

**FACTORS INFLUENCING INFORMATION AND
COMMUNICATION TECHNOLOGIES' DEVELOPMENT IN
KASIPUL – KABONDO CONSTITUENCY, HOMA-BAY
COUNTY, KENYA**

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SONGA ADIMBO CYPRIAN

**A RESEARCH PROJECT REPORT SUBMITTED IN PARTIAL FULFILMENT OF
THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF ARTS
IN PROJECT PLANNING AND MANAGEMENT OF UNIVERSITY OF NAIROBI.**

2012

DECLARATION

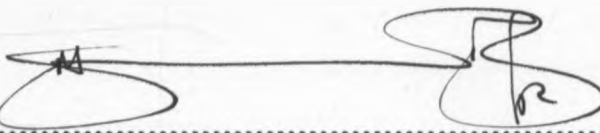
This research project report is my original work and has never been presented for the award of any degree in any other university.

SIGN  DATE 23. 11. 2012

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L50/66434/2010

This research project report has been submitted for examination with my approval as the University of Nairobi supervisor.

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DEDICATION

This research project is dedicated to members of my family Mary, Carolyne, Rolance and Michelle for their non-ending support and encouragement to see me through in my studies. My parents Patrick Songa and Consolata Onyango for having taken me to school at the early stage of my life.

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LIST OF ABBREVIATIONS AND ACRONYMS

ICTs	-	Information Communication Technologies
IT	-	Information Technology
LDCs	-	Less Developed Countries
D.O	-	District Officer
DC	-	District Commissioner
C.D.F	-	Constituency Development Fund
D.I.O	-	District Information Officer
G.O.K	-	Government of Kenya
NGOs	-	Non- Governmental Organizations
UNESC	-	United Nation on Economic and Social Council
M-PESA	-	Mobile Money Transfer
G.IS	-	Geographical Information Systems
WWW	-	World Wide Website
R & D	-	Research and Development
IO	-	Information Officer
IFMIS	-	Integrated Financial Management Information System
e-business	-	Electronic Business
e-government	-	Electronic Government
e-learning	-	Electronic Learning
ERP	-	Enterprise Resource Planning Software
UN	-	United Nations
GDP	-	Gross Domestic Product

- HIV/AIDS** - Human Immuno Virus/Acquired Immuno Deficiency Syndrome
- ICT** - Information and Communications Technology.
- IBM** - International Business Machines
- HIP** - Health Information Professions
- GOK** - Government of Kenya
- SMS** - Short Message Service
- MMS** - Multi Media Message Service

