are still manually operated from class rooms to offices; all works are majorly manually done as classrooms are still containing black chalk walls, teachers prepare lessons manually. Lesson plans, timetables, notes and any other teaching materials are manually developed from key textbooks following a largely syllabus that is non-ICT content based. It is based on these backdrops that the purpose of this study was to establish the challenges encountered by principals in the implementation of ICT-based curriculum and instruction in secondary schools in Elgeyo Marakwet County in Kenya. The objectives included: to establish the Level of ICT implementation in Curriculum in secondary schools in Elgeyo Marakwet County; to determine the Technological Leadership problems towards ICT implementation in Secondary schools in Elgeyo Marakwet County; to examine Transformational Leadership problems encountered during ICT implementation in secondary schools in Elgeyo Marakwet County; to establish the curriculum leadership problems encountered when implementing ICT in secondary schools in Elgeyo Marakwet County; and to establish the instructional leadership problems encountered when implementing ICT in secondary schools in Elgeyo Marakwet County. It was guided by the following theories; Open System Systems, Technology Acceptance Model and the Model of IT implementation process. This study adopted a quantitative descriptive survey design which aims at problems encountered in ICT implementation in secondary school in Elgeyo Marakwet County. The total target population included 20 secondary schools. The study was carried out among selected secondary schools in Elgeyo Marakwet County. Sample sizes of 11 school principals, 11 school deputy principals and 169 teaching staff totaling to 192 were selected for the survey. Stratified sampling technique was used. This gave all the principals, deputies and teachers equal proportion of representation to form respondent group. The self-administered, structured questionnaire containing essentially closed questions focused on ICT implementation challenges in secondary schools indicators were used. The data collected was organized and classified in particular order on completed questionnaires and incomplete questionnaires. The findings indicted the low level or poor state of ICT implementation in schools under study. It was found out that school leadership has a key role on ICT implementation in teaching and learning however, the level of ICT implementation is at its very basic levels and stages hence a conclusion that lack of technological, transformational, curriculum and instructional leadership and role models as custodian of school ICT implementation programs in secondary schools was inadequate. It was therefore recommended that school leaders should involve staff through distributive leadership style where leadership responsibilities can be delegated to others and that the government to provide a policy guideline stipulating conditional mandatory practice of ICT reforms in schools without which school principals would be held responsible.
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<tbody>
<tr>
<td>AVA</td>
<td>Audio Visual Aids</td>
</tr>
<tr>
<td>CD</td>
<td>Compact Disc</td>
</tr>
<tr>
<td>CEO</td>
<td>Chief Executive Officer</td>
</tr>
<tr>
<td>CT</td>
<td>Communication Technology</td>
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<tr>
<td>ICT</td>
<td>Information Communication and Technology</td>
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<tr>
<td>ICT-TEA</td>
<td>Information Communications Technology in Educational Administration</td>
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<tr>
<td>IT</td>
<td>Information Technology</td>
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<tr>
<td>OPAC</td>
<td>Online Public Access Catalogue</td>
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<td>ICK</td>
<td>Instructional Content Knowledge</td>
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<tr>
<td>ROMs</td>
<td>Read-Only Memory</td>
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<tr>
<td>SMTs</td>
<td>School Management Teams</td>
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<tr>
<td>SPSS</td>
<td>Statistical Package for Social Sciences</td>
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<tr>
<td>TPACK</td>
<td>Technology, Pedagogy and Content Knowledge</td>
</tr>
<tr>
<td>UNESCO</td>
<td>United Nations Educational, Scientific and Cultural Organization</td>
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<td>WAP</td>
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CHAPTER ONE
INTRODUCTION

1.1 Background of the Study
According to Zaman et. al., (2011) the accessibility of information communication and technology (ICT) infrastructural facilities in schools is the responsibility of neither school leadership nor the Ministry nor the government. The school principals understand the level of their ICT environment. The prevailing condition in school management in many public schools is disheartening and discouraging yet ICT use has been proved globally to support improved teaching and learning in schools. Effective education system in Kenya needs good management and accountability, the capacity and professionalism, and the availability of effective learning resources (Zaman et. al., 2011). This will enhance adequate knowledge and skills building among for the 21st century workplace. Rapid development and use of technology, particularly ICT, to facilitate day-to-day human activities; is a critical feature of the 21st century trend of which schools have not been immune to. Technology is applied to enhance and strengthen classroom learning and instruction. In some schools there are a few of ICT materials and others no-presence of ICT materials at all. At the same time, those schools with ICT materials, they are not used in curriculum and instruction purposes in classroom for teaching and learning (Becta, 2003).

ICT-driven curriculum and instructions implementation require new curricula and materials, technologies such as more computers, lab equipment and software application regularly to maintain both teaching and learning across levels and subject matter, so curriculum and instruction leaders must ensure that their learning institutions are ready to accept and make use of such resources (Hennessy S., 2010; GOK, 2010). Since even with infrastructural facilities such as availability and access to financial resources, availability of ICT materials for example, computers, printers, internet, television, digital cameras, and projectors among others, it is imperative to influence, initiate so as to put those infrastructure into appropriate use (Royer, R., 2002). The use of ICT in appropriate contexts in education has value additive effects in teaching and learning. It enhances effectiveness in learning process by adding a dimension to learning that
was not previously available. Information communication technology is an important motivational aspect in students’ learning, and support students’ commitment with collaborative learning. Given the dynamic nature of Information communication technology, the curriculum, highlight the major educational purposes (Dzidonu, J., 2010). The government has worked hard to ensure funds are available to these schools to provide ICT infrastructure yet no school leaders are involved in provision of these ICT devices resulting in a maintained traditional methods of curriculum and instruction use in classrooms.

New curriculum and instruction models need to be exploited by curriculum and instruction leaders and teachers offer a accommodating and lifetime type of learning to the future citizens of the future (Nwana, S. E., 2009b). The ICT utilization in gaining knowledge of settings and gear in instructional processes, evidently leads to radical modifications each within the role of teachers and students and to the emergence of latest teaching and learning environments and methodologies in addition to new education modalities (Evoh, C.J., 2007). An environment that promote cooperation among staff members and assisting them to work together toward common goals including respect for staff members and concern about their personal feelings and needs will drive ICT content in curriculum and instruction implementation. The school staff must be challenged to re-examine some of the assumptions about their work and rethink as to how it can be performed, this will influence their desire to implement ICT-curriculum and instructions in the schools as no one would wish be left behind. The schools need to be able to add up to their performance and be role models for other staff members to follow that are consistent with the values leaders espouse leading to clarity of indicators of measurement of ICT-curriculum and instruction implementation (GOK, 2007).

**Using ICT** can support new instructional approaches and make hard-to-implement instructional methods such as simulation or cooperative learning more feasible in classrooms. Educationists agree that ICT has the potential to improve student learning outcomes and effectiveness that if implemented properly, ICT-supported education can promote the acquisition of the information and abilities so that it will empower students for lifelong mastering yet many studying institutions globally nevertheless lag behind full implementation of ICT-based curriculum and
education. while carried out in curriculum and training appropriately, ICTs, particularly computer systems and internet technology, enable new ways of teaching and studying in preference to actually allow teachers and students to do what they have got executed earlier than in a better manner (Higgins, S. & Moseley, D., 2011). This constitutes a shift from a teacher-centered instruction, characterized by effective learning, to one that is learner-centered. However, what still go on in classrooms are the old learning methods, teachers still use black walls and dust chalks. The curriculum leaders (school principals) and teachers still use old methods of teaching and learning enhancing continued teacher-centered learning environment (Keengwe, J. & Onchwari, G., 2011). School environments require an enabled vision of how school reform will be affected by technology, influencing other teachers as well. The school principals are very busy with board meetings, attending to other matters at education offices in the county and other administrative matters, while fundamental technological requirements for their schools lag behind lacking ICT- policies to support designing and developing curriculum and instruction rich in ICT content for implementation across all subjects for easy implementation.

The application of information and communication technologies is critical to current classroom environment. This calls for establishing teaching and learning environment that is ICT-based curriculum and instruction ripe within all the learning activities of the school across all subjects. The school principals must provide direction and frameworks to drive forward the ICT-based curriculum and instruction by developing key competencies required for successful implementation of such curriculum in schools. Being a change that affects environment of its use, it requires charismatic and influencing leadership to enable its acceptance by implementers (Keiyoro P., 2011). The school principals must provide a driving force such as curriculum and instructional leadership that facilitate effectiveness in the overall mission of enhancing student achievement. However, in many Kenyan school systems, a common observation is that not many subject teachers have taken up the challenge of technology in general and ICT in particular to enhance learning and instruction resulting in traditional methods of curriculum and instruction status-quo (Laaria, M., 2013). Since not all teachers are keen to embrace ICT-related curriculum and instruction practices, no significant change would result in such an environment. Both the
school principals and teachers are not keen in implementation of ICT-content in curriculum and instruction in the classrooms.

A leadership that motivates others and influencing their thinking and behaviour to obtain results would be a driving force behind ICT-engaged curriculum and instruction implementation in schools (Staples, et. al., 2005). Such leaders cannot accomplish change alone; they rely on the work of others and a need to provide a role of data analysis of data to inform decisions, making clear and logical plans that staff members can follow, and ensuring a strong connection between school learning goals and classroom activity.

Traditional principal training often emphasizes meeting requirements and following standard protocols, producing principals who often assume that restrictions exist, even when they do not. Successful turnaround leaders, to the contrary, often breaks organizational norms because the way things have always been done have not achieved expected results. Implementation of ICT is currently a key concern for many school heads as various ministries around the globe strive to create a framework of having ICT integrated learning environment. This has necessitated a growing need for school leaders to play a more active role in implementing ICT-driven curriculum and instruction (Zaman, M, et. al., 2011). This ICT-driven curriculum and instruction model can only be successful stakeholders are readily influenced. Already policies providing frameworks on how to implement ICT in the classrooms are available. However, many schools are still using the traditional approaches to curriculum and instructions. Although the final result of all education reform is student improvement, every reform initiative. Thus principals’ leadership must be dedicated towards influencing teachers professional development in the ICT-curriculum and instructions implementation that changes teacher behaviours and attitude in ways that lead to successful implementation of ICT-curriculum and instructions in schools.

1.2 Statement of the Problem

ICT continues to grow in western and Asian countries but in African countries it still experience a lag in its implementation in classroom across all subjects, and widening the digital and knowledge divides in Kenya. Although the government has provided a national roadmap ICT policy, financial plan for ICT use in schools that requires its relevant extraction and
implementation by key school leaders. Despite these road maps developed by the government to implement ICT-based curriculum and instruction in schools, the situation in many schools in Kenya is that many of these schools are not effectively implementing ICT in curriculum and management as intended. Moreover, despite efforts made by various stakeholders and significance of information communication technology in education sector, the National ICT policy on education of 2006 has not been effectively implemented as the ministry intended. While many countries have reported over 41% ICT use in classroom in public secondary schools, the proportion remains considerably low or completely zero in Kenya. The educators are still fully dependent on manual practice; little is seen in internet connectivity, social media use in schools, WIFI or wireless connectivity or even use of modem in the schools. Since curriculum and instruction heads are busy with other administrative matters that do not influence ICT use in their schools yet they agree that ICT has fundamental benefits. Many of the classrooms are still equipped with black dust chalk walls, no presence of ICT indicators. Lesson plans, timetables, notes and any other teaching materials are manually developed from key textbooks. Moreover, locally made content in terms of ICT curriculum, local language software or system, so that these schools can have data bases of local content in their school websites is not there. Transformational and Technological competent leadership as well as instructional leadership is not visible in light of overcoming ICT implementation challenges in secondary schools. It is with this background that an investigation of leadership challenges faced by principals when implementing ICT-based curriculum and instruction in secondary school in Elgeyo Marakwet County, Kenya was conceptualized.

1.3 Purpose of the Study

It is based on the above questions that the purpose of this study was to establish the problems encountered by principals in the implementation of ICT in secondary schools in Elgeyo Marakwet County in Kenya. Specifically, the study looked at the leadership factors influencing ICT-based curriculum and instruction implementation in classrooms of ICT including technological leadership, curriculum leadership, instructional leadership, and transformational leadership.
1.4 Objectives of the Study

i) To establish the Level of ICT implementation in Curriculum and instruction in secondary schools in Elgeyo Marakwet County

ii) To determine the Technological Leadership problems towards ICT implementation in Secondary schools in Elgeyo Marakwet County

iii) To examine Transformational Leadership problems encountered during ICT implementation in secondary schools in Elgeyo Marakwet County

iv) To establish the ICT-based curriculum leadership problems encountered when implementing ICT in secondary schools in Elgeyo Marakwet County

v) To establish the ICT-based instructional leadership problems encountered when implementing ICT in secondary schools in Elgeyo Marakwet County
1.6 Research Questions

To achieve the specific objectives above, the project aimed to answer the following research questions:

i) What is the level of ICT implementation in the ICT-based Curriculum and instruction in secondary schools in Elgeyo Marakwet County?

ii) What are Technological Leadership problems towards ICT implementation in Secondary schools in Elgeyo Marakwet County?

iii) What is the Transformational Leadership problems encountered during ICT implementation in secondary schools in Elgeyo Marakwet County?

iv) How has ICT-based curriculum leadership influenced ICT implementation in secondary schools in Elgeyo Marakwet County?

v) To what extent has ICT-based instructional leadership influenced ICT implementation in secondary schools in Elgeyo Marakwet County?

1.7 Significance of the Study

This study aimed to establish problems secondary school principals encounter when integrating ICT in the schools. The findings would be used to recommend possible measures to be taken by the Ministry of Education, school managers, school administrators and other interested stakeholders for effective school administration.

The experiences of the principals from the Elgeyo Marakwet County secondary schools can provide guidelines on the ICT policy. The School Management Teams (SMTs) may also use the study findings as their reference on what guidance the principals expect to get from them as leaders of the school. The principals may also use the findings as a resource to improve their implementation of ICT in the curriculum.

Moreover, the findings and recommendations of this study are expected to provide a process or framework which should assist school managers in making decisions on how to adopt and use ICT in schools. The planners and policy makers are expected to use the findings of this study as a base for revising the current ICT policy in order to overcome the challenges hindering smooth
adoption and use of ICT in schools in Kenya. Teachers are expected to find the result of this study useful as it highlights challenges they face during adoption and use of ICT in schools. Further, findings of the study are expected to open areas for further study by other researchers and academicians, hence benefiting the whole community.

1.8 Scope of the Study
This study focused on ICT implementation and the challenges faced by the principal implementers, the school principals mandated by the Ministry of education to ensure successful implementation of any policy, Act or strategy introduced in the education sector. It aimed to cover issues touching on Technological Leadership, Instructional, transformational in relation to ICT implementation. It was carried out in Elgeyo Marakwet County within public secondary schools.

1.9 Limitations of the Study
The study intended to study all public secondary schools and private schools in the county but because of the number of questions asked and the number participants from questionnaire and interviews, considerable amount of data were collected. This study was also limited to the objectives covered so it did not explore other aspects of challenges that influence ICT-based curriculum implementation in schools. In this case, the private schools were also not included in this study. In addition to that, the theoretical framework that guided this thesis provided only four factors of leadership components that were pursued.

1.10 Delimitations of the Study
The study was delimited to specifically all public secondary schools that were sampled within Elgeyo Marakwet County since these schools can access available financial resources and other infrastructural materials for ICT equipment yet they were still lagging behind ICT-based curriculum and instructional implementation.
1.11 Operational Definition of Terms

**Challenges** - a concern that calls for an engagement in any contest, as of skill, strength or a demand to explain, justify difficulty in a job or undertaking that is stimulating to one engaged in it. It can also be instigation or antagonization intended to convince a person to perform an action they otherwise would not.

**Curriculum** - knowledge and skills students are expected to learn, which includes the learning standards or learning objectives they are expected to meet; the units and lessons that teachers teach; the assignments and projects given to students; the books, materials, videos, presentations, and readings used in a course; and the tests, assessments, and other methods used to evaluate student learning. An individual teacher’s curriculum, for example, would be the specific learning standards, lessons, assignments, and materials used to organize and teach a particular course.

**ICT implementation** - it implies all the decisions made by individuals every time they consider adopting innovation. It also refers to decision made by school leaders to make use of technology as the best course of action available.

**Level of ICT Implementation** - the degree of usability stages of ICT either to entry stage, adoption stage, adaptation stage, appropriation and innovation stages

**Leadership** - A practice of communal encouragement in which a person or persons can solicit the assistance and backing of others in the accomplishment of a collective mission.

**Instructional Leadership** - (Instruction-teacher of children) a form of leadership that replaces traditional teaching and learning environment and constellates skills and knowledge required by effective school leaders and being leading an effective school, and a teacher must be effective in all aspects of the teaching act.

**Principals** - Secondary school heads in charge of discharging management and leadership functions.

**Problems** - these can be factors that determine the success or failure of ICT implementation in schools or any other establishments.
**Transformational Leadership** - a form of leadership where the leader identifies the needed change, creates a vision to guide the change through inspiration, and executes the change with the commitment of the members for example Principal and the school personnel

**Curriculum Leadership** - the ability of the leader to develop program of studies required by the government and promote positive attitudes towards ICT among teachers, students, digitally literate students, help teachers engage in professional development related to the use of ICT in teaching and to facilitate innovative uses of ICT in education for the successful implementation of ICT in schools

**Technological Leadership** - Ability to identify school ICT needs and sourcing for these resources to make them available for use while preparing environment ready to accept the change being introduced

**1.12 Assumptions of the Study**

The study carried was out based on the following assumptions:

- That there is an existence of leadership problems in relations to Technological Leadership, curriculum leadership, Instructional leadership and transformational leadership that is associated with ICT implementation in secondary schools in Kenya;
- The existence of ICT leadership influences the positively or negatively the ICT implementation in secondary schools in Kenya;
- That there is no any other variable factors that would intervene hindering the results of leadership problems and ICT implementation in schools and the leadership problems are the main influencing variables on ICT implementation in public secondary schools in Kenya.

**1.13 Conceptual Framework**

This study applies this conceptual framework in identifying challenges encountered during implementation of ICT in schools and also that is important in identifying school leadership as a force behind implementation of ICT programs in schools.
To be able to implement ICT in school effectively, school leader should be able to set goals, organize, manage, monitor and build relationships with other members of school community. He/she should be people centered who is able to model standards and practices consistent with culture of the school. Grono (2010) argued that transformational school leader should be a person having ideas for school that are allied to the school’s standards.