ABSTRACT

The study endeavoured to understand the factors influencing ICT development in Kasipul Kabondo Constituency, Homa Bay County, Kenya. The main purpose was to identify factors affecting ICT development in institutions, health centres and service providers of ICT which are key resultant areas in socio-economic development. It was identified that majority of Kabondo farmers have not fully utilized ICT in agricultural activities including timely planning, use of botanical pesticides and conventional chemical. The study was out to achieve the following objectives ; to establish the extent to which economic factors influence ICT development, to explore the extent to which socio-cultural factors influence ICT development, to assess the extent to which personnel influence ICT development , to examine the extent to which power supply influence ICT development and to establish the extent to which institutional factors influence ICT development in Kasipul Kabondo Constituency Homa Bay County, Kenya .The study findings are hoped to be beneficial to the government of Kenya for policy formulation, entrepreneurs in identifying business opportunities and interested bodies or group such as NGOs and other financiers of ICT programme . The study was based on the system theory by L.Von Beralanffy on how human body system relate to one another .The conceptual frame work also gives an illustration on how dependent variable relates to the independent variables and moderating variables . The study adopted a descriptive survey design. The study targeted total population of 97 ICT users. A sample of 85 was taken from the population randomly. Probability technique was used as research techniques .The research instruments were structured questionnaires and interview schedules. Content validity was ascertained through expert judgment while reliability was established through the split – half method and test retest method. Questionnaires was conducted, the interview was also carried out at the same time. Data collected was analyzed using frequencies and percentages to answer research questions. The finding revealed the significant relationship between factors influencing information and communication technologies' development and socio-economic development. Data analysis, presentation and interpretation were done through the use of tables after collecting the data from the field. The study included analysis of the data, presentation, interpretation, discussion, recommendation, conclusion and further research studies. Majority of respondents agreed that cost of ICT tools, socio-cultural factors, ICT personnel, power supply and institutional factors influence ICT development in Kasipul Kabondo constituency, Homa Bay County, Kenya. On conclusion it was realized that ICT is important for both teachers and students to enhance curriculum implementation in various schools through teaching and learning of ICT tools and equipment. On recommendation, the government should subsidize the ICT investments, attitude and perception about ICT should be addressed by policy makers of ICT, training of ICT personnel is necessary for ICT development. The government should provide electricity in remote areas to accelerate ICT development and clear institutional policies should be given the first priority. Further research should be carried on the same topic, factors influencing ICT development. Traditional teaching and learning in society should be investigated. Religious factors are of essence in ICT development and political leadership and its impact on ICT development in the society should be investigated further.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The information communication technology revolution and the extra ordinary increase in the spread of knowledge have given birth to a new era of knowledge and information which affects directly economic , social cultural and political activities of all region of the world , Aledbeleye , and Aina (1985) revised edition, (2005).

Information communication technology is basically an electronic based system of information transmission reception, processing and retrieval which has drastically changed the way we think , interact , Okinyi, (2003), supported by Duso (2005) that ICT encompasses the whole range of social , political , economic and cultural phenomenon and technological change in the development of the information society.

The ability of Kasipul Kabondo population to adopt and use ICT in communicating , e- agriculture e- learning , e- business and e- health as a means of contributing to policy formulation and other development – related activities is the motivation of the study of factors influencing ICT development in Kasipul – Kabondo constituency , Homa- bay county , Kenya , Rodgers(2003) on diffusion of innovation and Hofstede , (2001) on cultural dimension theory focused ion the factors affecting ICT adoption which includes; economic factors influencing ICT development, socio- cultural factors affecting ICT development, personnel's in ICT development, the supply of power affecting ICT adoption, attitude and perception in ICT development and institutional factors influencing ICT development.

Kofi Annan , (2005) said that, ICT's offer the best chance for development yet developing countries have not taken their rightful place in the global economy due to slow adoption of ICT's in their institutions.

Countries all over the World are putting in place policies that incorporate ICTs in their infrastructural development, Weglinsky, (1998), has it that USA has invested and put more emphasis in ICT training and education to its citizen .

However the adoption of ICT in USA is a still a problem according to Kreuger, (2000), has it that , there is evidence in the USA that African and Hispanic students are first given more repetitive drill and practice tasks on computers and fewer sophisticated simulation application than their white peers, hindering ICT adoption by all citizens in USA.

According to UK, (2004), the House of Commons science and technology committee recommended research outputs be made free for all citizen of UK through internets. Wilinsky (2006) reported that UK government has put in place mechanism of fostering open access to research journals through internet.

UK RC,(2006), has it that, ideas and knowledge derived from publicity – funded research are made available and accessible for public use, interrogation and scrutiny as widely , rapidly and effectively as practicably using ICT's technologies which are efficient and cost effective.

The RCUK , (2006) sees the new internet based models pinning ICT data as likely to play an increasing useful role in widening and improving access, which in turn support RC strategies for ensuring that the result of research are exploited more effectively for the benefits of the UK's society and economy.

The UK and US cases indicate an acknowledgement by the Government the role of ICT's in their societies and economies. To ensure access to information and knowledge the plan of

action seeks to integrate ICT to facilitate access, free and affordable information regarding the research communities UN, (2003). The problem in UK is that most parents do not like their children to take a lot of time with computers as it takes a lot of their study times.

AAU, (2004) emphasized the role of ICT as a critical determinant in national development and international competitiveness and demand that African higher education plays a major role in ICT development in order to improve the quality of teaching and research and the effectiveness of their contribution to policy, production, management and social construction as well as their cost effectiveness.

According to Japan Ministry of information and communicate ICT plays a critical role in realizing a safe and secure society in Japan , as well as the contribution towards global issues such as climate change and agriculture. However in Japan the problem facing ICT is language barriers because most of the ICT programmes are done in English not Japanese language.

Furuta , H, Makita , N, (2012), has it that ICT in Japan has permeated the economic activity and peoples' lives , poverty alleviation in Sulawesi community is an example of ICT usage where Desamaju has access to information of agriculture , fishery and health through the use of ICT.

JiaHepeng, (2007), has it that, many Chinese telecoms corporations are owned by the state, and ICT companies are strongly influenced by government attitudes. This puts the government in a strong position to establish ICT projects that provide social services and promote social development. The government's village- to – village project, launched in early 1990s, has extended ICT and internet connections to rural areas and by 2010, more than 716,000 villages will have access to ICT in rural areas. The safety and mutual Help Network, for example is an emergency service for rural areas that represents of news form of partnership between industry and local communities and ICT have been used to boost security in rural areas of

Shandong province where community send out an alert message to the whole community in cases of emergency.

In China the problem is language of installation of ICT programmes which are done in English not Chinese.

TCRA, (2012), Tanzania marked the world Telecommunication and information society Day, under the theme, women and Girls in ICT, The TCRA,(Tanzania Communication Regulatory Authority) coordinated the days' observation by conducting special ICT seminars in a number of girls secondary schools throughout the country such as Kipok Sec. School based in the Lokisale ward of Monduli District, Tanzania. This girls learning institution, apparently, still has no electricity.

Kyalimpa J., (2010), has it that, at the internet centre run by Busoga Rural open source and Development initiative (BROSDI), small holder farmers of all ages, male and female alike, sit rapt before the rows of screens, some have already master web, while others sit on benches in the corridor waiting for basic assistance ranging from help of opening an email account. BROSDI- (Busoga Rural open source and Development initiative) by giving the Uganda Districts' farmers ready access to the best of both local knowledge of farming and international research and best- practice via the internet this corner of rural Uganda would seem to have offers the best possible chance of securing a sustainable fare. The problem in Uganda is that it lacks ICT institutional framework in learning institutions

According to GOK, (2001), Rapid development of ICT accompanied by the convergence of telecommunications, broadcasting and computer technologies' is creating new products and services, as well as new ways of learning, entertainment and doing business. At the same time, more commercial, social and professional opportunities are being created through the unique

opportunity provided by ICT. The new society aspects of our lives, including knowledge dissemination, social interaction, economic and business practices and political engagement. M-pesa has revolutionized the Kenyan economy through e-banking.

According to CCK ,(2008), the ICT distribution in Kenya is as follows; Nairobi 191202 (7.92%), Central 21837 (0.52%), Eastern 16645 (0.32%), North Eastern 2380 (0.22%), Coast 40184 (1.43%), Western 6948 (0.18%), Nyanza 12840 (0.26%) and Rift Valley 35590 (0.45%) with a total of 327626. However high cost of ICT tools and equipment is a set back to a first growing ICT technology in Kenya.

According to Ogecha J., (2003) report, the development of new bean technologies tolerant to insect pests and diseases over years has been done on- farm, on – station and information dissemination for the improvement for farmer’s livelihood. The objectives of the study is to access the impact of integrated bean pest and disease management technologies (IPDM) on the livelihoods of communities to understand the factors influencing uptake of IPDM technologies and assess the diffusion of IPDM technologies among the targeted communities in Kabondo division, ICTs in agricultural activities has played a very important role.