Figure 1.1: Conceptual Framework Linking the Study Variables

<table>
<thead>
<tr>
<th>Independent Variable (IV)</th>
<th>Dependent Variable (DV)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership Challenges</td>
<td>Successful ICT Implementation</td>
</tr>
<tr>
<td>- Technological Leadership</td>
<td>- Principals and Teachers leading others in ICT use in classrooms and other academic works</td>
</tr>
<tr>
<td>- Transformational Leadership</td>
<td>- Principals and teachers acceptance of ICT changes establishing ICT content rich curriculum and instruction for use in classrooms</td>
</tr>
<tr>
<td>- Curriculum Leadership</td>
<td></td>
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<tr>
<td>- Instructional Leadership</td>
<td></td>
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<tr>
<td>Intervening Variable (IV)</td>
<td></td>
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<tr>
<td>- Government Policy</td>
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<td>- ICT infrastructure</td>
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Source: Author’s 2015

Figure 1.1 shows the link between the types of school leadership and the ICT implementation in the schools. The kind of leadership such as technological leadership would lead in the process where the school principal play an important role in providing an infrastructure that is conducive to the use of educational technologies. Using the lens of transformational, curriculum and instructional leaderships, technology leaders need to provide hardware and resources, learning-focused envisioning, adventurous learning (experimenting) with technologies, patient teaching (coaching) of teachers and students, protective enabling of teachers and students with shared leadership, constant monitoring of school progress, entrepreneurial networking with partners and stakeholders, and careful challenging of staff to be innovative. That is Infrastructural change, organizational and policy change, instructional and learning change and cultural change.
CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction
This chapter looked at the literature empirical review and Theoretical background from previous studies that relate to the topic and the Literature review. On the theoretical background, the theoretical considerations are discussed as well as the concepts that were used in discussing the theme of the project. On the literature review, the study reviewed the perception of the devolution process by the people of Elgeyo Marakwet County. Lastly, the analytical framework is developed at the end of the chapter.

2.2 Review of Related Literature
The chalkboard and textbooks continue to be dominantly used for classroom activities in most secondary schools in developing countries, Africa included. There is no doubt that in the current economic competition, the private education sector in Kenya has embraced the adoption and implementation of information communication technology to continue improving their performance. The insurance sector, banking, manufacturing industries have used multimedia technology to bring innovative solutions to their current problems.

The successful pedagogical implementation of ICT requires teachers and students to break away from the barriers of time, lack of confidence and resistance to change (Becta, 2003). Teachers and students both need to face up to the challenges that will change the face of traditional teaching and learning, which focuses on the monopolistic activities of teachers in class, to activities that are more influenced by students, address the needs of individual learners and incorporate one-on-one tutorial practices (Cross, & Adam, 2007).

2.2.1 Role of School Principal in ICT Implementation
Many studies on technology integration in the education conducted in Hong Kong (Yuen et al. 2003), South Africa (Dzidonu, 2010) and Australia (Amoo, 2002) have identified the success of
ICT implementation with their school leadership, so it is possible that in a similar environment, the school leadership owes ICT implementation success to the school (Alexander, 2003). Several investigators of educational technology implementation have noted that many of school managers have little understanding of the relationship between ICT versus performance as well as the students outcome (Amoo, 2003a). This is a gap that is not fully researched and needs to be explored.

Several factors influencing the adoption and Implementation of ICT into teaching had been recognized by means of researchers. Rogers (2003) identified five technological characteristics or attributes that have an effect on the selection to adopt an innovation. Balanskat, Blamire & Kefalla (2007) identified the factors as trainer-degree, school-degree and system-level. Teachers’ Implementation of ICT into teaching is also influenced by using organizational factors, attitudes towards generation and different factors (cross, & Adam, 2007). Sherry & Gibson (2002) claim that technological, individual, organizational, and institutional factors ought to be considered whilst analyzing ICT adoption and implementation.

Neyland (2011), elements including institutional support in addition to micro elements along with trainer capability influencing the use of online studying in high colleges in Sydney. this text critiques research on the use of ICT with the aid of teachers and perceive factors that included and labeled in the framework of Sherry & Gibson (2002).

ICT in learning and teaching refers to the use of ICT in facilitating teaching and learning processes to meet the challenges of the 21st century. Meeting these depends on the early Implementation of ICT into learning and keeping teachers up to date on the use and application of ICT in learning and teaching. The Education Department has indicated the importance of implementing ICT into education (Sherry, Billig, Tavalin, & Gibson, 2000). The introduction of ICT in education represents an important part of government’s strategy to improve the quality of learning and teaching across the education and training environments. The policies aim is to focus on learning and teaching for a brand new generation of younger people

Regardless of the policies and precise intension of introducing ICT into school, there's a disparity in the implementation of ICT in South Africa faculties. according to the branch of schooling’s White Paper (2003), there are nevertheless greater than 19 000 schools without computer
systems for teaching and gaining knowledge, nonetheless, there may be an improvement in the
government's efforts to implement ICT into education, although the wide variety of colleges
with computer systems for coaching and studying has elevated from 12.3% in 1999 to 26.5% in 2002.
According to the branch of training’s White Paper (2003), it is clear that it's miles difficult to bring

2.2.2 Technological Leadership and ICT implementation

ICT competence is defined as being able to handle a wide range of varying ICT integrated
instructions and applications for various purposes (Nwana, 2008b). The teachers’ computer
Technological Leadership is a major indicator of implementing ICT curriculum in teaching and
learning (Berner, 2003). Of those teachers who depict negative or neutral attitude towards the
implementation of ICT into teaching and learning processes many lack knowledge and skills that
would allow them to make informed decision (Al-Oteawi, 2002; Bordbar, 2010).

The greatest challenge to the school leadership is the experience to be an ICT leader, school
administrators such as the head teacher, must be trained in vision, planning and management.
This is the most crucial foundation of technological leadership. A technological leader must have
a vision of how school reform will be affected by technology (Lau, & Sim, 2008). Planning and
resources establishment for staff development are the most important responsibilities of a
technological leader, followed by ICT tools and infrastructure support and evaluation and
research. Effective technological leaders must administer procedures for measuring the growth of
each individual teacher.

It is widely established that ICT use benefits learners than when using the traditional
methodologies in teaching and learning. Teachers are applying the same thing they did a
generation ago. This shows that regardless of the school structure or the community culture,
teachers continue to apply traditional teaching (Yuen A.et. al.,2003). Thus education reform will continue to be more ineffective since it is difficult for students to change what they do if teachers continue to do what they have always been doing. Where the school environment is not ready for the use of ICT-driven curriculum and instruction, there will be little or no achievement. Thus the biggest source of turnaround leader is the group of individuals who are likely to take key actions but who have not had the opportunity to lead a turnaround. Makhanu, (2010) also explains ICTs as technologies that are used to communicate, create, manage, and distribute information. Khan et al, (2012) defines software as detailed instructions or programs and data that ensures that hardware performs its tasks at high speed.

According to Makhanu, (2010) ICT implementation entails use of technology as a tool to research, plan, evaluate, organize and communicate information. Menjo and Boit,(2012) notes that integration of ICT in schools entails the extent to which teachers apply the use computers, multimedia or overhead projectors, and other ICT tools in their day to day school activities. Furthermore, the level of ICT integration in schools is generally consistent with the level of economic development. The author argues that integration of ICT involves actual adoption and use of ICT tools in administrative activities and it also includes the use of Internet technology and computers to improve the quality of pedagogical activities and school management.

New technologies have changed pedagogical activities in a number of ways from drawing graphs, doing calculations, online lesson planning to virtual field trips and simulated dissections. Education technologies can assist students’ access information in a new and often exciting ways. In fact, it would be hard for one to find a single school that has no access to some kind of educational technology. According to previous studies, more than 95% of schools are connected to the Internet; even to the level of their individual classrooms, connection is almost as universal. Nearly 75% of classrooms in the United States have been connected to the Internet. Despite this, they have almost ubiquitous reach to computer technology. However, there is a big gap between the availability of technology and its usage in the classroom. While some type of technology is present in almost every classroom in the country, it is rarely integrated to its fullest potential (Royer, 2002).
The source of this discrepancy is lack of comfort with using technology for pedagogical practices. Even teachers who integrate technology and report a high level of comfort with technology tend to integrate it in fairly limited ways, such as searching for activities to be used with students, communicating with fellow teachers and word processing (Nwana, 2009a). While students frequently do use computers in the classroom, their use is often limited to gathering information and word processing rather than integrating multimedia tools or digital content to design and create products (Nwana, 2009a). Learning with technology is often teacher centered rather than student-centered.

2.2.3 Transformational Leadership and ICT implementation

Transformational leadership in a school context is a type of leadership style that leads to positive changes in teaching staff and learners. Transformational school leaders are usually active, enthusiastic and passionate. These leaders are usually involved in the process of implementing ICT as well as helping all school members realize their dreams in using ICT. Transformational leader of a school delegates responsibility fosters staff professional development, shares decision making and maintains a clear vision of the school. This leader also has the ability to influence other school stakeholders by relating ICT vision with values of the school.

Adoption of ICT entails the decision that individuals make each time they consider taking up an innovation. This adoption is the decision an individual make to use an innovation as the best course of action available (Rogers, 2003). Adoption process begins with the initial hearing about an innovation to the final adoption. For the purpose of this study, Rogers’ definition of adoption is used (Rogers, 2003).

Implementation is the processes and decisions made by individuals every time they consider adopting innovation (Andoh, 2012). At the same time, Khan, Hassan and Clement, (2012) explains that implementation of ICT in schools as the decision made by school principals and teachers to make use of technology as the best course of action available. Andoh, (2012) states that the process of implementing ICT begins with the initial hearing about the technology to the
final adoption and using it. While many teachers still feel uncomfortable using technology in their teaching exercise, it is also likely that they feel that new technologies are unproven in their teaching process (Royer, 2002). Schools may not move forward in a series of initial implementation efforts, keeping on trying one thing after another, but not achieving full implementation of a program. Even advanced training, if used in isolation, is not enough to lead to a maximum implementation of technology; for a true implementation of technology, teachers must do more than just learning about a new technology tool (Wallace et. al., 2007).

Further when schools managers need their teachers to adopt new technology to enhance teaching and learning, then it should get involved in addressing these issues. Teachers are always inundated with new initiatives every year; new ideas do come and go and are rarely sustainable (Zorfass, 2001). To dispel "initiative fatigue," schools should not cognizance most effective on introducing new generation, but additionally on the use of and scaling up new technologies. schools are different, with specific assets and needs; there are many factors that facilitate implementation of technology and may help deal with the above referred to demanding situations, making one school’s efforts to alternate, greater a sucesss.

2.2.4 Curriculum Leadership and ICT implementation

Many school principals frequently are anticipated to make reform efforts work after the essential selections are made by using curriculum specialists. training reform efforts have seized the eye of the specialists, however principals need to name the photographs as a way to lead their schools to higher standards and elevated rigor. The principals must anticipate the important role of curriculum chief. today’s reforms which include ICT-content inclusion in curriculum and coaching for classrooms utilization, transcends educational leadership and statistics-primarily based choice-making abilities. This isn't to mention that those behaviours aren't essential to a principal’s fulfillment, but they no longer suffice. Principals do not want to be curriculum specialists, but they do need to lead their colleges with complete expertise of the school curriculum needs, the brand new assessments tied to those requirements, and the rigor embedded in both.
Principals have to assist all individuals develop an information of the targets of ICY-content in curriculum and education manner and provide a timeline for transition. To put in force and maintain the changes required and teachers must understand and include the college and profession readiness standards of their educational planning. sources, including the content material frameworks, created through the assessment consortium, can support educators as they develop their transition plans. A wellknown rate to “take a look at the standards and start teaching to them” will now not help instructors, nor will it bring about any significant alternate. rather, management groups can do the heavy lifting required through the new requirements by way of creating cogent, centered transition plans that discover specific steps, which include timelines, expert development projects, and responsibility structures. The predominant and the management group also ought to don't forget key additives of change management as they broaden their transition plans. If one or more components are absent or misunderstood, then confusion, resistance, and frustration may additionally result.

Foremost instruction projects rightfully consciousness attention upon academic management abilities. Transition to the generation strategic technique to coaching and gaining knowledge of, laying the basis for the development of a curriculum leadership group in their college, and growing a template for them to apply to offer the professional development necessary for taking the primary steps within the transition elevates curriculum management skills to a new status and principals need aid to count on the mantle of curriculum management referred to as for these days.

### 2.2.5 Instructional Leadership and ICT Implementation

The academic management vision in content improvement is a important area that is too often disregarded because the to be had ICT gadgets are not regionally made, the content hardly ever displays local challenges and consequently the school principals need to make sure the capacity to broaden neighborhood content material to simplify ICT use in the united states of america (Nwana, 2009b). there may be need for nearby development of suitable ICT devices to be used in coaching and learning in the colleges. there is want to give you a commonplace ICT curriculum that can be used by the secondary schools. the instructional management competence is an
critical component if effective and green educational interventions must be implemented. Mere mastering ICT capabilities are not enough, however using ICT to enhance the teaching and gaining knowledge of is paramount for guidance-generation implementation. Teaching can not exist in isolation to contents. In reality, there may be a brand new starting to recognize that the 2 intertwined into what is described as Instructional Content Knowledge (ICK), and is an crucial guideline inside the present day thinking about teacher training.

The time period content refers to far more than actual data. It encompasses all components of a topic: standards, principles, relationships and techniques of inquiry and incredible troubles. The instruction element includes movements and techniques of teaching, organization of classrooms, providing for the distinctive learner wishes, evaluation and implementation based on learner's previous expertise, and changing of ideas into comprehensible episodes (Payne, 2000).

In any school alternate attempt, the role of the school administrator through each degree of implementation is critical. The attitudes and actions of school leaders surrounding new technologies will inspire and aid instructors as they have interaction in getting to know possibilities and discover new tools. thru their role as faculty leaders, faculty principals can make sure that the use of era is prioritized, and that teachers sense comfortable attempting the brand new generation (Billig et.al, 2005; Staples et al., 2005; Zorfass, 2001). in one school, this become accomplished by making sure that every one school body of workers, from the school secretary to the most important, domesticate personal professional improvement desires (Abbott, Greenwood, Buzhardt, & Tapia, 2006).

A strong management in an educational setting means that school principals and other school leaders have to play a couple of roles within the exchange process, inclusive of being function models, leaders, motivators, and resource facilitators (Payne, 2000; Wallace et. al., 2007). Teachers are the bridge among the curriculum and the students on one hand, and the supervisor of the study room in the course of the study room interaction activity on the other (Amoo 2003a). In training, the remaining goal of any educational hobby is to facilitate effective teaching and significant gaining knowledge of. Olomofe (2000) located that the idea of coaching is not limited
to the teacher as the most effective supply of knowledge, though the instructor plays a very vital position in any curriculum designs and instructional use.

Implementation of ICTs into teaching and mastering in secondary education could exchange learning and teaching attitudes of novices and instructors and assist to prepare them for future challenges. However, the fulfillment of this implementation will depend upon how the novices and instructors adapt to the adjustments and whether they can make ICT technology a part of their daily lifestyles. As it is, there is little or no records to be had regarding the extent of modern ICT usage in these secondary colleges (Fee, Cates, & Bodzin, 2002). There may be accordingly a want to measure the utilization and implementation in learning and teaching in secondary schools. Determining the extent of usage of ICT in teaching and learning will therefore contain a desires evaluation of the beginners and teachers to study the disparities in ICT usage.

2.3 Theoretical Framework

Using ICT in education has the potential to enhance the quality of teaching and learning (Kashorda et. al. 2007). This implies that the study on ICT implementation in schools could not be exhausted without considering Instructional leadership, transformational leadership and Technological Leadership. As a guide to this study the Open System Systems, Technology Acceptance Model and the Model of IT implementation process theories was used.

Information and Communication Technology (ICT) is brought into organizations by people and put to work by people. The aspects in which technology is used and the purposes for which it is used, is a result of the decisions taken by members of the organization especially its leaders including the school principals deputy principals and other school administrators. It is essential, therefore, that managers have an understanding of the nature of new technology, the organizational needs, objectives and the process of implementing the ICT. The theoretical framework has been knowledgeable particularly with the aid of the idea of viewing implementation dynamics as the interplay between institutional troubles and private concerns (Smylie, Miretzky & Konkol, 2004; Van der Vegt, Smyth & Vandenberghe, 2001), and the idea
of viewing implementation from the perspective of the studying learning institution (Fullan, 1993; Senge, 1990).

Furthermore, a situative angle with the unit of analysis because the pastime device to border schoolwide ICT implementation is used. that is broadly implemented to understanding and learning (Brown, Collins & Duguid, 1989; Greeno, 1998; Lave & Wenger, 1991) and policy implementation (Spillane, Reiser & Todd, 2002). With its emphasis on the bigger systems in which the school principals, teachers, and students have interaction with each other, the situational attitude has guided the expertise of school ICT implementation due to pastime among academic intervention and organizational intervention to attain modifications in teaching and learning, with unique attention given to the often omitted social contexts and institutional culture wherein teachers are located (Windschitl & Sahl, 2002). Implementation dynamics emerges from the elements interacting inside the activity gadget.

Within the open device structures concept, the school being an ordinary example of an employer is regarded as a socio-technical gadget composed of 4 sub-structures: human, technical, and structural and challenge (Owens & Steinhof, 1976). The human sub-system is composed of instructors, administrators and aid team of workers who supply commands, develop curriculum and evaluate student development. If they're going to carry out those obligations they require structure. at the identical time, the organization have to additionally have technological assets in order to complete tasks.

The faculties sub-device that consist of the management and its leadership interact with the outside environment in any such way that bringing exchange in a single could necessarily result in changes in all of the others. therefore when thinking about the introduction of improvements in schools, it is prudent to take attention of the inter-dependencies and interactive first among the 4 sub-systems and secondly with the outside surroundings. The subsystems are accordingly important elements to be treated when attempting to initiate trade or implement an innovation in an institution. This guide was therefore used to have a look at the management demanding
situations faced by means of most important whilst implementing ICT primarily based practice in secondary schools.

The Technology Acceptance Model theory was also used to guide the study as it aimed to predict and explain ICT usage behavior, that is, what causes potential implementers to accept to engage in the implementation process or reject the use of information technology all together. The theory predicts attitudes toward the use of the system that is the user’s willingness to use the system (Davis, 1989). It concentrates on the perceived usefulness which refers to the extent to which a person believes that the usage of a selected system might decorate overall performance and the perceived ease of use which concentrates at the extent to which someone believes that the use of a specific system would be free from attempt.

The other guide, the Model of IT Implementation process is based on organizational change, innovation and technological diffusion. The purpose of the model is to give a directing and organizing framework for ICT implementation. The model comprises six stages, namely: initiation, organizational adoption, adaptation, acceptance and adoption, routinization and infusion. Thus, the model covers an implementation process from scanning the organizational needs to a full and effective use of the technology in daily practice. The model also defines five contextual factors which impact on processes and products in each implementation stage: Instructional leadership, transformational leadership and Technological Leadership (Cooper &Zmud, 1990).