Ogecha, (2003) report, IPDM technologies adopted by few farmers included use of improve crop varieties regular scouting for insects, timely planting, use of botanical pesticides and conventional chemicals, soil nutrient management, timely weeding, drying, cleaning, sorting, type of storage facility and storage pest control through the use of ICT.

1.2 Statement of the Problem

Ochudho and Matunga (2005) highlighted the problem of inaccessibility of ICTs by Kenyan, they concluded that, there was very little by way of published materials on the Kenyan

ICT scene generally and particularly on policy formulation and that statistics and models on ICT in Kenya are virtually non-existent and recommended ICT development in institution of learning. Nduatic and Bowman 2005 concluded that Kenya must invest more in Education for computer scientists and to ensure that Kenyan higher Education is linked to the needs of the ICT initiatives

According to Ogecha (2003) report, majority of Kabondo farmers have not fully utilized ICT in agricultural activities including timely planting, use of botanical pesticides and conventional chemicals, and therefore the study was to investigate factors influencing information and communication technologies' development in Kasipul Kabondo Constituency, Homa- Bay County, Kenya.

1.3 Purpose of the Study

The purpose of this study was to assess factors influencing information and communication Technologies' (ICTs) development in Kasipul- Kabondo Constituency, Homa-Bay County, Kenya.

1.4 Objectives of the Study

The study was guided by the following objectives;

1. To establish the extent to which economic factors influence ICT development in Kasipul Kabondo Constituency, Homa-Bay County, Kenya.
2. To explore the extent to which socio – cultural factors influence ICT development in Kasipul Kabondo Constituency, Homa-Bay County, Kenya.
3. To assess the extent to which personnel influence ICT development in Kasipul Kabondo Constituency, Homa-Bay County, Kenya.

4. To examine the extent to which power supply influence ICT Development in Kasipul Kabondo Constituency, Homa-Bay County, Kenya.
5. To establish the extent to institutional factors influence ICT development in Kasipul Kabondo Constituency, Homa-Bay County, Kenya.

1.5 Research Questions

The study was guided by the following research questions;

1. How do economic factors influence ICT development in Kasipul Kabondo Constituency, Homa-Bay, Kenya?
2. How does socio – cultural factors influence ICT development in Kasipul Kabondo Constituency, Homa-Bay, Kenya?
3. How do the personnel influence ICT development in Kasipul Kabondo Constituency, Homa Bay County, Kenya?
4. What is the relationship between power supply and ICT development in Kasipul Kabondo Constituency, Homa Bay County, Kenya?
5. How do institutional factors influence ICT development in Kasipul Kabondo Constituency, Homa Bay County, Kenya?

1.6 Significance of the Study

This study was intended to benefit youth, teachers and managers by providing current information that would facilitate the understanding of the integral issues affecting provision of ICT in the country. Specifically, the study was to benefit the government, ICT providers and users as well as researchers interested in ICT.

It is hoped that the study findings may be beneficial to the entrepreneurs in identifying business opportunities.

The study may also help interested groups such as NGOs (Non- Governmental Organization) and other financiers of ICT programmes which would be beneficial to the society

1.7 Limitations of the Study

The study was affected by raining condition during the data collection period. The researcher bought the umbrellas which enabled the researcher to carry out data collection during the times of time schedules.

The study was affected by poor road conditions which made the investigator to use motor bikes to access the respondents.

1.8 Delimitations of the Study

The study targeted the population in institutions in Kasipul- Kabondo Constituency namely schools, NGOs, Community groups and government ministries since they are the groups using ICT.

These groups are registered by the various Ministries that is - Ministry of higher Education, science and technology, Ministry of Education and Ministries of Health and trade. The people interviewed included the H.O.Ds in institutions, clerical officers, principals and teachers.

1.9 Basic Assumptions of the Study

The research study was assumed to be of benefit to the youths, the teachers and the managers. It was also assumed to be of benefit to the government in its implementation of policies.

1.10 Definition of Significant Terms

Information – a way of getting messages from one person to another through the use of ICT tools and equipment.

Communication – a way of transmitting information from the source to the recipient using ICT

Economic factors – monetary tools which affects ICT acquisition in any institution.

Socio – cultural factors – these are cultural values that influences ICT Development.

Personnel – These are human capital that manages ICT in institutions

Power supply– these are infrastructural facilities such as electricity that influences ICT developments in any institution

Institutional factors- these are frameworks that are put down to govern ICT development.

Development – are the activities carried out by groups to generate income in order for them to become more responsible, organized and plan together to achieve social, economic and environmental goals.

Band width

This refers to how much data is transmitted through a phone line or computer network (Smith, 2020).

Hardware

Physical assets such as computer, modem, routers, cable, switch and other active equipments that facilitate communication (Kaiser , 2004).

Software

These are the programs used by a computer, e.g . Computer operating system, or applications software, e.g word processing, spreadsheet and database software (Dictionary of Information and Communication Technology, 2009).

Technology

The branch of knowledge that deal with the creation and use of technical means and their interrelation with life, society , and the environment , drawing upon such subjects as industrial interrelation with life , society , and the environment , drawing upon such subjects as industrial arts, engineering, applied science , and pure science (Webster's College, 2010)

Digital Divide- A term used to reflect the technological gap between people that have fully, exploited ICT and those that have not. The digital divide is often associated with the resulting development gap in terms of social and economic performance.

E- Commerce- Refers to business activities involving consumers, manufacturers, suppliers, service providers and intermediaries using computer networks such as the internet to conduct business

E- Government- Refers to the delivery by Government of products, services, policies and the engagement of stakeholders in civic and government matters through the use of information and communication Technologies in order to achieve Government to Consumers, Government to Business and Government to Government interaction and transactions.

Information and Communication Technology

A generic term used to express the convergence of telecommunications, information, broadcasting and communication.

Infrastructure- Refers to telecommunication backbone network over which communication services (Radio, TV, Internet, data delivery etc) Can be made; complimentary infrastructure includes roads, electricity, schools etc that help in spreading the development and use of ICTs.

Internet- A seamless and global network of individual, organizational and national computer Systems providing services such as internet browsing to users across the global 24 hours a day.

1.11 Organization of the Study

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The research project was organized into five chapters, chapter one - has the background of the study, the statement of the problem, the purpose of the study, objectives of the study, research questions, significance of the study, limitation of the study, delimitation of the study, limitation of the study, basic assumptions of the study, definition of significant terms and the organization of the study.

Chapter 2 has the following; Introduction, the influence of economic factors on ICT development, the influence of socio-cultural factors on ICT development, influence of personnel on ICT development, the influence of power supply on ICT development and institutional factors on ICT development, summary of literature reviews, theoretical framework of the study, and conceptual Frame work of the study.

Chapter three consist of Introduction, research design, target population, sample size and sampling procedures, Research design , target population, sample size and sample procedure,

research instruments, validity of the instruments, reliability of the instruments, data collection procedure, data analysis technique and ethical consideration.

Chapter four consists of data analysis, presentation and interpretation of the data.

Chapter five consists of summary, conclusions and recommendations.

Appendix I, Appendix II, Appendix III, Appendix IV

CHAPTER TWO

LITERATURE REVIEW

2.1. INTRODUCTION

Literature review focuses on the ICT development. The review discusses the introduction, the influence of economic factors on ICT development, Socio- cultural factors influencing ICT development, the influence of personnel on ICTs development, the influence of power supply in ICTs Development and institutional factors influencing ICT development summary of literature review, theoretical framework of the study and the conceptual framework

2.2. The Overview of the Literature

In the overview of the literature the following areas were discussed; how the cost of ICT infrastructure influence ICT development, how regulatory changes on the government policy affects ICT development, the cost of software influence on ICT development. On socio- cultural factors; traditional cultural values influence on ICT development is discussed. There is also a discussion of lack of understanding of ICT. After that there is the fear factor of ICT's developmental activities. Another factor is the attitude and perception about ICT development and use. The literature also covered the demographic factors under which there is; how gender influences ICT development, how age and level of qualification/exposure influence ICT development.