2.4 Empirical Review

The described major roles of the school principals range broadly from policy implementation and tracking to budgeting and public relations. As leaders at the general public workplace stage flow towards a version of educational management, their roles can change dramatically. at the same time as conventional duties are a must to be met, priorities ought to be leading toward educational issues a good way to effect class room teaching and student fulfillment. some of the ones elements include promoting a vision; developing ICT alignment of curriculum, guidance, assessment, and standards; that specialize in facts; and maintaining a tradition of non-stop teaching and learning (Lashway, 2002).
The leaders realize they're responsible for developing vision and putting the tone for this transformation. They've emerged as champions for this essential initiative. Their imaginative and prescient and awareness have set the concern for the leaders on the school and classroom stages. The curriculum leaders accordingly have to have a strong information of what their schools want in terms of ICT content material and tools as well as attitude and belief of implementers, and the leaders have a clear plan to offer schooling for other district leaders whose connects to the implementation of the ICT. Every time feasible, they attend professional development classes in which studying improvement is the point of interest. The leaders want to meet on a ordinary foundation with teachers and other stakeholders to share progress made in the direction of the goals. They also ensure that competing initiatives do now not interfere with the current focus of development.

School principals and teachers need to increase capabilities related to the mastering contexts that modifications in teaching and getting to know what paradigms require. For that reason, their position is increased and shifts from being a sole transmitter of information to turn out to be facilitator and manual of the gaining knowledge of method, integrator of latest ICT media, researcher and designer of suitable learning scenarios, collaborator (with other instructors and students), orchestrator, learner and evaluator as well as influencer of alternate learning methods. A research carried out by way of Seng Chee Tan, (2010) discovered out that school leaders play an essential role in ensuring an environment that is conducive to the usage of educational technologies. Such leadership is good in the provision of infrastructure equitable to all faculty group of workers and students, in preference to to a particular group of people (Yee, 2000).

As Gisbert (2001) points out that the instructor’s role in ICT include getting to know settings isn't smooth, it's miles essential that they gather training regarding the layout and implementation on on-line courses, the orchestration of ICT/web-primarily based academic approaches and the development of control abilities. Ongoing teacher schooling collectively with the introduction of appropriate instructional spaces turns into fundamental to enable teachers to implement effectively ICT of their coaching and turns into on the equal time essential to attain a excessive
degree of quality within the near destiny teaching strategies. technology leaders in schools well known their roles in selling student studying results and educational quality through the use of technology (Schiller, 2002; Yee, 2000). as an example, “studying-focused envisioning” and “adventurous mastering” have been diagnosed as large roles of school leaders (Yee, 2000). school leaders showed that student studying have to be the principle attention for choice making associated with ICT rules in colleges and instructors ought to be advocated to test (adventurous getting to know) with the use of ICT in instruction. using hierarchical linear modeling, Marks and Printy (2003) discovered that it is simplest whilst transformational leadership is included with instructional leadership; there may be considerable effect on instructional great of teaching and pupil performance. In other phrases, at the same time as leaders can construct corporation capability via transformation management, simplest while instructional management is displayed by using the leaders, the individual competence of teachers and students can be stronger. but, this will now not undergo any end result with out technological leadership.

Studies reviewed on technology excellent practices for teaching and learning exhibits that school principals are a key to sustained generation implementation in any college classrooms. And the school principals seem to be very crucial pivots which can alternate and lead the ICT talents improvement among instructors and its implementation in their schools along with acceptance of the technological change. however, a study by Rossafri and Balakrishnan, (2007), observed that most of these school leaders are at the decrease lead to terms of the information and capabilities related to ICT packages and are usually pretty uncomfortable with regards to technology and transformational leadership. This in flip makes them least responsible as technology and transformational leaders. Those principals and different school leaders want to be privy to their roles as technology leaders. wish and Stakenas (1999) counseled three primary roles for the important as generation leaders: function version, academic leader, and visionary. Ritchie, (1996) in defining the role of the administrator in ICT implementation states that principals need to mobilize their teachers to create a technology subculture.

According to Yee (2000) schools that used ICT in the most optimistic manner have been those wherein the principals shared an unwavering vision that ICT had the potential to enhance pupil
learning, these principals additionally portrayed passionate dedication to offering transformational management and professionally developing teachers to promote their ICT talents and know-how. Schiller (2000), on the other hand, highlights assisting technology, and facilitating change and intervention strategies within the teaching and studying procedure as the key roles that the principals ought to play. Schools with the best generation use shared the function of sturdy, enthusiastic principals assisting their convictions approximately era by means of allocating sources and scheduling expert development in ICT for their instructors (Stegall, 1998). Effective principals need to be actively concerned with generation, such as modeling the generation use and supporting to enforce ongoing curriculum-integrated generation group of workers improvement. They must be actively involved via obtaining era abilities on how to operate and use it each time they want to communicate with others. Similarly, they want to establish a imaginative and prescient for the school context for technology within the school to empower teachers and assist school students come to be greater era literate (Brockmeier, Sermon, & wish, 2005). In order for a hit implementation of ICT applications among teachers, Macneil and Delafield (1998) proposed that principals need to use their existing resources wisely and creatively and that they have to think outside the box and in a fluid environment.

Regularly, teachers are found to be referring to their overall performance to the leadership of their schools. The principals’ command of era is critical in making informed era decisions. A predominant who's ICT literate is extra aware of the team of workers individuals’ desires. The main is responsible for dealing with the assets vital for era integration. When they understand a very good management from their principals, they appear to be actively worried in the programmes that are advanced through the management to decorate their ICT capabilities. In other words, they are trying to imitate their position fashions who're their own principals (Sathiamoorthy, 2002). In her interviews with principals, Kozloski (2006) discovered that lots of them advocate that modeling is one of the high-quality methods to expose teachers to comply with their lead in era, even though in some cases the teachers do not have the identical perspectives as their principals do of their use of ICT packages. Similarly by means of being technology leaders, the school principals should ensure that teachers receive ok professional
development, technical aid, and sources to recognise the technological blessings for their use inside the school rooms.

Innovative principals will discover diverse methods for acquiring era sources which includes fundraising, authorities, partnership for furnish and enterprise, collaboration and networking. The destiny use of ICT in schools can be seen as an increasing number of not unusual tool for the enhancement of students’ intellect, conversation and collaboration. Managers should have conceptual, technical skills and so forth. In case of faculties, principals are leaders. Principals have teachers who serve underneath the management of principals. followers of important (leader) are teachers and other staff. Principals can have the abilities of ICT or they could try to have these competencies. in addition, for enforcing any useful issue in agency, top management support is a should without pinnacle control aid; ICT can not be used for teaching and learning in schools today, ICT end up quintessential. technology is converting each day.

Seeing that there are many roles of school leaders, some researchers started out to observe the essential abilities of era leaders. Eight major expertise, skill and attribute regions recognized as important for ICT leaders encompass leadership and visioning; learning and coaching; productivity and professional practice; support, management and operations; assessment and evaluation; know-how of hassle fixing and facts technologies; social, felony, and ethical issues; organizational members of the family and communications. faculty level era leaders share a comparable listing of know-how, ability and attribute areas except for expertise of problem fixing and records technology and organizational members of the family and communications. A study via Chang, (2003) identified four dimensions of generation management competencies: vision, planning, and control; staff development and education; technology and infrastructure guide; evaluation, studies and evaluation of personnel. similarly, an awesome generation chief must have top interpersonal and communication talents.

Seong and Ho (2012), confirmed that the process of imposing an academic reform concerning the use of ICT required a curriculum and instructional management the various senior management (fundamental or headmaster) and middle control (head of department or level
Head). That is critical as the guide of top control for ICT implementation in curriculum and training will only be possible whilst the top control is involved. Collectively, they executed a mixture of transformational leadership (achieved by senior management) and educational management (finished with the aid of the middle management) to expand instructors’ potential for an better ICT preparation. Moreover, an emotional leadership become also required to support instructors’ effort to change, and a strategic management of resources became crucial to preserve instructors’ exchange efforts.

For ICT implementation, innovation and layout to happen at the extent of an person school, there may be a want for development in school leadership and enterprise according to se because teachers are evidently proof against important organizational differences and improvements (Dimmock & Goh, 2011). This study attempted to rectify the approaches for school leaders to connect ICT implementation in schools with the teachers.

2.5 Critical Review and Knowledge Gap

The empirical review has revealed that ICT has different meanings in different contexts and educators see its place in the educational curriculum from different dimensions. In learning about, and with ICT, students may participate in a wide range of activities from video-making, to newspaper production, developing skills and expertise in these technologies before using them in innovative ways to solve learning problems. ICT skills are cross-curricular and they can be integrated into all essential learning areas (Staples, Pugach, & Himes, 2005). It is also evident that the benefits accompanied by ICT use on learners, teachers and schools differ in terms of key influence area and research methods used, overall, most evidences concern the influence of ICT on teachers, followed by learners and lastly on schools. Evidence from the studies reviewed on the impact of ICT on schools is dispersed and patchy. There is hardly any evidence in areas such as internal or external school collaboration, or the interdisciplinary and innovative use of ICT within projects.

This literature review aimed to reveal the main evidence of ICT usefulness for the three areas of learners, teachers and schools. It is a large body of evidence as it brings together for the first time evidence. However, a word of caution is needed (Garet, Porter, Desimone, Birman, & Yoon,
2001). Some literatures were commissioned studies by various bodies resulting in possible biased results. This also means that other, positive or negative, aspects of ICT use and impact areas are not studied and hence not represented in this review. Available independent research evidences also have been done in patchy areas and limited countries.
CHAPTER THREE
RESEARCH METHODOLOGY

3.0 Introduction
This chapter provides research methodology that was used to collect data for the study, data collection and administration of the questionnaire, pilot study, data analysis and validity and reliability and ethical consideration. These are discussed in the sections that follow.

3.1 Research Design
This thesis was a descriptive survey design as it involved gathering data that describes events and then organizes, tabulates, depicts, and describes the data collection (Glass & Hopkins, 1984). The descriptive survey of an exploratory nature was adopted. The thesis adopted a descriptive survey approach to establish leadership challenges facing effective ICT implementation in public Secondary Schools. Creswell (2003) stated that exploratory studies are most advantageous when ‘not much has been written about the topic or the population being studied. Descriptive studies are aimed at finding out "what is," so survey methods are frequently used to collect descriptive data (Borg & Gall, 1989). The survey design involves asking a large group of respondents’ questions about a particular issue (Mugenda and Mugenda, 1999). It also seeks to obtain information that describes existing phenomenon by asking individuals about their perceptions, attitudes and values (Mugenda and Mugenda, 2003). According to Creswell (2003) a survey design provides a quantitative or numeric description of trends, attitudes or opinions of a population by studying a sample of that population. The design was preferred since it is easy to apply research instruments such as questionnaires and which allow for the collection of data from a large number of respondents in a relatively short period.

3.2 The Study Area
The study was carried out in selected secondary schools in Elgeyo Marakwet County which is located in Rift Valley and has four sub counties Marakwet East, Marakwet West, Keiyo North, and Keiyo South. It borders the following Counties: West Pokot to the North, Baringo to the East, South East and South, Uasin Gishu to the South West and West, and Trans Nzoia to the North West. Its capital and largest town is Iten. Economic activity in the county is characterized
by mixed farming, which consists mainly of livestock and subsistence farming. Other activities include small business, tourism and fluorspar mining in Kerio Valley and it was interesting to investigate ICT curriculum implementation in schools in such an area.

3.3 Target Population
The population targeted for this study included all the Elgeyo Marakwet County secondary school principals, their deputies and teachers during the year 2013-2014 school years. The list of principals was based on the secondary principals’ Directory obtained from the Department of Education Elgeyo Marakwet County offices that maintains it on an annual basis. The total target population was from all the principals, deputy principals and teachers from the 74 secondary schools in the entire county (see appendix V, page 82). There are a total of 74 principals, 74 deputies and 1500 teachers bringing to a total of 1648.

3.4 Sample Size
Sample sizes of 11 school principals, their deputies and 169 teaching staff totaling to 192 were sampled from the selected 20 secondary schools for the survey. According to Kothari (2004) a representative sample is one which is at least 10% of the population thus the choice of 30% was considered as representative of the population. The school principals and the teaching staff are the main influencers of ICT implementation in the schools hence have relevant information about their problems encountered in ICT implementation.

Table 3.1: Sample Size and Sampling Procedure

<table>
<thead>
<tr>
<th>Category of Population</th>
<th>Target Persons</th>
<th>Sample size Determination</th>
<th>Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Principal</td>
<td>20</td>
<td>(20/340)*192</td>
<td>11</td>
</tr>
<tr>
<td>2. Deputy Principal</td>
<td>20</td>
<td>(20/340)*192</td>
<td>11</td>
</tr>
<tr>
<td>3. Teachers</td>
<td>300</td>
<td>(300/340)*192</td>
<td>169</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>340</strong></td>
<td></td>
<td><strong>192</strong></td>
</tr>
</tbody>
</table>
3.5 Sampling Procedure
Sampling procedures refers to how cases are to be selected for observation. It provides a detailed explanation of the subjects to be involved in investigation and how these are to be selected from the target group (Kombo, 2006). A researcher selects a sample due to various limitations that may not allow researching the whole population (Gay, 2002). Sampling procedures and sample size are important to establish the representativeness of the sample for generalization (Sekran, 2007). Stratified random sampling method was used to select schools to ensure that all different subgroups were adequately represented in the sample, and then simple random sampling method was used to select respondents from various strata. Gay (2002) identifies random sampling as the best form of sampling as it allows all members of population to have an equal and unbiased chance of appearing in the sample.

The sampled population was stratified into principals, deputy principals and teachers. They were selected to form the sampled population for the study. The evidence of ICT use in the schools was identified as zero, low moderate and high, which was also used to come up with the sampled schools that added up to 20 schools. In this study, stratified sampling was used because Elgeyo Marakwet County is wider and also the population to be sampled was not homogeneous but, in essence, consisted of several sub-populations (Wiersma, 1995). When sub-populations vary significantly, it is advantageous to sample each subpopulation (stratum) independently. The study used this stratified sampling method to have less variability in selection.

3.6 Research Instruments
The self-administered, structured questionnaire containing essentially closed questions focused on ICT implementation problems in secondary schools indicators was used.

3.6.1 Questionnaires
Questionnaires were distributed to the sampled participants and given ample time to fill in the form and a collection date was identified for picking the fully filled questionnaire forms. The participants were taken through the questionnaire for clarity of the questions. They were also informed of their freedom of expression since their participation is private and confidential and
were only to serve the academic purpose. Both open ended and closed ended questionnaires were used to obtain the data. There were six sections to the questionnaire form; section A, B, C, D, E and F. Section A consisted of four questions on demographic information about participants, next was nine question on ICT implementation with 10 items measuring the level of ICT implementation in the schools. Section C consisted of questions on Technological leadership with two questions and 7-items measuring the degree of such leadership in the schools. Section D consisted of questions on Transformational leadership with 11-items measuring the degree of such leadership in the schools. Section E covered Curriculum leadership questions 6-items measuring the degree of such leadership in the schools. The last section, F, covered instructional leadership questions with 7-items measuring the degree of such leadership in the schools.

3.7 Pilot Study
The pilot study or test was performed in five secondary schools selected from Baringo, a neighbouring county were sampled to participate in this study and they were randomly selected to test the questionnaire so that the necessary revisions could be made before administration of the questionnaire to the target respondents. The respondents were not included those in the target population. The researcher was satisfied that the procedures were effective and free from errors and were reliable and valid (Sarantakos, 2000). That means, so as to successfully complete a sound research project, a pilot study was mandatory (De Vos, et al., 2007). This procedure was subjected to criticism and comments by the random participants and the input by the respondents must be considered when amending the questionnaire for the main enquiry (Burns and Bush, 2010). Pilot studies accumulate data from the ultimate subjects of the research project to serve as a guide for the larger study (Zikmund, 2003).

3.7.1 Validity of the Instruments
Determining validity of the instrument was one indispensable characteristics of measurement that must be considered in establishing the appropriateness and usefulness of instruments of measurements. Although this instrument was valid, face and content validity of the instruments were established again by a panel of expert. Researchers generally determine validity by asking a series of questions, and will often look for the answers in the research of others (Orodho,
A pilot study was carried out to determine the validity of the questionnaire; a pilot study was conducted prior to the actual research where five schools were involved. The piloting was carried out in five schools involving 10 teachers, five principals and five deputies in charge of ICT application in the piloted schools.

Table 3.2: Pearson Correlations of all constructs with the overall ICT Implementation (n=150)

<table>
<thead>
<tr>
<th>Subscales</th>
<th>ICTI</th>
<th>TcL</th>
<th>TrL</th>
<th>NA</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICT Implementation (ICTI)</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technological Leadership (TcL)</td>
<td>.623</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transformational Leadership (TrL)</td>
<td>.510</td>
<td>.524</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Curriculum Leadership (CL)</td>
<td>.452</td>
<td>.486</td>
<td>.492</td>
<td>1.00</td>
</tr>
<tr>
<td>Instructional Leadership (IL)</td>
<td>.329</td>
<td>.446</td>
<td>.338</td>
<td>.312</td>
</tr>
</tbody>
</table>

All correlations are significant at the 0.01 level (2-tailed)

Therefore validity of the instrument was realized after the researchers had examined the content of the instruments, through judgment of experts and the supervisors’ validations, which guided the researchers on the content validity. The study applied different techniques to assess the Cronbach’s (1951) reliability coefficient alpha and to assess face and construct validity. In order to ascertain face validity, an initial questionnaire was passed through the routine editing after it was given to the panel of experts (supervisors, other lecturers in the faculty, and colleagues). They were asked to respond to the questionnaire. Very few comments were received and some minor changes were done to enhance the clarity.

3.7.2 Reliability Analysis

A reliability of the measuring instrument addresses the question of whether the results of the measuring processes are consistent on occasions when they should be consistent (Trochim, 2006). It is a statistical concept that is related to consistency and dependability, that is, consistency in obtaining the same relative answer when measuring phenomena that have not changed (Burns and Bush, 2010). Questionnaires have a very limited purpose as they are often
one-time data gathering methods with a very short life, administered to a limited population (Norval, 2006). The following are important parts of reliability: test-retest reliability (coefficient correlation of stability). Consistency is estimated by comparing two or more repeated questions of the measuring instruments. This gives an indication of the dependability of the result on one occasion which may then be compared with the results obtained on another occasion and internal consistency reliability. This indicates how well the test items measure the same thing (Blumberg, et al., 2005).

Table 3.3: Reliability & Validity Analysis

<table>
<thead>
<tr>
<th>Constructs</th>
<th>No of original items</th>
<th>No of items retained</th>
<th>Alpha value (.60 and above)</th>
<th>Mean</th>
<th>Std Dev</th>
<th>Variance explained &lt;.50</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICT Implementation</td>
<td>15</td>
<td>10</td>
<td>0.7839</td>
<td>4.03</td>
<td>.480</td>
<td>.57</td>
</tr>
<tr>
<td>Technological Leadership</td>
<td>12</td>
<td>07</td>
<td>0.8102</td>
<td>3.87</td>
<td>.441</td>
<td>.52</td>
</tr>
<tr>
<td>Transformational Leadership</td>
<td>15</td>
<td>11</td>
<td>0.9195</td>
<td>3.79</td>
<td>.609</td>
<td>.63</td>
</tr>
<tr>
<td>Curriculum Leadership</td>
<td>10</td>
<td>06</td>
<td>0.8761</td>
<td>4.00</td>
<td>.452</td>
<td>.58</td>
</tr>
<tr>
<td>Instructional Leadership</td>
<td>10</td>
<td>07</td>
<td>0.7969</td>
<td>3.45</td>
<td>.779</td>
<td>.74</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>62</strong></td>
<td><strong>41</strong></td>
<td><strong>3.82</strong></td>
<td></td>
<td></td>
<td><strong>.60</strong></td>
</tr>
</tbody>
</table>

(Number of items retained that has corrected-item total >.40)

Table 3.3 shows the reliability coefficients and convergent validity for the various constructs. In this study reliability of the questionnaire was determined using a sample of respondents. The items were measured by a 5-point Likert-scale, which ranges from strongly disagree (1) to strongly agree (5). Reliability analysis was subsequently done using Cronbach’s Alpha which measures the internal consistency to establish if certain items within a scale measure the same construct. Cronbach Alpha was established for every variable. The findings were as shown in In general, validity refers to the degree to which instrument truly measure the constructs for what it is intended to measure. Table 3.3 shows the reliability values for the various constructs with variance extracted. It indicated that Transformational had the highest reliability (α= 0.9195), followed by Technological Leadership (α=0.8102), Instructional (α=0.7969) and ICT Implementation (α=0.7839). This is an illustration that all the four variables were reliable as their
reliability values exceeded the prescribed threshold of 0.7. This concurs with Gliem & Gliem (2003) who established the Alpha value threshold at 0.7. Cronbach’s alpha for the constructs ranged from 0.7839 to 0.9195 that indicated a sufficient level of reliability with the variance explained above 50% for all the constructs showing sufficient validity of all constructs. In general results show that the constructs of ICT implementation and principals’ leadership as both dependent and independent variables respectively, used in this study have sufficient reliability and validity.

3.8 Methods of Data Analysis
The data collected were organized and classified in particular order as completed questionnaires and incomplete questionnaires, the incomplete questionnaires were classified as invalid and were excluded from the analysis. After classifying, the data was entered in computer using (SPSS) statistical package for social sciences for further analyses. Frequency distribution tables, figures and frequency findings were used to present the results. The quantitative data was analysed using inferential statistics where mean and standard deviation were generated and analysed to determine the degree of deviation from the main problem of study. Qualitative data was analysed using frequency tables and percentages. Other methods of analysis used included correlations to determine any association between independent and dependent variables in this study.

3.9 Ethical Consideration
This study observed high degree to comply with the ethical procedures to protect the rights of the research participants, involving the principle of voluntary participation which requires that participants do not need to be coerced into participating in this research. It considered privacy and confidentiality of participants as most important. The thesis strived to ensure that no attempt is made to harm participants deliberately and those who could experience any form of harm be it through victimisation, emotional or otherwise, were informed in advance of their right to withdraw from participating in the study (Sekaran, 2003). The information obtained from participants was used only for the academic purposes and not any other application. The information from participants was treated with confidentiality and the participants were anonymous and no participants were subjected to any abuse of information received.
CHAPTER FOUR
DATA PRESENTATION, ANALYSIS, INTERPRETATION AND DISCUSSION OF FINDINGS

4.0 Introduction

This chapter comprises the analysis, presentation and interpretation of the findings resulting from this study. The analysis and interpretation of data is carried out in two phases. The first part, which is based on the results of the questionnaire, deals with a quantitative analysis of data. Since the purpose of the study was to investigate the problems encountered by principals during the implementation of ICT in secondary schools in Marakwet East County, the results relate to the following research questions:

i. What is the Curriculum level of ICT-based curriculum and instruction implementation in secondary schools in Elgeyo Marakwet County?

ii. To what extent has Technological Leadership influenced ICT-based curriculum and instruction implementation in Secondary schools in Elgeyo Marakwet County

iii. How has Transformational leadership influenced ICT-based curriculum and instruction implementation in secondary schools in Elgeyo Marakwet County?

iv. In what ways have Curriculum leadership influenced ICT-based curriculum and instruction implementation in secondary schools in Elgeyo Marakwet County?

v. In what ways have instructional leadership influenced ICT-based curriculum and instruction implementation in secondary schools in Elgeyo Marakwet County?

4.1 Response Rate

The response rate of the respondents is critical to this study because it reflects the in-depth of the data gathered. Questionnaire forms were used to collect data required for the study and a total of 192 questionnaire forms were distributed to the school principals and deputies and teachers. Out of the 192 questionnaires distributed, 150 (78.0%) were appropriately filled and returned, this were marked complete. The rest 42 (22.0%) were either not returned or were partially filled, and were marked incomplete and so were discarded during analysis. A response rate of 50% and above is acceptable (Mugenda, 2003). Therefore a return of 150 (78.0%) of the questionnaires was considered acceptable for this research. The results are as shown in Table 4.1.
Table 4.1: Response Rate of Respondents

<table>
<thead>
<tr>
<th>Participant Type</th>
<th>N</th>
<th>Returned</th>
<th>Not Returned</th>
<th>Sub-Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principals</td>
<td>11</td>
<td>08 (73.0%)</td>
<td>03 (27.0%)</td>
<td>11 (6.0%)</td>
</tr>
<tr>
<td>Deputy Principals</td>
<td>11</td>
<td>11 (100.0%)</td>
<td>00 (00.0%)</td>
<td>11 (6.0%)</td>
</tr>
<tr>
<td>Teachers</td>
<td>169</td>
<td>130 (77.0%)</td>
<td>39 (23.0%)</td>
<td>169 (88.0%)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>192</td>
<td>150 (78.0%)</td>
<td>42 (22.0%)</td>
<td>192 (100%)</td>
</tr>
</tbody>
</table>

As shown in Table 4.1, response by the principals was lowest, this was attributed to the fact that principals were engaged in day-to-day administrative duties outside their school locations barring them from getting ample time to participate in this survey. Although the participants were asked in advance to create time to participate in the survey and even scheduled specific days for this exercise, in this case it might have been that most of school principals did not abide by this requirement or were not able to return their duly filled questionnaires to the researcher. The school deputy principals had the highest response rate (100%) followed by teachers (77%). The higher response by deputy principals and teachers could be attributed to the fact that the researcher had a personal contact with them during administering the questionnaires.

4.2 Demographic Information of the Respondents

Finding out the general information of the respondents is very important because it enables the researcher to gauge the reliability of the data received and know the type of people that he/she is dealing with. This information included gender, age brackets, educational level and years or period being in the current work station.

4.2.1 Age of Respondents

Table 4.2 shows the age categories of sampled participants who took part in the completion of the questionnaires. Since ICT implementation in secondary schools in Kenya is still a relatively new phenomenon; age of respondents is of interest in understanding the challenges facing school principals in the ICT implementation drive.

37
Table 4.2: Distribution of Age of the Respondents

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>21- 30</td>
<td>18</td>
<td>12.00</td>
</tr>
<tr>
<td>31- 40</td>
<td>34</td>
<td>22.70</td>
</tr>
<tr>
<td>41- 50</td>
<td>47</td>
<td>31.30</td>
</tr>
<tr>
<td>Above 50</td>
<td>51</td>
<td>34.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>150</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

It is discernible from Table 4.2 that the largest majority of the sample respondents 34% were above 50 years which was followed by the age group of 41-50 years (31.3 %), 31-40 years (22.7 %), and between 21-30 years (12.0%). This indicated that the teachers who had knowledge of ICT were old aged meaning that the implementation of ICT-based curriculum and instructions in secondary schools in Elgeyo Marakwet county is an old practice and should be in its advanced stage now. It was revealed that most of the participants were more than above 50 years old; this was attributed to the fact that school principals and deputies were appointed from the serving teachers who had shown desirable leadership qualities and had served the schools over a long period of time. This infers that many of these participants had developed traditional leadership practices, without in-service, lacking no considerable ICT knowledge that was necessary in the process of implementation of ICT-based curriculum and instructions in their schools. These findings are similar with the findings of Laaria, (2013). In her study, the results showed that school principals and B.O.G chairpersons were virtually over 50 years old since most of B.O.G chairpersons were retired civil servants appointed to manage the schools.

4.2.2 Education Level of Respondents

In any academic institutions, education achievements of the school leaders and the staff are very important since this reflects on their performance in school affairs. So the study sought to find out the level of academic qualifications of the sampled participants at the time of the study. The results are shown in Table 4.3.
Table 4.3: Distribution of Education Level of Respondents

<table>
<thead>
<tr>
<th>Level of Education</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid Certificate</td>
<td>15</td>
<td>10.00</td>
</tr>
<tr>
<td>Diploma/Higher Diploma</td>
<td>15</td>
<td>10.00</td>
</tr>
<tr>
<td>Degree</td>
<td>87</td>
<td>58.00</td>
</tr>
<tr>
<td>Master’s Degree</td>
<td>23</td>
<td>15.00</td>
</tr>
<tr>
<td>Others</td>
<td>10</td>
<td>07.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>150</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

From the results in Table 4.3, those with certificate qualification accounted for 10.0% (15), diploma or higher diploma 10.0% (15), degree 58.0% (87), masters 15.0% (23) while others accounted for 07.0% (10). This showed that majority of the sampled participants in this study degree level of qualifications followed by Masters Level then diploma or higher diploma and certificates as well as others. This is an indication that school leaders in this region had higher level of academic qualifications that implies that they have educational skills and knowledge necessary to support implementation of ICT-based curriculum and instructions in their respective schools (Banju, 2014). This inferred that school leaders had attained University education and had undergone some basic teaching skills and knowledge that were necessary for leadership management of schools and in extension implementation of ICT in education.

4.2.3 Gender of Respondents

Gender was an important factor in understanding the ICT-based curriculum and instructions implementation in secondary schools. The study sought to find out the gender distribution of respondents. The results were as shown in Table 4.4.

Table 4.4: Distribution of Gender of Respondents

<table>
<thead>
<tr>
<th>Gender</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>105</td>
<td>70.00</td>
</tr>
<tr>
<td>Female</td>
<td>45</td>
<td>30.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>150</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>
The result in Table 4.4 indicates that male accounted for 70.0% (105) while female were 30.0% (45). Among the teacher respondents, both male and female shared the platform unequally on a 70% and 30% basis respectively. This means that male were the majority participants in this study. It implies that the number of female respondents was lower than that of their male counterparts. These phenomena in school management, gender factor was influencing exploratory variables in this study (Yee, 2000). This infers that the teaching career in surveyed secondary schools and to an extension management and leadership levels is male dominated affair in these schools. It is an indication that ICT-based curriculum and instruction implementation drive is a male principals and teachers dominated. This inferred that male leadership determinants were main indicators challenging the implementation of ICT.

4.2.4 Duration in the Current Post Held
The length of stay provides experience and in-service skills necessary for the driving forward the ICT implementation process in schools. The number of years an individual as worked in any station is of importance in explaining the experience gained in working in that station. It was therefore important for this study to establish the length of time participants have taken in their current designations; the results were as shown in Table 4.5.

<table>
<thead>
<tr>
<th>Duration in the Post</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid recently appointed</td>
<td>06</td>
<td>04.3</td>
</tr>
<tr>
<td>Less than 1 year</td>
<td>35</td>
<td>23.1</td>
</tr>
<tr>
<td>1-3 years</td>
<td>33</td>
<td>22.2</td>
</tr>
<tr>
<td>4-6 years</td>
<td>55</td>
<td>36.8</td>
</tr>
<tr>
<td>6-above years</td>
<td>21</td>
<td>13.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>150</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

The respondents also indicated in Table 4.5 that this positions have been held by the current holder on a recently appointed 4.3% (06), less than 1 year 23.1% (35), 1-3 years 22.2% (33), 4-6 years 36.8% (55), 6-above years 13.7% (21). This implies that of the sampled participants with duration of 4-6 years length of stay in current post majority as it was the highest reported with
36.8%. Hence many senior posts have been held in the institution for more than less than 6 years. This inferred that majority of the respondents had worked for more than five years validating the information collected on the basis of experience of the participants in the respective schools since the ICT implementation is a recent drive in public secondary schools. It is also important to note that this length of stay is long enough to provide ICT driven implementation leadership in these schools. Therefore majority of the sampled participants had witnessed the major developments that had occurred in the schools and therefore one way or the other had experienced challenges in the implementation of ICT in their school. This concurs with the findings of (Al-Oteawa, Bordbar, 2010) who established that of those teachers who report negative or neutral attitude towards implementation of ICT into teaching and learning process many may lack knowledge and skills that would allow them to make informed decision.

4.3 ICT Implementation

As the main outcomes of this study was to come up with the results that shed light on the challenges principals encounter when implementing ICT in secondary school curriculum and instructions. The challenges facing ICT implementation level in these schools was necessary. The areas of challenges considered included Technological Leadership, transformational leadership, curriculum leadership and instructions leadership.

4.3.1 ICT Curriculum Application

ICT application in curriculum and instruction was a step forward in its implementation process. So the understanding of this drive was important to determine whether the schools are currently using ICT in teaching and learning process. The study sought to establish the use of ICT curriculum in the schools. The question asked was “is your school uses ICT curriculum in its teaching across all subjects?” the results were as shown in Table 4.6.
The sampled respondents were asked to give their opinion on whether the school uses ICT curriculum in its teaching across all subject areas, the results in Table 4.6 show that those who stated yes accounted for 20% (30) and no accounted for 80% (120). This implies that majority of respondents were of the opinion that ICT curriculum is not used in the school teaching across all subjects. This infers that these schools still prefer traditional instructional approaches in teaching and learning so is the reason why ICT-based curriculum and instruction is not implemented across all the subject areas in their respective schools. It also implied that school principals have not provided necessary leadership that could influence the schools to apply ICT in the learning process. Hence there is lack of commitment of the school leadership to provide a way forward for ICT to be implemented in their schools. These findings are similar to those of Laaria, (2013) who found out that a leadership is important to ICT application in schools, but when influential leadership is lacking then successful implementation will not be achievable.

The study found out that the sampled schools do not use ICT curriculum in teaching across all subjects. It showed that 80% of participants indicated no for application of ICT curriculum in teaching all the subjects. This implies that ICT implementation is not priority in the sampled schools.

### 4.3.2 ICT Curriculum Implementation

In order to influence all persons involved in ICT implementation process and drive forward the exercise to its success, the decision to choose whether or not to implement ICT-based curriculum and instruction was important to this study. The study sought to establish if there is an environment for ICT curriculum implementation to the schools surveyed. The results were as shown in Table 4.7.
Table 4.7: ICT Curriculum Implementation

<table>
<thead>
<tr>
<th>ICT Curriculum Decision</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid Optional</td>
<td>104</td>
<td>69.3</td>
</tr>
<tr>
<td>Compulsory</td>
<td>46</td>
<td>30.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>150</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

The results in Table 4.7 shows that ICT curriculum is optional and not compulsory as majority 69.3% (104) approved and only 30.7% (46) indicated that ICT curriculum is compulsory at the schools. This implies that majority of the participants were of the opinion that the schools have no compulsory requirements for ICT curriculum implementation. It infers that the sampled schools’ leaders had not set it a first priority of ICT-based curriculum and instruction implementation, which implied that teachers were not mandated to compulsorily implement ICT in their teaching and learning. It also implied that school principals did not provide a leadership to influence ICT implementation drive in their respective schools. It was also found out that the ICT curriculum implementation is optional as majority 69.3% of participants indicated. This is the reason why it is not used in school instructional purposes or curriculum development for achievement of ICT compliant secondary school graduates and teachers.

4.3.3 Stages of ICT Implementation in Secondary Schools

There are various stages of ICT implementation process, the understanding of these stages was necessary to help understand the ICT-based curriculum and instruction implementation challenges. The study thus sought to establish the level of ICT implementation in these schools. The higher the level of implementation, the greater the school principal leadership influences. The results are as shown in Table 4.8.
Table 4.8: Distribution of ICT Implementation Stages

<table>
<thead>
<tr>
<th>ICT Implementation Stage</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entry</td>
<td>39</td>
<td>25.9</td>
</tr>
<tr>
<td>Adoption</td>
<td>52</td>
<td>34.3</td>
</tr>
<tr>
<td>Adaptation</td>
<td>13</td>
<td>8.7</td>
</tr>
<tr>
<td>Appropriation</td>
<td>20</td>
<td>13.0</td>
</tr>
<tr>
<td>Innovation</td>
<td>27</td>
<td>18.2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>150</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

The results in Table 4.8 indicate that entry level accounted for 25.9% (39), adoption 34.3% (52), adaptation 8.7% (13), Appropriation 13.0% (20) and innovation stage 18.2% (27). The modal and median response category for ICT implementation stage is adoption considered to be at the entry stage where ICT is used for computer studies providing only basic skills. This implies that majority of the sampled population were able to implement the ICT-based curriculum and instructions at the adoption level immediately after entry stage with little application of other advanced features of ICT in classrooms. This is an indication that there is low level of teaching and learning classrooms that incorporate multimedia activities that are the basis for ICT-based curriculum and instruction. These findings indicate that the development of ICT skills and knowledge among school principals is slow and may explain the low levels of ICT implementation in schools. This finding agrees with the findings of Balanskat, Blamire, & Kefalla (2007) who identified the factors influencing ICT adoption and implementation into teaching as teacher-level, school-level, and system-level.

4.3.4 Level of ICT Implementation at the School

This question sought to establish the level of ICT implementation given that there is indication that the implementation level of the ICT in the schools sampled. The results are shown in Table 4.9.
Table 4.9: Distribution of ICT Implementation Level

<table>
<thead>
<tr>
<th>Level</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid Beginning</td>
<td>85</td>
<td>56.7</td>
</tr>
<tr>
<td>Advance</td>
<td>29</td>
<td>19.3</td>
</tr>
<tr>
<td>Creative and Innovation</td>
<td>25</td>
<td>16.7</td>
</tr>
<tr>
<td>Problem Solving</td>
<td>11</td>
<td>7.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>150</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

The results in Table 4.9 shows that at the beginning level represented a 56.7% (85), advanced level 19.3% (29), creative and innovation 16.7% (25), and Problem Solving 7.3% (11). This implies that ICT implementation is at its very introductory level as majority of participants indicated. As shown in Table 4.9 where the implementation is in its entry stage, it implies that this entry stage is not yet advanced as the level of implementation is still in its beginning application. This is an indication that low level of application of ICT curriculum and instructions in the schools under study, which means that use of ICT devices to be creative, innovative and problem solving is not applied. It is an indication that the school leaders have lacked to provide a leading role in making use of these ICT features to steer forward their schools to be ICT-based curriculum and instruction complaints.

The findings further revealed that the sampled schools were at the entry stage of ICT implementation. This stage was not even advanced since it was at the beginning level of implementation. The school leaders had been to their positions for long time that should provide them with experience on ICT implementation desire and interest from experience, and also they are at their top age of teacher employment hence should have provided the ICT implementation lead in their schools. These findings were in agreement with those of Dhamotharan, & Aminatol, (2006) who also reported that ICT use in different public learning institutions were at their very earliest stages and levels.

4.3.5 ICT Enabling Environment in Secondary Schools

In order to overcome the challenges of ICT implementation, the school principals should provide the way forward in creating an environment that is necessary for ICT implementation. Therefore
the study sought to find out the existence of favourable environment for implementation of ICT. The results were as shown in Table 4.10.

Table 4.10: ICT Enabling Environment in Secondary Schools

<table>
<thead>
<tr>
<th>ICT Implementation Challenges</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Availability of ICT support Labs/class rooms</td>
<td>09</td>
<td>06.0</td>
</tr>
<tr>
<td>A vision for ICT development and implementation across the curriculum</td>
<td>08</td>
<td>05.3</td>
</tr>
<tr>
<td>A promoted vision within and beyond the school</td>
<td>20</td>
<td>13.3</td>
</tr>
<tr>
<td>Appropriate and Sustained ICT professional development for all levels of staff</td>
<td>20</td>
<td>13.3</td>
</tr>
<tr>
<td>An ICT learner Management along with staff and students</td>
<td>30</td>
<td>20.0</td>
</tr>
<tr>
<td>Staff Desire and Redness for ICT change</td>
<td>25</td>
<td>16.7</td>
</tr>
<tr>
<td>Motivated and developed staff to achieve effective teaching with ICT</td>
<td>15</td>
<td>10.0</td>
</tr>
<tr>
<td>Developing and sustaining ICT resources</td>
<td>15</td>
<td>10.0</td>
</tr>
<tr>
<td>A strong ICT integrated curriculum contents</td>
<td>08</td>
<td>05.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>150</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

The results in Table 4.10 show that availability of ICT support Labs/class rooms accounted for 06.0% (09), a vision for ICT development and implementation across the curriculum 05.3% (08) a promoted vision within and beyond the school 13.3% (20), appropriate and sustained ICT professional development for all levels of staff 13.3% (20), an ICT learner Management along with staff and students 20.0% (30), staff desire and redness for ICT change 16.7% (25), motivated and developed staff to achieve effective teaching with ICT 10.0% (15) developing and sustaining ICT resources 10.0% (15) and a strong ICT integrated curriculum contents 05.3% (08). An ICT learner Management along with staff and students scored the highest frequency while a strong ICT integrated curriculum contents was the lowest reported.

The findings indicate that there is little presence of ICT enabling environment on the area of ICT learner Management along with staff and students and the other areas as well. It is an indication that the ICT environment status is far from being ready for implementation process however the results in Table 4.8 indicated that the respondents were at their adoption level of ICT curriculum implementation. This infers that the schools under this study lacked leadership that provides necessary environment for ICT-based curriculum and instruction implementation. A
transformational leadership influence is necessary here to ensure the resources that are lacking are sourced from various partners and made available for use in the schools. The other finding shows that there is poor ICT Enabling Environment in Secondary Schools hence the difficulty in its implementation, which is in agreement with the findings of (zaman. Et.al 2011) who established that the school principal understands the level of ICT environments. (keengwe,J.& Onchwari G.2011) established that school environment requires an enabling vision of how school reform will be affected by technology, influencing other teachers as well.

4.3.6 ICT Skills and Knowledge Taught in School

The question sought to establish the stage at which ICT is taught in the schools. The results were as shown in Table 4.11.

Table 4.11: ICT Skills and Knowledge Taught in School

<table>
<thead>
<tr>
<th>ICT Curriculum</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid Basics</td>
<td>91</td>
<td>60.7</td>
</tr>
<tr>
<td>Advanced</td>
<td>22</td>
<td>14.7</td>
</tr>
<tr>
<td>Creativity and Innovation</td>
<td>22</td>
<td>14.7</td>
</tr>
<tr>
<td>Problem Solving</td>
<td>15</td>
<td>10.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>150</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

The results in Table 4.11 shows that ICT skills and knowledge taught at basics accounted for 60.7% (91), advanced 14.7% (22), creativity and innovation 14.7% (22) and problem solving 10.0% (15). This implies that basics accounted for the majority respondents. This is possible since there is enough ground to shows the lowest levels of stages of ICT curriculum implementation in the sampled schools. The finding is that only basic ICT skills and knowledge is taught among these schools. This can be best explained by lack of ICT implementation policy plan which is influenced by technological and transformational leadership that was found to be uncommon with participants who agree with the findings of Royer, (2002) that while some type of technology is present in nearly every classroom in the country, it is rarely used to its fullest potential.
4.3.7 ICT Implementation Policy Plan

This question sought to establish the availability of ICT policy framework that is used in the Implementation of ICT programme and curriculum in secondary schools. The principal is entitled to ensure that there is ICT policy that guides the schools on what to be done where, how, why, and when and by who. The results are as shown in Table 4.12.

<table>
<thead>
<tr>
<th>Details</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td>32</td>
<td>21.1</td>
</tr>
<tr>
<td>There is a clear vision and mission to Implement ICT</td>
<td>32</td>
<td>21.1</td>
</tr>
<tr>
<td>There are clear and achievable ICT Implementation goals</td>
<td>34</td>
<td>22.7</td>
</tr>
<tr>
<td>Not Sure</td>
<td>84</td>
<td>56.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>150</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

The results in Table 4.12 show that 14.7% (22) stated that there is a clear vision and mission to implement ICT, 21.4% (32) and that there is a clear and achievable ICT implementation goals while 56.0% (84) stated not sure. This implies that majority, 56.0% (84), of participants were of the opinion that they are not sure of the availability of ICT implementation policy plan. This could be the reason why the process of ICT curriculum implementation is still at its very basic levels of adoption as reported by the respondents. It was found out that majority, 56.0% (84), of participants were of the opinion that they are not sure of the availability of ICT implementation policy plan in their schools.

4.3.8 The Level of ICT Implementation at the Sampled Schools

The research sought to determine the level of ICT implementation at the sampled schools and the participants were given the indicators of ICT implementation. The results are as shown in Table 4.13.
Table 4.13: Distribution of the Level of ICT implementation indicators

<table>
<thead>
<tr>
<th>In Promoting ICT-based Curriculum and Instruction</th>
<th>SA</th>
<th>A</th>
<th>N</th>
<th>D</th>
<th>SD</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The School teaches Information and ICT Skills Concurrently; Subject Meetings Where Teachers Can Share Knowledge and Experience</td>
<td>14</td>
<td>23</td>
<td>23</td>
<td>55</td>
<td>35</td>
<td>150</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>09.3</td>
<td>15.3</td>
<td>15.3</td>
<td>36.7</td>
<td>23.3</td>
</tr>
<tr>
<td>2. We provide subject resource that show how ICT can be integrated and enhance learning</td>
<td>34</td>
<td>05</td>
<td>31</td>
<td>48</td>
<td>32</td>
<td>150</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>22.7</td>
<td>03.3</td>
<td>20.7</td>
<td>32.0</td>
<td>21.3</td>
</tr>
<tr>
<td>3. School Management has developed policies that outline educational needs</td>
<td>26</td>
<td>34</td>
<td>22</td>
<td>41</td>
<td>27</td>
<td>150</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>17.3</td>
<td>22.7</td>
<td>14.7</td>
<td>20.7</td>
<td>24.7</td>
</tr>
<tr>
<td>4. The School Leadership has always Assisted Teachers to Follow Agreed upon Policy</td>
<td>20</td>
<td>29</td>
<td>26</td>
<td>29</td>
<td>46</td>
<td>150</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>13.3</td>
<td>19.3</td>
<td>17.3</td>
<td>19.3</td>
<td>30.7</td>
</tr>
<tr>
<td>5. The School Leadership develops a shared vision; asserting information leadership; build policy based on the vision; develop implementation plan with detail</td>
<td>278</td>
<td>23</td>
<td>17</td>
<td>47</td>
<td>35</td>
<td>150</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>18.7</td>
<td>15.3</td>
<td>11.3</td>
<td>31.3</td>
<td>23.3</td>
</tr>
<tr>
<td>6. Staff development in ICT implementation skills and Instructional Leadership</td>
<td>22</td>
<td>26</td>
<td>25</td>
<td>46</td>
<td>31</td>
<td>150</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>14.7</td>
<td>17.3</td>
<td>16.3</td>
<td>30.7</td>
<td>20.7</td>
</tr>
<tr>
<td>7. The School has a Developed Vision and a Policy on ICT Implementation</td>
<td>30</td>
<td>23</td>
<td>14</td>
<td>42</td>
<td>41</td>
<td>150</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>20</td>
<td>15.3</td>
<td>09.3</td>
<td>28.0</td>
<td>27.3</td>
</tr>
<tr>
<td>8. Communicate what information leadership is and translates this into policy and practice</td>
<td>27</td>
<td>27</td>
<td>18</td>
<td>42</td>
<td>36</td>
<td>150</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>18.0</td>
<td>18.0</td>
<td>12.0</td>
<td>28.0</td>
<td>24.0</td>
</tr>
<tr>
<td>9. The leadership develop Peer coaching model; policy encourages professional development; make budget available for professional development in ICT</td>
<td>25</td>
<td>22</td>
<td>24</td>
<td>45</td>
<td>34</td>
<td>150</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>16.7</td>
<td>14.7</td>
<td>16.0</td>
<td>30.0</td>
<td>22.7</td>
</tr>
<tr>
<td>10. Encourage Instructional Leadership Adding Best Practices</td>
<td>41</td>
<td>15</td>
<td>32</td>
<td>38</td>
<td>24</td>
<td>150</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>27.3</td>
<td>10.0</td>
<td>21.3</td>
<td>25.3</td>
<td>16.0</td>
</tr>
</tbody>
</table>

The results in Table 4.13 show that that strongly disagree accounted for 23.3% (35), disagree 36.7% (55), none 15.3% (23), agree 15.3% (23) and strongly agree 09.3% (14). This implies that
majority, disagree 36.7% (55) and strongly disagree 23.3% (35) that the School teaches Information and ICT Skills Concurrently; Subject Meetings Where Teachers Can Share Knowledge and Experience. The next item of ICT implementation indicator was that the school provides subject resource that show how ICT can be integrated and enhance learning. The results show that strongly disagree accounted for 21.3% (32), disagree 32.0% (48), none 20.7% (31), agree 03.3% (05) and strongly agree 22.7% (34). This implies that majority, disagree 32.0% (48) and strongly disagree 21.3% (32) that the School provides subject resource that show how ICT can be integrated and enhance learning. Moreover, it was shown that strongly disagree accounted for 24.7% (27), disagree 20.7% (41), none 14.7% (22), agree 22.7% (34) and strongly agree 17.3% (26) that the school Management has developed policies that outline educational needs. This implies that majority, disagree 32.0% (48) and strongly disagree 21.3% (32) that the School provides subject resource that show how ICT can be integrated and enhance learning.

Apart from that, the study also asked to find out if the school leader always assists teachers to follow agreed upon policy; use ICT for curriculum implementation; information management from school visits by experts; train staff members to manage ICT; clarify the roles of role players in policy. In Table 4.13, the results show that strongly disagree accounted for 30.7% (46), disagree 19.3% (29), none 17.3% (26), agree 19.3% (29) and strongly agree 13.3% (20). This implies that majority, strongly disagree 30.7% (46) that the school leader always assist teachers to follow agreed upon policy; use ICT for curriculum implementation; information management from school visits by experts; train staff members to manage ICT; clarify the roles of role players in policy.

In relation to the School Leadership’s development of a shared vision; asserting information leadership; build policy based on the vision; develop implementation plan with detail, results in Table 4.13 show that strongly disagree accounted for 23.3% (35), disagree 31.3% (47), none 11.3% (17), agree 15.3% (23) and strongly agree 18.7% (28). The results is an indication that majority disagree at 31.3% (47) that the school leader develop a shared vision; asserting information leadership; build policy based on the vision; develop implementation plan with detail. At the same time, the results also show that strongly disagree accounted for 20.7% (31),
disagree 30.7% (46), none 16.7% (25), agree 17.3% (26) and strongly agree 14.7% (22). This is an indication that majority who disagree at 30.7% (47) are of the opinion that the school leader does not develop staff in ICT implementation skills; put in place knowledge management systems; peer coach training to build collaborative whole school staff development; encourage instructional leadership.

This question sought to establish if the School has a Developed Vision and a Policy on ICT Implementation in secondary schools. The results show that strongly disagree accounted for 27.3% (41), disagree 28.0% (42), none 09.3% (14), agree 15.3% (23) and strongly agree 20.0% (30). This implies that majority, disagree 28.0% (42) and strongly disagree 27.3% (41) that the School has a Developed Vision and a Policy on ICT Implementation.

The study also sought to determine if the principal Communicate what information leadership is and translates this into policy and practice. The results in Table 4.13 show that strongly disagree accounted for 24.0% (36), disagree 28.0% (42), none 18.0% (12), agree and strongly agree 18.0% (27) each. This implies that majority, disagree 28.0% (42) and strongly disagree 24.3% (36) that the school leadership communicates what information leadership is and translates this into policy and practice. At the same time, the results show that strongly disagree accounted for 22.7% (34), disagree 30.0% (45), none 16.0% (24), agree and strongly agree accounted for 14.7% (22) and 16.7% (25) respectively. This implies that majority of the participants disagreed that the school leadership develops peer coaching model; policy encourages professional development; make budget available for professional development in ICT.

On whether, the school leadership encourages Instructional Leadership Adding Best Practices. The results in Table 4.13 show that strongly disagree accounted for 16.0% (24), disagree 25.3% (38), none 21.3% (32) while agree and strongly agree accounted for 10.0% (15) and 27.3% (41) respectively. This implies that majority of the participants agreed that the school leadership encourages instructional leadership adding best practices. Overall, it was found out that the ICT implementation level is very poor and also at its lowest level. Various constructs of measuring ICT implementation were poorly reported to have been implemented. The findings agrees with
those of Kearney, & and McGarr, (2009) who found out that different measures of ICT use in teaching are missing.

4.3.9 Ability of School Leadership to Apply ICT in Curriculum and Administration

The respondents were asked their level of skills and ability to apply ICT in curriculum and school administration work. This was necessary since the leadership of the school lies with the key administrators, hence their role in applying ICT will provide such leadership direction to others. The results are as shown in Figure 4.1.

Figure 4.1: School Leadership Ability to use ICT

![Bar Chart](chart.png)

The results in Figure 4.1 show that of the school leaders who indicated that they were able to apply ICT skills in their curriculum and school administration, 23 of them had no ICT skills, 115 had basic ICT while 12 had advanced ICT skills of application. This is an indication that majority of the participants had basic ICT skills. This is similar to the schools ICT implementation stage and level of ICT implementation results that show the ICT entry stage that is still at its beginning level. The findings indicate that there is lack of adequate ICT skills that are needed to implement ICT in school classrooms for teaching and learning activities. Similar findings were obtained by Rogers, (2003) who identified five technological characteristics or attributes that influence the decision to adopt an innovation.
4.4 Technological Leadership

Technological Leadership is a key area in schools where inefficiency is highly reported. ICT implementation can bring its solution into this problem. For example instead of using manual systems in keeping and maintaining students’ records such as admissions, fee payments, academic performances and completion dates, an electronically ICT integrated system can enhance security to such records. There were five items used to establish the challenges faced when implementing ICT in the library system. These included: The School Principal shares a common vision with teachers stimulating them to use ICT in school, There is a strong school leadership that drive a well-coordinated and designed ICT plans for effective implementation of ICT in school, The principal is able to draw appropriate ICT applications to enhance personal and professional effectiveness, The principal access and use electronic information and communications resources such as the Internet and e-mail, for the benefit of the manager, educator and the learner, The school leader nurtures the development of learner ICT competence in the context of educational use of ICT as a tool and Reflect on practice with ICT in learning, then plan and implement appropriate and manageable change in practice. The response types were arranged with a five Likert-type scale ranging from strongly disagree (1) to strongly agree (5). It implied that the scores closer to (5) indicated higher level of ICT implementation while a score closer to (1) mean lower level of ICT implementation.

The following are the key areas the thesis considered in determining problems school principals face in implementing ICT in the area of Technological Leadership:

4.4.1 The School Using ICT Systems in Technological Leadership

The study sought to establish if the general opinion can hold about ICT use in school’s Technological Leadership. The results were as shown in Table 4.14.

The result in Table 4.14 shows that those who held a yes opinion accounted for 38.5% (58) and a no opinion 61.5% (98). This implies that majority of respondents were of the opinion that the school does not use ICT supported systems for Technological Leadership.
Table 4.14: School Using ICT Systems in Technological Leadership

<table>
<thead>
<tr>
<th>Participants Opinion</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid Yes</td>
<td>58</td>
<td>38.5</td>
</tr>
<tr>
<td>No</td>
<td>92</td>
<td>61.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>150</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

4.4.2 The Degree of Technological Leadership in Secondary Schools

This question sought to establish if the degree of Technological Leadership in secondary schools. The results were as shown in Table 4.15.

Table 4.15: The Degree of Technological Leadership in Secondary Schools

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid Very Poor</td>
<td>31</td>
</tr>
<tr>
<td>Very Good</td>
<td>23</td>
</tr>
<tr>
<td>Good</td>
<td>11</td>
</tr>
<tr>
<td>Excellent</td>
<td>10</td>
</tr>
<tr>
<td>None Above</td>
<td>75</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>150</strong></td>
</tr>
</tbody>
</table>

The result in Table 4.15 shows that very poor accounted for 20.7% (31), very good 15.3% (23), good 07.3% (11), excellent 06.7% (10), and none above 50.0% (75). This implies that majority of respondents were of the opinion that the schools have no Technological Leadership in ICT implementation. This means that technological leadership is not adequately used to influence ICT implementation programmes in the schools.

4.4.3 Technological Leadership on ICT Implementation

This section sought to measure the level of Technological Leadership on ICT implementation at the sampled schools. There were six items of measure of ICT implementation on a 5-point likert scale. The results are as shown in Table 4.16.
Table 4.16: Measures of Technological Leadership on ICT implementation

<table>
<thead>
<tr>
<th>In Promoting ICT-based Curriculum and Instruction, Principals’ Technological Leadership ensures</th>
<th>SA</th>
<th>A</th>
<th>N</th>
<th>D</th>
<th>SD</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The School Principal shares a common vision with teachers stimulating them to use ICT in school</td>
<td>f</td>
<td>43</td>
<td>29</td>
<td>13</td>
<td>34</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>28.7</td>
<td>19.3</td>
<td>08.7</td>
<td>22.7</td>
<td>20.7</td>
</tr>
<tr>
<td>2. There is a strong school leadership that drive a well-coordinated and designed ICT plans for effective implementation of ICT in school</td>
<td>f</td>
<td>45</td>
<td>30</td>
<td>12</td>
<td>35</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>30.0</td>
<td>20.0</td>
<td>08.0</td>
<td>23.3</td>
<td>18.7</td>
</tr>
<tr>
<td>3. The principal is able to draw appropriate ICT applications to enhance personal and professional effectiveness</td>
<td>f</td>
<td>41</td>
<td>26</td>
<td>14</td>
<td>40</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>27.3</td>
<td>17.3</td>
<td>09.3</td>
<td>26.7</td>
<td>19.3</td>
</tr>
<tr>
<td>4. The principal access and use electronic information and communications resources such as the Internet and e-mail, for the benefit of the manager, educator and the learner</td>
<td>f</td>
<td>43</td>
<td>31</td>
<td>14</td>
<td>34</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>28.7</td>
<td>20.7</td>
<td>09.3</td>
<td>22.7</td>
<td>18.7</td>
</tr>
<tr>
<td>5. The school leader Nurtures the development of learner ICT competence in the context of educational use of ICT as a tool</td>
<td>f</td>
<td>42</td>
<td>29</td>
<td>15</td>
<td>35</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>28.0</td>
<td>19.3</td>
<td>10.0</td>
<td>23.3</td>
<td>19.3</td>
</tr>
<tr>
<td>6. Reflect on practice with ICT in learning, then plan and implement appropriate and manageable change in practice</td>
<td>f</td>
<td>33</td>
<td>23</td>
<td>17</td>
<td>43</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>22.0</td>
<td>15.3</td>
<td>11.3</td>
<td>28.7</td>
<td>22.7</td>
</tr>
</tbody>
</table>

The results in Table 4.16 show that strongly disagree accounted for 20.7% (31), disagree 22.7% (34), none 08.7% (13) while agree and strongly agree accounted for 19.3% (29) and 28.7% (43) respectively. This implies that majority of the participants agreed that the school leadership shares a common vision with teachers stimulating them to use ICT in school, which should be a platform to drive teachers in the implementation process. On the measure if there is a strong school leadership that drive a well-coordinated and designed ICT plans for effective implementation of ICT in school, from this Table 4.16 it show that there is strong leadership that the majority of sampled participants agreed with the statement that there is a strong school
leadership that drive a well-coordinated and designed ICT plans for effective implementation of ICT in school.

At the same time, the results in Table 4.16, one notices that disagree and strongly agree almost tally as they accounted for 26.7% (40) and 27.3% (41) respectively. This complicates the true opinion hence a total of both agree and disagree taken where disagree and strongly disagree account for 46.0% (69) and agree and strongly agree 44.6% (67) therefore an indication that majority disagree that the principal is able to draw appropriate ICT applications to enhance personal and professional effectiveness. On the other hand, these results show that majority of participants agree that the principals access and use electronic information and communications resources such as the Internet and e-mail, for the benefit of the manager, educator and the learner. Therefore it is an indication that majority agree that the principal access and use electronic information and communications resources such as the Internet and e-mail, for the benefit of the manager, educator and the learner.

Again, from these results, one realises that majority of participants agree that the school leader nurtures the development of learner ICT competence in the context of educational use of ICT as a tool. Finally, it is indicated that majority of the respondents 28.7% (43) disagreed with the statement that there is a school leadership reflection on practice with ICT in learning, then plan and implement appropriate and manageable change in practice. This was followed by strongly disagree 22.7% (34), strongly agree 22.0% (33), and agree 15.3% (23). Those who responded none accounted for 11.3% (17). The findings are indication that technological leadership of the sampled school principals is not sufficient to influence the implementation of ICT in the schools. This is in agreement of the study by Chang (2003) who identify four dimensions of technology leadership competencies; Vision, planning and management, staff, development and training, technology and infrastructure supports, evaluation, research and assessment of staff.

**4.5 Transformational Leadership**
The study sought to determine the degree of transformational leadership in the schools. This was determined by the measuring scale of very poor, very good, good excellent and none above. The results are as shown in Table 4.17.

### Table 4.17: Degree of ICT Transformational Leadership in Secondary Schools

<table>
<thead>
<tr>
<th>Opinion</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid Very Poor</td>
<td>39</td>
<td>26.0</td>
</tr>
<tr>
<td>Very Good</td>
<td>26</td>
<td>17.3</td>
</tr>
<tr>
<td>Good</td>
<td>31</td>
<td>20.7</td>
</tr>
<tr>
<td>Excellent</td>
<td>21</td>
<td>14.0</td>
</tr>
<tr>
<td>None Above</td>
<td>33</td>
<td>22.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>150</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

From the results in Table 4.17, one realizes that very poor accounted for 26.0% (39) out of (150), followed by none above 22.0% (33), good 20.7% (31), very good 17.3% (26) and excellent 14.0% (21). This implies that majority of participants were not of the opinion that the school leadership shows degree of transformational leadership. It infers that there is poor technological leadership which means a drive towards ICT compliant institutions is not achievable and so the schools will lag behind in the drive to implement ICT-based curriculum and instructions.

#### 4.5.1 Measure of ICT Transformational Leadership

This section sought to measure the transformational leadership in ICT implementation at the sampled schools. There were 10 items measured on a 5-point likert scale. These items included Apply knowledge and understanding of ICT implementation when appropriate in fulfilling roles as an educator; Embrace opportunities to make innovative use of ICT in one or more roles as an educator; Participate in the development and evaluation of educational ICT policy at institutional/district level; Provide a facilitative and mentoring role to other educators regarding the implementation of ICT; School leadership style leads to positive changes in school staff and students; The school leaders are concerned and involved in the process of implementing ICT as well as helping all school members realize the dreams of ICT; School leader delegates responsibility, shares decision making, promotes staff Technological Leadership and maintains a
clear vision in school; School leader is able to set goals, organize, manage, monitor and build relationships with other members of school community; School leader has collective ideas that uplift teachers’ and students' excitements, aspirations, provides principles for the school and allows school community to work together and School leader raises the level of individual conducts that they are creative thinker, with a dedication to performance, professionalism, principles and standards. School leader's vision sets goals to be attained during implementation of ICT. The results are as shown in Table 4.18.

Table 4.18: Distribution of the Measure of ICT Transformational Leadership

<table>
<thead>
<tr>
<th>In Promoting ICT-based Curriculum and Instruction, Principals’ Transformational Leadership</th>
<th>SA</th>
<th>A</th>
<th>N</th>
<th>D</th>
<th>SD</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Apply knowledge and understanding of ICT implementation when appropriate in fulfilling roles as an educator</td>
<td>05</td>
<td>13</td>
<td>00</td>
<td>53</td>
<td>79</td>
<td>150</td>
</tr>
<tr>
<td>2. Embrace opportunities to make innovative use of ICT in one or more roles as an educator</td>
<td>04</td>
<td>11</td>
<td>00</td>
<td>53</td>
<td>82</td>
<td>150</td>
</tr>
<tr>
<td>3. Participate in the development and evaluation of educational ICT policy at institutional/district level</td>
<td>08</td>
<td>14</td>
<td>00</td>
<td>51</td>
<td>77</td>
<td>150</td>
</tr>
<tr>
<td>4. Provide a facilitative and mentoring role to other educators regarding the implementation of ICT</td>
<td>08</td>
<td>14</td>
<td>03</td>
<td>49</td>
<td>76</td>
<td>150</td>
</tr>
<tr>
<td>5. School leadership style leads to positive changes in school staff and students</td>
<td>10</td>
<td>15</td>
<td>00</td>
<td>49</td>
<td>76</td>
<td>150</td>
</tr>
<tr>
<td>6. The school leaders are concerned and involved in the process of implementing ICT as well as helping all school members realize the dreams of ICT</td>
<td>09</td>
<td>15</td>
<td>00</td>
<td>52</td>
<td>74</td>
<td>150</td>
</tr>
</tbody>
</table>
7. School leader delegates responsibility, shares decision making, promotes staff Technological Leadership and maintains a clear vision in school

8. School leader is able to set goals, organize, manage, monitor and build relationships with other members of school community

9. School leader has collective ideas that uplift teachers’ and students’ excitement, aspirations, provides principles for the school and allows school community to work together

10. School leader raises the level of individual conducts that they are creative thinker, with a dedication to performance, professionalism, principles and standards. School leader’s vision sets goals to be attained during implementation of ICT

The results in Table 4.18 show that strongly disagree accounted for 52.7% (79), disagree 35.3% (53), agree accounted for 08.7% (13), and strongly agree 03.3% (05). This is an indication that majority of the participants did not approve the statement that the school leader Apply knowledge and understanding of ICT implementation when appropriate in fulfilling roles as an educator. In relations to embracing opportunities to make innovative use of ICT in one or more roles as an educator, results show that strongly disagree accounted for 52.7% (79), disagree 35.3% (53), agree accounted for 07.3% (11), and strongly agree 02.7% (04). This is an indication that majority of the participants did not approve the statement that the school leader Embrace opportunities to make innovative use of ICT in one or more roles as an educator. At the same time, these results show that that strongly disagrees accounted for 51.3% (77), disagree 34.0% (51), agree accounted for 09.3% (14), and strongly agree 05.3% (08). This is an indication that
majority of the participants did not approve the statement that the school leader participate in the development and evaluation of educational ICT policy at institutional/district level.

Moreover, from the results in Table 4.20, one realizes that strongly disagree accounted for 50.7% (77), disagree 32.7% (49), none 02.0% (03), agree accounted for 09.3% (14), and strongly agree 05.3% (08). This implies that majority of participants did not agree with the statement that the school leader provides a facilitative and mentoring role to other educators regarding the implementation of ICT. Also participants with opinion of strongly disagree accounted for 50.7% (77), disagree 32.7% (49), agree accounted for 10.0% (15), and strongly agree 06.7% (10). This implies that majority of participants did not agree with the statement that the School leadership style leads to positive changes in school staff and students.

Again these results reveal that strongly disagree accounted for 49.3% (74), disagree 34.7% (52), agree 10.0% (15), and strongly agree 06.0% (09). This implies that majority of participants did not agree with the statement that the school leaders are concerned and involved in the process of implementing ICT as well as helping all school members realize the dreams of ICT. In relation to measure that the School leader delegates responsibility, shares decision making, promotes staff Technological Leadership and maintains a clear vision in school, the results in Table 4.20 show that strongly disagree accounted for 48.7% (73), disagree 32.7% (49),none 02.7% (04), agree 10.0% (15), and strongly agree 06.0% (09). This implies that majority of participants did not agree with the statement that the School leader delegates responsibility, shares decision making, promotes staff Technological Leadership and maintains a clear vision in school.

It is also revealed from the results in Table 4.20 that strongly disagree accounted for 48.7% (73), disagree 34.7% (52), agree 10.0% (15), and strongly agree 06.7% (10). This implies that majority of participants did not agree with the statement that the School leader is able to set goals, organize, manage, monitor and build relationships with other members of school community. From the results in Table 4.18, one realizes that strongly disagree accounted for 48.0% (72), disagree 32.7% (49), none 02.0% (03), agree 12.0% (18), and strongly agree 05.3% (08). This implies that majority of participants did not agree with the statement that School leader has
collective ideas that uplift teachers' and students' excitements, aspirations, provides principles for the school and allows school community to work together.

Lastly, from the results in Table 4.20, one realizes that strongly disagree accounted for 49.3% (74), disagree 36.0% (54), agree 09.3% (14), and strongly agree 05.3% (08). This implies that majority of participants did not agree with the statement that School leader raises the level of individual conducts that they are creative thinker, with a dedication to performance, professionalism, principles and standards. School leader's vision sets goals to be attained during implementation of ICT. This agrees with a study by (Keiyoro P. 2011) that being a change that affects environment and its use; it requires charismatic and influencing leadership to enable its acceptance by implementers.

4.6 Curriculum Leadership

This section sought to determine the level of participants’ agreement with the statement given. There were 6 items measured on a 5-point likert scale. These items included: Modify curriculum, instruction, and content resources to reflect learning objectives and incorporate ICT as a tool for learning; Align curriculum and assessment to support learning and improve instruction through real-time, technology-enabled assessments; Understanding ICT content and incorporate them in curriculum development; Be able to identify how various components of the curriculum link together; Use curriculum in planning instruction and assessment; Lead teachers to agree on standards, follow the adopted curriculum, use common pacing charts, and develop shared assessments and Developing team members agree to increase the consistency in their classroom curriculums and administer common assessments. The results are as shown in Table 4.19.
### Table 4.19: Distribution of the Measure of ICT Curriculum Leadership

<table>
<thead>
<tr>
<th>In Promoting ICT-based Curriculum and Instruction, Principals’ Curriculum Leadership</th>
<th>SA</th>
<th>A</th>
<th>N</th>
<th>D</th>
<th>SD</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Modify curriculum, instruction, and content resources to reflect learning objectives and incorporate ICT as a tool for learning</td>
<td>f</td>
<td>14</td>
<td>19</td>
<td>00</td>
<td>35</td>
<td>82</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>09.3</td>
<td>12.7</td>
<td>00</td>
<td>23.3</td>
<td>54.7</td>
</tr>
<tr>
<td>2. Align curriculum and assessment to support learning and improve instruction through real-time, technology-enabled assessments</td>
<td>f</td>
<td>13</td>
<td>19</td>
<td>07</td>
<td>31</td>
<td>80</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>08.7</td>
<td>12.7</td>
<td>04.7</td>
<td>20.7</td>
<td>53.3</td>
</tr>
<tr>
<td>3. Understanding ICT content and incorporate them in curriculum development</td>
<td>f</td>
<td>15</td>
<td>17</td>
<td>00</td>
<td>37</td>
<td>81</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>10.0</td>
<td>11.3</td>
<td>00</td>
<td>24.7</td>
<td>54.0</td>
</tr>
<tr>
<td>4. Be able to identify how various components of the curriculum link together Use curriculum in planning instruction and assessment</td>
<td>f</td>
<td>14</td>
<td>19</td>
<td>00</td>
<td>19</td>
<td>98</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>09.3</td>
<td>12.7</td>
<td>00</td>
<td>12.7</td>
<td>65.3</td>
</tr>
<tr>
<td>5. Lead teachers to agree on standards, follow the adopted curriculum, use common pacing charts, and develop shared assessments</td>
<td>f</td>
<td>07</td>
<td>14</td>
<td>00</td>
<td>47</td>
<td>82</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>04.7</td>
<td>09.3</td>
<td>00</td>
<td>31.3</td>
<td>54.7</td>
</tr>
<tr>
<td>6. Developing team members agree to increase the consistency in their classroom curriculums and administer common assessments</td>
<td>f</td>
<td>09</td>
<td>15</td>
<td>00</td>
<td>44</td>
<td>82</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>06.0</td>
<td>10.0</td>
<td>00</td>
<td>29.3</td>
<td>54.7</td>
</tr>
</tbody>
</table>

The results in Table 4.19 show that strongly disagree accounted for 52.7% (79), disagree 35.3% (53), agree accounted for 08.7% (13), and strongly agree 03.3% (05). This is an indication that majority of the participants did not approve the statement that the school leader are able to use curriculum leadership to modify curriculum, instruction, and content resources to reflect learning objectives and incorporate ICT as a tool for learning. In relations to align curriculum and assessment to support learning and improve instruction through real-time, technology-enabled assessments, results show that strongly disagree accounted for 52.7% (79), disagree 35.3% (53), agree accounted for 07.3% (11), and strongly agree 02.7% (04). This is an indication that majority of the participants did not approve the statement that the school leader can align
curriculum and assessment to support learning and improve instruction through real-time, technology-enabled assessments. At the same time, these results show that that strongly disagrees accounted for 51.3% (77), disagree 34.0% (51), agree accounted for 09.3% (14), and strongly agree 05.3% (08). This is an indication that majority of the participants did not approve the statement that the school leader understands ICT content and incorporate them in curriculum development.

At the same time, the results in Table 4.19, one realizes that strongly disagree accounted for 50.7% (77), disagree 32.7% (49), none 02.0% (03), agree accounted for 09.3% (14), and strongly agree 05.3% (08). This implies that majority of participants did not agree with the statement that the school leader are able to identify how various components of the curriculum link together Use curriculum in planning instruction and assessment. Also participants with opinion of strongly disagree accounted for 50.7% (77), disagree 32.7% (49), agree accounted for 10.0% (15), and strongly agree 06.7% (10). This implies that majority of participants did not agree with the statement that the School leaders are able to lead teachers to agree on standards, follow the adopted curriculum, use common pacing charts, and develop shared assessments. Again these results reveal that strongly disagree accounted for 49.3% (74), disagree 34.7% (52), agree 10.0% (15), and strongly agree 06.0% (09). This implies that majority of participants did not agree with the statement that the school leaders are developing team members agree to increase the consistency in their classroom curriculums and administer common assessments. This is in line with a study by (Lan, B. & Sim, C. 2008); leadership role must administer procedure for measuring the growth of each individual teacher.

4.7 Instructional Leadership
Technological Leadership is a key area in schools where inefficiency is highly reported. ICT implementation can bring its solution into this problem. For example instead of using manual systems in keeping and maintaining students’ records such as admissions, fee payments, academic performances and completion dates, an electronically ICT integrated system can enhance security to such records.
4.7.1 The Degree of Instructional Leadership

The study sought to determine the degree of Instructional leadership in the schools. This was determined by the measuring scale of very poor, very good, good excellent and none above. The results are as shown in Table 4.20. From the results in Table 4.20 one realizes that very poor accounted for 26.0% (39) out of (150), followed by none above 22.0% (33), good 20.7% (31), very good 17.3% (26) and excellent 14.0% (21). This implies that majority of participants were not of the opinion that the school leadership shows degree of Instructional leadership.

Table 4.20: Degree of Instructional Leadership

<table>
<thead>
<tr>
<th>Opinion</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid Very Poor</td>
<td>39</td>
<td>26.0</td>
</tr>
<tr>
<td>Very Good</td>
<td>26</td>
<td>17.3</td>
</tr>
<tr>
<td>Good</td>
<td>31</td>
<td>20.7</td>
</tr>
<tr>
<td>Excellent</td>
<td>21</td>
<td>14.0</td>
</tr>
<tr>
<td>None Above</td>
<td>33</td>
<td>22.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>150</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>
4.7.2 The Instructional Leadership on ICT implementation

There were six items used to establish the challenges faced when implementing ICT in the library system, which included: Degree of Instructional Leadership, Ability to develop ICT curriculum content in the local context (Kiswahili or mother tongue) for implementation in the school instructions, The school leader is aware and model best practice in current health, legal and ethical issues on ICT use classroom, The school leader is able to apply assessment strategy outcomes using the contribution ICT can bring to the process, Identify and use ICT resources that could most benefit teaching and learning in the learning area and phase, Ability to organise the class and the classroom when making use of ICT to achieve learning outcomes and Be aware of and plan for both diversity and uniqueness of learners through the use of ICT in learning.

Table 4.21: Distribution of the Measures of Instructional Leadership on ICT implementation

<table>
<thead>
<tr>
<th>In Promoting ICT-based Curriculum and Instruction, Principals’ Instructions Leadership influences the</th>
<th>SA</th>
<th>A</th>
<th>N</th>
<th>D</th>
<th>SD</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>7. Ability to develop ICT curriculum content in the local context (Kiswahili or mother tongue) for implementation in the school instructions</td>
<td>f</td>
<td>14</td>
<td>19</td>
<td>00</td>
<td>35</td>
<td>82</td>
</tr>
<tr>
<td>8. The school leader is aware and model best practice in current health, legal and ethical issues on ICT use classroom</td>
<td>f</td>
<td>13</td>
<td>19</td>
<td>07</td>
<td>31</td>
<td>80</td>
</tr>
<tr>
<td>9. The school leader is able to apply assessment strategy outcomes using the contribution ICT can bring to the process</td>
<td>f</td>
<td>15</td>
<td>17</td>
<td>00</td>
<td>37</td>
<td>81</td>
</tr>
<tr>
<td>10. Identify and use ICT resources that could most benefit teaching and learning in the learning area and phase</td>
<td>f</td>
<td>14</td>
<td>19</td>
<td>00</td>
<td>19</td>
<td>98</td>
</tr>
<tr>
<td>11. Ability to organise the class and the classroom when making use of ICT to achieve learning</td>
<td>f</td>
<td>07</td>
<td>14</td>
<td>00</td>
<td>47</td>
<td>82</td>
</tr>
</tbody>
</table>
12. Be aware of and plan for both diversity and uniqueness of learners through the use of ICT in learning.

Results in Table 4.21 leave one to realize that strongly disagree accounted for 54.7% (82), disagree 23.3% (35), agree 12.7% (19) and strongly agree 09.3% (14). This is an indication that majority of the participants did not approve the statement that school leadership has the ability to develop ICT curriculum content in the local context (Kiswahili or mother tongue) for implementation in the school instructions.

These results also show that strongly disagree accounted for 53.3% (80), disagree 20.7% (31), none 04.7% (07), agree 12.7% (19) and strongly agree 08.7% (13). This implies that majority of the participants did not approve the statement that the school leader is aware and model best practice in current health, legal and ethical issues on ICT use classroom. At the same time, the results in Table 4.18 leave one to realize that strongly disagree accounted for 54.0% (81), disagree 24.7% (37), agree 11.3% (17) and strongly agree 10.0% (15). This implies that majority of the participants did not approve the statement that the school leader is able to apply assessment strategy outcomes using the contribution ICT can bring to the process. In relation to the measure on identifying and using ICT resources that could most benefit teaching and learning in the learning area and phase, the results show that strongly disagree accounted for 65.3% (98), disagree and agree each accounted for 12.7% (19), and strongly agree 09.3% (14). This implies that majority of the participants did not approve the statement that the school leader is able to identify and use ICT resources that could most benefit teaching and learning in the learning area and phase.

Moreover, the results show that participant with opinion of strongly disagree accounted for 54.7% (82), disagree 31.3% (47), agree accounted for 09.3% (14), and strongly agree 04.7% (07). This implies that majority of the participants did not approve the statement that the school leader is able to organise the class and the classroom when making use of ICT to achieve learning outcomes and those with the opinion of strongly disagree accounted for 54.7% (82),
disagree 29.3% (44), agree accounted for 10.0% (15), and strongly agree 06.0% (09). This is an indication that majority of the participants did not approve the statement that the school leader is aware of and plan for both diversity and uniqueness of learners through the use of ICT in learning. This is in line with the study by (Nwana 2009b) that the school leadership need to ensure there is ability to develop local content to simplify ICT implementation in the country.

4.8 The Relationship between ICT Implementation in Curriculum and Instruction and Independent Variables

The association between ICT-based Curriculum and Instructions Implementation and independent variables were explored by using the correlation analysis. Correlation analysis was used to describe the strength and direction of the linear relationship between two variables. To run correlation analysis, preliminary analyses were performed to ensure no violation of the assumptions of normality, linearity, and homoscedasticity had taken place. The correlation matrix shows a number of significant relationships between level of ICT-based Curriculum and Instructions Implementation by principals and the independent variables (Table 4.22).

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Pearson Correlation</th>
<th>point-biserial/biserial correlation</th>
<th>Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICT Implementation</td>
<td>150</td>
<td>-0.49**</td>
<td>-0.090</td>
<td>0.000</td>
</tr>
<tr>
<td>Age</td>
<td>150</td>
<td>-0.49**</td>
<td>0.30**</td>
<td>0.000</td>
</tr>
<tr>
<td>Education Level</td>
<td>150</td>
<td>-0.47**</td>
<td>0.30**</td>
<td>0.000</td>
</tr>
<tr>
<td>Duration</td>
<td>150</td>
<td>0.30**</td>
<td></td>
<td>0.000</td>
</tr>
<tr>
<td>Gender</td>
<td>150</td>
<td>-0.089</td>
<td>0.090</td>
<td>0.13</td>
</tr>
<tr>
<td>ICT Usage/Skills/Knowledge</td>
<td>150</td>
<td>-0.090</td>
<td>0.090</td>
<td>0.11</td>
</tr>
<tr>
<td>ICT implementation Policy</td>
<td>150</td>
<td>-0.062</td>
<td>0.062</td>
<td>0.28</td>
</tr>
<tr>
<td>ICT implementation Stage</td>
<td>150</td>
<td>0.87**</td>
<td>0.87**</td>
<td>0.000</td>
</tr>
<tr>
<td>ICT implementation Level</td>
<td>150</td>
<td>0.80**</td>
<td>0.80**</td>
<td>0.000</td>
</tr>
<tr>
<td>ICT enabling environment</td>
<td>150</td>
<td>0.84**</td>
<td>0.84**</td>
<td>0.000</td>
</tr>
<tr>
<td>Technological Leadership</td>
<td>150</td>
<td>0.89**</td>
<td>0.89**</td>
<td>0.000</td>
</tr>
<tr>
<td>Transformational Leadership</td>
<td>150</td>
<td>0.78**</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td>-----------------------------</td>
<td>-----</td>
<td>--------</td>
<td>-------</td>
<td></td>
</tr>
<tr>
<td>Curriculum Leadership</td>
<td>150</td>
<td>0.70**</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td>Instructional Leadership</td>
<td>150</td>
<td>0.22</td>
<td>0.08</td>
<td></td>
</tr>
</tbody>
</table>

Note. All these factors had 5% level of significance, which means that there is a 50% chance that relationship emerged randomly and a 95% chance that relationship was real.

4.8.1 Principals’ Demographic Factors Leadership and ICT Implementation in Curriculum and Instruction

Findings of this study indicated that by increasing age and educational level, and level of ICT implementation by principals may be decreased as it shows a moderate weak negative relationship of $r = -0.49$ and $-0.47$ respectively. This may be due to the fact that ICT application is current phenomena that do not match the old aged principals who were appointed to their posts based on the length of time they have been to teaching profession and that new and young principals have been more exposed to ICT applications during their training and therefore, have more experience using this tool than the aged and those with old system of education levels.

Moreover, study results showed that duration in current post have a positive significant relationship with level of ICT implementation. It would seem that duration in the current post can make a difference in the leadership challenges faced by principals in developing ICT-based curriculum content, be able to use hardware, software and in instructional, administrative purposes. It would seem that sampled participants duration of stay in current post has not been effective to increase their leadership ability in implementing ICT-based curriculum and instruction in their current secondary schools since they are exposed to various ICT-based curriculum and instruction implementations related challenges that needs to be addressed immediately.

The relationship between ICT implementation stage and ICT-based curriculum and instruction implementation was investigated using Pearson product moment correlation coefficient. There was a strong, positive relationship between the two variables ($r = 0.87$, $n=150$, $p<0.05$). This result suggests that school principals who had higher level stage of ICT implementation were more likely to influence the challenges facing the process of ICT in their classroom environment.
than those who did not have such expertise to equipment and network their schools to relevant ICT activities. This result suggests that principals who had upper level of ICT Usage, skills and knowledge were more likely to use them than those who did not have upper level of ICT Usage, skills and knowledge to equipment and network connections in their schools thereby overcoming the challenges of ICT implementation in their schools.

Therefore, high level of ICT Usage, skills and knowledge with hardware and software devices is an influential factor related to ICT-based Curriculum and Instructions Implementation. This is in line with the study by (Schiller, 2003) the provision of transformational leadership and professionally developing teachers will enhance teacher ICT skills and knowledge.

4.8.2 ICT Implementation Stage and Level and ICT-based Curriculum and Instructions Implementation

Principals’ level of ICT activity and ICT-based had a very strong correlation with their level of ICT-based Curriculum and Instructions Implementation (r=0.87 and r=0.80 respectively), indicating that as principals’ advances to high level and stages of ICT application in their day-to-day administrative and curriculum and instruction application, then there is a likeliness that ICT-based curriculum and instruction implementation will also improve or enhanced as well. This collaborates the proposition that the attributes of technological application levels is a key challenging factor in determining success of ICT-based curriculum and instruction implementation (Rogers, 2003). These results are in agreement with prior theoretical arguments made by Rogers (2003) and studies by (Albirini, 2006a; Al-Gahtani, 2003; Vishwanath & Goldhaber, 2003) in which diffusion of Innovation were examined.

4.8.3 ICT Enabling Environment and ICT-based curriculum and instruction implementation

Study result showed that there was a moderate and positive correlation between ICT enabling environment and ICT-based curriculum and instruction implementation (r =0.84, n=150, p<0.05. Principals who had provided enabling environment such as Availability of ICT support Labs/class rooms; a vision for ICT development and implementation across the curriculum; a
promoted vision within and beyond the school; appropriate and Sustained ICT professional; a strong ICT integrated curriculum contents; an ICT learner Management along with staff and students; staff Desire and Redness for ICT change; motivated and developed staff to achieve effective teaching with ICT; developing and sustaining ICT resources development for all levels of staff; enjoyed ICT implementation in teaching and learning and the impact of technology on their life and society, used technology more in their administrative and instructional tasks. This symbiotic relationship between ICT enabling environment and ICT implementation has been widely reported in the literature (Bai & Ertmer, 2008; Drent & Meelissen, 2007; Gilbert & Kelly, 2005; Han, 2002; Knezek & Christensen, 2002). Literature confirmed these findings pointing out that availability of ICT resources is an important factor for using or avoiding computer-based technology (Albirini, 2006a; Ertmer, 2005; Drent & Meelissen, 2007; Zhao & Cziko, 2001; Teo, Lee & Chai, 2008).

4.8.4 Technological Leadership and ICT-based curriculum and instruction implementation
The findings in Table 4.22, indicate that there was a strong and positive correlation between technological leadership and ICT-based curriculum and instruction implementation (r =0.89, n=150, p<0.05). It is clear that principals with strong grip on technology will provide a leadership towards driving their schools to be ICT ready. Without such technological leadership expertise, ICT implementation exercise might face difficulty implementing. It means that the leader will be able to identify technological material resources that are essential for designing and developing curriculum contents and instruction methodologies for implementation in their classrooms. Therefore, principals’ leadership challenging technology is a critical factor influencing ICT-based curriculum and instruction implementation. Other authors by (Felton, 2006; Knezek & Christensen, 2002; Pelgrum, 2001; Rogers, 2003) have provided results revealing that ICT enabling environment was an important factor influencing ICT use in education.

4.8.5 Transformational Leadership and ICT-based curriculum and instruction implementation
The findings in Table 4.22, indicate that there was a moderate and positive correlation between transformational leadership and the level of ICT-based curriculum and instruction
implementation \((r =0.78, \ n=150, \ p<0.05)\) indicating that as transformational leadership improve, ICT-based curriculum and instruction implementation will be enhanced as well. This corroborates the proposition that the attributes of the transformation itself play a major role in determining ICT receptivity in teaching and learning (Rogers, 2003). Further, the result of this section is consistent with prior theoretical arguments made by Rogers (2003) was found out that Diffusion of Innovation was examined (Albirini, 2006a; Al-Gahtani, 2003; Vishwanath & Goldhaber, 2003)That these leaders can provide influence on other people towards accepting ICT implementation drive.

The study results indicated principals, who transformed their school environment into ICT using reducing traditional approaches in teaching and learning, acted as strong role models for the effective use of technology in support of teaching and learning. Besides, principals who have ability to transmit a vision or a sense of mission for comprehensive integration of technology, to foster an environment and culture conducive to the realization of that vision and to create enthusiasm in followers, applied technology to enhance their professional practice and to increase their own productivity.

Principals who had strong transformational leadership, can influence many users of ICT in their schools, use ICT more in their administrative and instructional tasks thus increasing the chances of others to follow the same as well. In fact, such principals can model technology use for their staff and make their vision tangible. Otherwise, it is difficult for a principal that has not understood the value and impact of ICT-based curriculum and instruction implementation in his school and society and wants to convince teachers to use computer in their teaching and learning process (Yee, 2000).

**4.8.6 Curriculum Leadership and ICT-based Curriculum and Instruction Implementation**

The study result indicated that there was a moderate and positive correlation between Curriculum Leadership and ICT-based curriculum and instruction implementation \((r =0.70, \ n=150, \ p<0.05)\). Principals, who had leadership in curriculum content design and development incorporating ICT in the process, were able to influence themselves and their schools to get essential and relevant contents required for use in their schools thus influencing the implementation of ICT in the
teaching and learning processes. In fact, such principals can model technology for use in their use for their staff and make their vision tangible. It means these principals understand the type of ICT learning and teaching contents needed to be incorporated in curriculums of their schools. This finding is an indication that it is difficult for a principal that has not understood the value and impact of ICT use in education to provide a leadership drive in implementing ICT in their schools school and society and wants to convince teachers to use ICT devices in their teaching and learning process (Yee, 2000). This curriculum leadership relates the leaders’ success to their individual ability to articulate and influence norms and values in classroom modernisation.

In addition, researchers have pointed to leadership as one of the factors influencing ICT application (Albirini, 2006b; Lee et. al., 2007; Leidner & Kayworth, 2006; Loch et. al., 2003). The findings from the current study support this conclusion. At the same time, the study’s result is in agreement with Rogers’ premise regarding the role of social norms in the diffusion of innovations. Specially, sampled participants in this study acknowledged the importance of ICT for their educational system and society, which is an enabling environment for launching ICT implementation in the school curriculum and instructions.
CHAPTER FIVE: SUMMARY OF FINDINGS

5.0 Introduction
This chapter presents discussions of findings. The research objectives are used in order to present the findings of the study. In order to investigate leadership challenges principals face while implementing ICT in selected public secondary schools in Elgeyo Marakwet County. Four research objectives were addressed according to these objectives, starting with the first one.

5.1 Summary of Findings
The demographic findings show that majority of the respondents where aged between above 41 years old, age bracket that is approaching retirement bracket of 65 years. This means that the sampled schools leadership is within the age bracket of retirement and so may not be interested in ICT implementation solutions to the sampled schools. As for education level, it was found out that majority of respondents indicated degree levels. This means that the leadership of the sampled schools is explained by that level of academic background. It was also found out that many participants were male 70% of them represented male hence the sampled school leadership is explained by male dominancy. These findings revealed that there were more male principals than female principals in public secondary schools in Elgeyo Marakwet County. Moreover, there is also an indication that the leaders have stayed in their current positions for a period of between 4 to 6 years which results in teaching experience of more than 5 years. This is a longer period for one to be able to implement plans such as ICT in their line of duty.

The findings indicate that age and educational level are some of the challenges that affect ICT implementation in schools under study. That as age and educational level advances, the level of ICT implementation may be decreased. The factor on education level needs to be explained here in that the current breed of principals educational achievements are not matching the ICT compliance hence they may find it difficult to easily implement ICT in their schools. Therefore their educational advancements are not influencing ICT application in the schools the lead currently. Therefore and that new and young principals have been more exposed to ICT
applications during their training and therefore, have more experience using this tool than the aged and those with old system of education levels.

Factors such as gender, ICT Usage/Skills/Knowledge, and ICT implementation Policy do not show significant challenge on ICT implementation since there is no deduced relationship that can be interpreted as such. However, it is important to further find out more using different approaches and data.

The findings showed that factors such as ICT implementation Stage, ICT implementation Level, ICT enabling environment were critical in the implementation process. They all showed a relationship with the independent variable of more than 70%. This implied that more than 70% of ICT implementation is explained by existence of these variables and that when school leaders influenced these factors; they are controlling more than 70% of their success.

It was found that there were those with the length of stay of more than 5 years in the current position. This length of stay was more than enough to initiate a change or ICT related reforms. The duration of school principals in their current post is also an influencing factor in the process of ICT implementation. The findings revealed that duration in the current post can make a difference in the leadership challenges faced by principals in developing ICT-based curriculum content. Thus if school principals were able to utilize their cumulated expertise as a result of length of time taken in their positions they can be effective in increasing their leadership ability in implementing ICT-based curriculum and instruction as this has exposed them to the understandings of school needs of ICT-resources for the curriculum design and development.

It was also found out that ICT implementation stage was significant in the process of ICT implementation in the curriculum and instruction. That the higher the level of stage of ICT implementation, the more likely improved implementation of ICT in their classroom environment and that lack of this control would result in low level of ICT implementation or generally computer use in their schools. The findings also indicated that the level of ICT implementation would be affected by the school leaders’ degree of ICT application. So those principals who had advanced level of ICT use in their administrative, curriculum and instruction
tasks were more likely to influence ICT implementation successfully in their schools than those with little ICT application degree.

The findings on ICT enabling environment showed that there was little presence of resources that could provide a ready environment for ICT implementation. This implied that the school leaders were not able to provide leadership that influenced the provision of such resources to equip their schools ready to take off the process of ICT implementation. However, the test of association of variables showed that enabling environment was strongly related to independent variable hence its availability was essential in necessitating the successful ICT implementation thus lack of principals leadership in providing such environment would mean lack of ability to implement ICT in their schools.

The independent variables explored of principals’ leadership consisted of four components. These included technological leadership, transformational leadership, curriculum leadership and instructions leadership.

The findings on technological leadership indicated low presence of such leadership in terms of application of technological resources in schools, poor technological leadership or lack of such leadership provision, the leadership shared technology vision with teachers stimulating them to use ICT in school, there was an indication of a strong school leadership that drive a well-coordinated and designed ICT plans for effective implementation of ICT in school. The findings on correlation tests revealed that there was a strong and positive correlation between technological leadership and ICT-based curriculum and instruction implementation. This implied that the school principals sampled for this study all agreed that technology is an essential tool for educational purposes.

In relation to transformational leadership, it was found out that majority of the participants did not approve the statement that the school leader apply knowledge and understanding of ICT implementation when appropriate in fulfilling roles as an educator; that the school leader is not embracing opportunities to make innovative use of ICT in one or more roles as an educator; that the school leader is not participating in the development and evaluation of educational ICT
policy at institutional/district level; the school leader is not providing a facilitative and mentoring role to other educators regarding the implementation of ICT; the School leadership style does not provide a lead to positive changes among school staff and students; the school leaders are not concerned and involved in the process of implementing ICT as well as helping all school members realize the dreams of ICT; school leaders do not delegate responsibility, shares decision making, promotes staff Technological Leadership and maintains a clear vision in school. In all the 10-items used to measure transformational leadership, all findings indicated that majority disagreement. The findings on the correlation test showed that there is a significant association between transformational leadership and ICT implementation thus when school principals provide such leadership in their schools then there will be improvement on ICT implementation as well.

In addition, it was also found out that curriculum leadership scored poorly among the 6-items of measure. All the six items were found to indicate lack of curriculum leadership with the highest scoring between 50%-65% for strongly disagree. Yet the association test was found to indicate that there is a moderate and positive correlation between Curriculum Leadership and ICT-based curriculum and instruction implementation.

Finally, the findings on instructional leadership showed that there was lack of agreement with majority disagreeing with all the 12-items of measure. The degree of strong disagreement was between 53% and 65%. The findings on tests of association further did not reveal any significance association although moderately positive association presence was recorded.
CHAPTER SIX: CONCLUSIONS AND RECOMMENDATIONS

6.0 Introduction

This chapter presents the conclusions and recommendations of the study. The conclusions were derived from the discussions of the findings. The recommendations were obtained from the conclusions on each objective of the study. Since the study did not cover the entire ICT-based curriculum and instruction implementation challenges in secondary schools in Kenya, it was also necessary to provide suggestions for further studies to enhance knowledge gap that exists.

6.1 Conclusions

The study aimed to ascertain school leadership challenges which were crucial to implementation of ICT programs in secondary schools in Elgeyo Marakwet County. Indicators used in the study to show school leadership interest, commitment and championing implementation of ICT in their respective schools.

6.1.1 Objective One was to establish the Curriculum level implementation of ICT-based curriculum and instruction in secondary schools in Elgeyo Marakwet County

Based on the findings in the above chapters, it is concluded that there is low or poor level of ICT implementation in terms of content and teaching approaches across the subject areas, policy guide and decisions of application, stages and levels of implementation, enabling environment, knowledge and skills taught, ability of leadership to apply ICT in their duties at the schools. This is because there are many school principals whose ages are not matching the process of ICT implementation activities, their education achievements are outdated to match current ICT characteristics, ICT use across all subjects is not mandatorily in these schools, there is longer durations of stay in the current positions that deny the leaders a chance to realize the need to take the lead on ICT reforms, lack of enabling environment for ICT implementation, there is lack of ICT policy plan and that school leaders having only basic skills and ability inadequate to influence ICT implementation drive in schools. This is in line with the theory of model of IT implementation process, which comprises of six stages namely; Initiation, organization adoption,
adaptation, acceptance and adoption, routinization and infusion. Thus from the findings it is at its initial and organization, adoption stage.

6.1.2 The second objective was to determine the Technological Leadership problems towards ICT implementation in Secondary schools in Elgeyo Marakwet County
It was concluded that there was very poor level of technological leadership, low application of technology in schools. This was due to lack of adequate technological leadership that could influence successful implementation of ICT in curriculum and instructions in teaching and learning process. Yet this was a key challenging factor in determining the success in ICT implementation in schools. This agrees with the theory of open system systems where it states that an organization must have technological resources to complete its tasks.

6.1.3 The third objective was to examine Transformational Leadership problems encountered during ICT implementation in secondary schools in Elgeyo Marakwet County
From the findings on this objective it is concluded that it a second most significant factor of a challenging that its influence would necessitate the successful implementation of ICT in curriculum and instruction practices. Yet there was very poor and inadequate transformational leadership practice that could not influence the drive towards ICT implementation in the schools. That school principals sampled failed to exercise adequately their transformational expertise to influence the schools in implementing ICT in classrooms. This agrees with theory of the technology acceptance model the study aimed to predicts and explain ICT usage behavior that is, what causes implementers to accept to engage in implementation process or to reject the use of Information Technology all together.

6.1.4 The fourth objective was to establish the curriculum leadership problems encountered when implementing ICT in secondary schools in Elgeyo Marakwet County
The findings on curriculum leadership evidently showed it is the third most significant factor that challenges the ICT implementation process. If it applied then there would be improved and successful implementation of ICT in the schools. It was also evident that this leadership was
applied poorly resulting into failure to properly provide the guide towards curriculum design and development for ICT related contents.

6.1.5 The fifth objective was to establish the instructional leadership problems encountered when implementing ICT in secondary schools in Elgeyo Marakwet County
The study evidently revealed that there is low degree of significance of this factor in determining ICT implementation. It was the last influential factor although applied inadequately and very poorly applied. Thus the drive to see classrooms with methodologies that were ICT related such as use of PowerPoint, video conferencing or presentations using computer screens were not applicable. This concurs with the theory model of IT implementation process which covers an implementation pro recess from scanning the organization needs to a full and effective use of the technology in daily practices.

6.2 Recommendations
The government and the ministry of education should provide a mandatory policy guides and ICT training materials to all the school principals whether young or old to facilitate the ICT implementation process in the schools curriculums and instructions. This would eliminate the problem of outdated education qualifications that current principals have.

The school principals must have strong command of technological technics that are relevant to the design and development of ICT-based curriculum and instructions in their schools. This would give them confidence and improved ICT proficiency leadership to drive the school environments towards ICT reforms.

It is also essential for the school principals have transformational characteristics that can influence teachers and the entire school community towards accepting technological use that is a necessity for ICT implementation. This would bring a total change of attitude, behaviour and characters of ICT implementers such as teachers and students in the respective schools.
Apart from that, the schools leaders must provide approaches that guide curriculum content development, identify resources relevant for ICT driven curriculum so that other personnel can follow their foot paths for the implementation process. The ministry of education should ensure that school principals lead their schools by example in the ICT application in curriculum.

This kind of leadership concurs with fig (1.1) under conceptual framework where independent variable (Technological leadership, Transformational leadership, curriculum leadership and instructional leadership) the intervening variables put in place (Government policy and ICT infrastructure) lead to successful ICT implementation (Dependent variable).

Although this factor of leadership was concluded to be insignificant, it is essential for the school principals to develop characteristics that will enable them to lead other academic staff members in teaching and learning approaches that are ICT incorporated to ensure the entire classroom environment is all ICT compliant. At the same time, the ministry of education needs to provide a syllabus that guides on the teaching methodologies relevant to ICT contents.

6.3 Suggestions for Further Studies
The literature reviewed by this study had weaknesses on the ICT implementation as there is lack of empirical findings on stages and levels of ICT implementation. This study also is limited on its findings under its objectives of the influence of gender, age, education and experience on ICT implementation leadership. Therefore it is important for further studies to explore an extensive study on the influence of these demographic variables on the leadership in implementing ICT in schools.

The other area is making ICT a mandatory element of teaching across the subjects in schools. It is also important for future studies to investigate the relationship of a mandatory policy to public school principals and the implementation of ICT in schools.
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APPENDIX 1: LETTER OF AUTHORIZATION

KISII UNIVERSITY
(ISO 9001:2008 Certified Institution)
ELDORET CAMPUS
OFFICE OF THE DEPUTY DIRECTOR-ACADEMIC AFFAIRS

Phone: 0720 094 039 P. O. Box 6434- 30100
eldoretcampus@kisiiuniversity.ac.ke ELDORET-KENYA

20TH JANUARY, 2015

TO WHOM IT MAY CONCERN.

Dear Sir / Madam,

RE: EUNICE LAMBAINO REG. NO. EMI117/03590/13

The above mentioned is a bonafide student of this University undertaking Her Master’s Degree.

She has successfully defended, her Thesis Proposal:

entitled: “Challenges encountered by principals during ICT implementation in Sec Schools

Elgeyo Marakwet ”

We are kindly requesting your office to provide her with the permit to proceed to the field for

data collection and completion of her research.

Please do not hesitate to call the undersigned for any verification.

Any assistance given to her will be highly appreciated

Thanks

[Signature]

Charles. O. Ong'oro (0720988405)
DEPUTY DIRECTOR-ACADEMIC AFFAIRS.
APPENDIX II: LETTER FROM THE MINISTRY

NATIONAL COMMISSION FOR SCIENCE,
TECHNOLOGY AND INNOVATION

Telephone: +254-20-2213471,
2241349, 310571, 2219420
Fax: +254-20-318245, 318249
Email: secretary@nacosti.go.ke
Website: www.nacosti.go.ke
When replying please quote Ref: No.

NACOSTI/P/15/3546/6064

Eunice Lambaino
Kisii University
P.O. Box 402-40800
KISII.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on “Challenges encountered by principals during ICT implementation in secondary schools Elgeyo Marakwet County,” I am pleased to inform you that you have been authorized to undertake research in Elgeyo Marakwet County for a period ending 4th September, 2015.

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

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

DR. S. K. LANGAT, OGW
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioner
Elgeyo Marakwet County.

The County Director of Education
Elgeyo Marakwet County.

Date: 30th July, 2015
APPENDIX III: RESEARCH PERMIT

THIS IS TO CERTIFY THAT:
MISS. EUNICE LAMBAINO
HOD, SGRI UNIVERSITY, P.O. BOX 4128-30700

ITEM, has been permitted to conduct research in Elgeyo-Marakwet County on the topic: CHALLENGES ENCOUNTERED BY PRINCIPALS DURING ICT IMPLEMENTATION IN SECONDARY SCHOOLS ELGEYO MARAKWET COUNTY for the period ending 4th September, 2015

Applicant's Signature

Director General
National Commission for Science, Technology & Innovation

CONDITIONS
1. You must report to the County Commissioner and the County Education Officer of the area before embarking on your research. Failure to do that may lead to the cancellation of your permit.
2. Government Officers will not be interviewed without prior appointment.
3. No questionnaire will be used unless it has been approved.
4. Excavation, filming and collection of biological specimens are subject to further permission from the relevant Government Ministries.
5. You are required to submit at least two (2) hard copies and one (1) soft copy of your final report.
6. The Government of Kenya reserves the right to modify the conditions of this permit including its cancellation without notice.

RESEARCH CLEARANCE PERMIT

Republic of Kenya
National Commission for Science, Technology & Innovation

Serial No. A 6002

CONDITIONS: see back page
APPENDIX IV: LETTER TO CONDUCT RESEARCH (TO SCHOOLS PRINCIPALS, DEPUTY PRINCIPALS AND TEACHERS)

Dear Participant

You are invited to participate in a study project aimed at investigating on leadership challenges faced by school principals when implementing ICT-based curriculum and instructions in secondary schools in Elgeyo Marakwet County.

This information will give better insight into the current state of ICT implementation at public secondary schools in Elgeyo Marakwet County. This study is being conducted under the supervisions of Dr. Koros Rachel and Prof Kimani Chege at the Faculty of Education in Kisii University. Your participation in this research project is voluntary and confidential. At no time will the name of any school or individual be identified. While results will be made available by school, you are guaranteed that neither your school nor your name will be identified in any report of the results of the study.

If you have any questions concerning the research study, please do not hesitate to call me at: +254721704842.

Yours sincerely,

Eunice Lambaino
## APPENDIX V: TARGET POPULATION AND SAMPLING FRAME

<table>
<thead>
<tr>
<th>S/No</th>
<th>Name of School</th>
<th>Nature</th>
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APPENDIX VI: QUESTIONNAIRE

SECTION A: DEMOGRAPHIC INFORMATION OF RESPONDENTS
Please help me fill this form by selecting the most appropriate choice as provided where necessary.

1. What is your age bracket in years?
   - Below 20 ( )
   - 21-30 ( )
   - 31-40 ( )
   - 41-50 ( )
   - Above 50 ( )

2. What is the most current level of your education?
   - Certificate ( )
   - Diploma/Higher Diploma ( )
   - Degree ( )
   - Masters Degree ( )
   - Others (Specify)………………………………………………………..

3. What is your gender?
   - Male ( )
   - Female ( )

4. How long have you been to this current post?
   - Recently appointed ( )
   - Less than 1 year ( )
   - 1-3 years ( )
   - 4-6 years ( )
   - 6-above years ( )

SECTION B: QUESTIONNAIRE ON ICT IMPLEMENTATION IN SCHOOL
5. Is this school uses ICT curriculum in its teaching across all subjects?
   - Yes ( )
   - No ( )

6. Has the school established an environment for ICT curriculum implementation?
   - Optional ( )
   - Compulsory ( )

7. What stages of ICT implementation do you consider your school in?
   - Entry ( )
   - Adoption ( )
   - Adaptation ( )
   - Appropriation ( )
   - Innovation ( )

8. What is the level of ICT Implementation at this School?
   - Beginning ( )
   - Advance ( )
   - Creative and Innovation ( )
   - Problem Solving ( )

9. Which ICT Enabling Environment has been provided in your Secondary Schools?
   1. …………………………………
   2. …………………………………
   3. …………………………………
   4. …………………………………
   5. …………………………………
   6. …………………………………
10. Which ICT Skills and Knowledge are taught in this School?
   Basics
   Advances
   Creative and innovation
   Problem solving

11. Is there a policy plan for ICT implementation in the school?
   There is a clear vision to Implement ICT
   There is a clear mission guiding ICT implementation
   There are clear and achievable ICT Implementation goals
   Not Sure

12. Please state the level of agreement with the following statements (Strongly Agree= 5 - Strongly Disagree= 1)

<table>
<thead>
<tr>
<th>Statement</th>
<th>SA</th>
<th>A</th>
<th>N</th>
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<th>SD</th>
</tr>
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<tbody>
<tr>
<td>1. The School teaches Information and ICT Skills Concurrently; Subject Meetings Where Teachers Can Share Knowledge and Experience</td>
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<td>2. We provide subject resource that show how ICT can be integrated and enhance learning</td>
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<tr>
<td>3. School Management has developed policies that outline educational needs</td>
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<tr>
<td>4. The School Leadership has always Assist Teachers to Follow Agreed upon Policy</td>
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<tr>
<td>5. The School Leadership develops a shared vision; asserting information leadership; build policy based on the vision; develop implementation plan with detail</td>
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<tr>
<td>6. Staff development in ICT implementation skills and Instructional Leadership</td>
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<tr>
<td>7. The School has a Developed Vision and a Policy on ICT Implementation</td>
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<tr>
<td>8. Communicate what information leadership is and translates this into policy and practice</td>
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<td>9. The leadership develop Peer coaching model; policy encourages professional development; make budget available for professional development in ICT</td>
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<tr>
<td>10. Encourage Instructional Leadership Adding Best Practices</td>
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</table>

SECTION C: QUESTIONNAIRE ON TECHNOLOGICAL LEADERSHIP

   Yes
   No

Identify the degree of Instructional Leadership in your institution
   Very Poor
   Very Good
   Good
   Excellent
   None Above

14. Please state the level of agreement with the following statements (Strongly Agree= 5 - Strongly Disagree= 1)

<table>
<thead>
<tr>
<th>Statement</th>
<th>SA</th>
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<td>1. The Degree of Technological Leadership in Secondary Schools</td>
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<tr>
<td>2. The School Principal shares a common vision with teachers stimulating them to use ICT in school</td>
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<tr>
<td>3. There is a strong school leadership that drive a well coordinated and designed ICT plans for effective implementation of ICT in school</td>
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<tr>
<td>4. The principal is able to draw appropriate ICT applications to enhance personal and professional effectiveness</td>
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<td>5. The principal access and use electronic information and communications resources such as the Internet and e-mail, for the benefit of the manager,</td>
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</table>
The school leader Nurtures the development of learner ICT competence in the context of educational use of ICT as a tool

Reflect on practice with ICT in learning, then plan and implement appropriate and manageable change in practice

**SECTION D: QUESTIONNAIRE ON TRANSFORMATIONAL LEADERSHIP**

15. Please state the level of agreement with the following statements (Strongly Agree= 5 - Strongly Disagree= 1)

<table>
<thead>
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<td>Degree of ICT Transformational Leadership in Secondary Schools</td>
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<tr>
<td>1. Apply knowledge and understanding of ICT implementation when appropriate in fulfilling roles as an educator</td>
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<tr>
<td>2. Embrace opportunities to make innovative use of ICT in one or more roles as an educator</td>
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<td>3. Participate in the development and evaluation of educational ICT policy at institutional/district level</td>
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<td>4. Provide a facilitative and mentoring role to other educators regarding the implementation of ICT</td>
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<td>5. School leadership style leads to positive changes in school staff and students</td>
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<td>6. The school leaders are concerned and involved in the process of implementing ICT as well as helping all school members realize the dreams of ICT</td>
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<tr>
<td>7. School leader delegates responsibility, shares decision making, promotes staff Technological Leadership and maintains a clear vision in school</td>
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<td>8. School leader is able to set goals, organize, manage, monitor and build relationships with other members of school community</td>
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<td>9. School leader has collective ideas that uplift teachers’ and students’ excitement, aspirations, provides principles for the school and allows school community to work together</td>
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<tr>
<td>10. School leader raises the level of individual conducts that they are creative thinker, with a dedication to performance, professionalism, principles and standards. School leader's vision sets goals to be attained during implementation of ICT</td>
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</table>

**SECTION E: QUESTIONNAIRE ON ICT-BASED CURRICULUM LEADERSHIP**

15. Please state the level of agreement with the following statements (Strongly Agree= 5 - Strongly Disagree= 1)

<table>
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<tr>
<th>Statement</th>
<th>SA</th>
<th>A</th>
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<td>Modify curriculum, instruction, and content resources to reflect learning objectives and incorporate ICT as a tool for learning</td>
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<tr>
<td>2. Align curriculum and assessment to support learning and improve instruction through real-time, technology-enabled assessments</td>
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<tr>
<td>3. Understanding ICT content and incorporate them in curriculum development</td>
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<td>4. Be able to identify how various components of the curriculum link together</td>
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<td>5. Use curriculum in planning instruction and assessment</td>
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<td>6. Lead teachers to agree on standards, follow the adopted curriculum, use common pacing charts, and develop shared assessments</td>
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## SECTION F: QUESTIONNAIRE ON ICT-BASED INSTRUCTIONAL LEADERSHIP

16. Please state the level of agreement with the following statements (Strongly Agree = 5 - Strongly Disagree = 1)

<table>
<thead>
<tr>
<th>Statement</th>
<th>SA</th>
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<tbody>
<tr>
<td>1. The Degree of Instructional Leadership</td>
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<td>2. Ability to develop ICT curriculum content in the local context (Kiswahili or mother tongue) for implementation in the school instructions</td>
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<td>3. The school leader is aware and model best practice in current health, legal and ethical issues on ICT use classroom</td>
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<td>4. The school leader is able to apply assessment strategy outcomes using the contribution ICT can bring to the process</td>
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<td>5. Identify and use ICT resources that could most benefit teaching and learning in the learning area and phase</td>
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<td>6. Ability to organise the class and the classroom when making use of ICT to achieve learning outcomes</td>
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<td>7. Be aware of and plan for both diversity and uniqueness of learners through the use of ICT in learning</td>
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