Under influence of personnel on ICT's development the following have been discussed how training skills and exposure affects ICT development. Also covered here is the level of education in learning institutions and its effect on the ICT development. Last in this area is ICT and research mediated communication.

There is also a discussion on influence of power supply in ICT development. This has looked at different countries and how they have improved their power system towards the development of ICT. It has also covered some of the ways on how to improve the power supply.

Lastly, there is a discussion on institutional factors how they affects ICT development. This has covered the following areas; how ICT governance affects ICT development, ICT development and institutional leadership, institutional frame work influence on ICT development and policy strategy legislation and regulatory framework. Other areas covered includes institutional culture on ICT development, capacity of ICT development, lack of assessment of institutional e-readiness with ICT development, appropriate content and ICT development and lastly is the resources and ICT development.

2.3 The Economic Factors Influencing ICT Development

Economic factors influencing ICT development includes; the cost of ICT infrastructure, attractive investment incentives and the cost of software on ICT development.

2.3.1 How the Cost of ICT Infrastructure Influence ICT Development.

According to Abel, (2008), the delivery of integrated infrastructure (roads, electricity, telecommunications) should be adopted as a deliberate measure during design and construction of schools clinics, farming blocks and resettlement schemes. These approaches tend to lower the overall costs of delivery infrastructure especially in rural areas and in turn lower the cost of services to the end users of ICTs in rural areas. High technology acquisition and development costs especially in the development of the national telecommunication. High costs and limited

access to ICT infrastructure incurred by individuals and business in rural areas hinders access to vital information (IT).

UN, (2005), states that gender equality advocates for financing information and communication technologies for development, including community through the integration of relevant policies into poverty reduction strategies, funding community networks because of their effectiveness in expanding access to information and communication technologies to rural low-income women and identifying ways of lowering service delivery costs to under served and under developed rural areas. The importance of supporting rural women as information producers has also been emphasized. The cost of supporting and installing ICT in the rural areas are very high and to small extent very few villages, market places have ICTs in form of cyber cafes which are expensive to access by the rural dwellers.

UN Report, (2003), reported that, high cost of infrastructure deployment leads to weak demand for ICT services, which further increases the cost of infrastructure and discourages rural business, which leads a again to lower and declining population, this scenario can be changed depending on different circumstances including subsidized supply, direct public provision and enhance private competition. Low cost and reliable ICT infrastructure is essential for rural areas – research carried out in the USA shows that the necessary condition for rural areas to benefit from ICT includes; Intelligent use of technology by government (e. government), an institutional framework that encourages inter firm and public – private co-operation, a business structure that promotes entrepreneurship, a dynamic tertiary sector providing business services and technology transfer. Once technology is properly deployed in rural areas many innovative application can take place.

According to Mansell, (1998), ICTs have many revolutionary implications but in order to achieve their potential benefits it is necessary to focus on user oriented and cost effective applications. Menou, (2007), put it that we contend that ICT enabled development needs to be better understood from the participants perspectives providing another dimension and more vigor to the ICT impact research.

BRAC, (2003), a Gonokendra is a multi-purpose community access centre which provides computer training and multi-media based information dissemination for villagers, the rural community provides a room for the library premises free of cost. BRAC, (2003), has it that, not everyone in Gonokendra village has the financial capability to buy computers; this BRAC Gonokendra has provided computers in this village as a way of introducing computers at a grass root level at low cost.

2.3.2 Attractive Investment Incentives

Zhao (2009) notes that regulatory changes have to be coupled with appropriate incentives to facilitate the growth of ICT sector in an economy. In particular, Zhao contended that the creation of an enabling environment is the foundation for a vibrant ICT sector. The multiplier effect of investment incentives, according to Zhao (2009) can help ensure a high return and contribute to overall growth of the sector.

2.3.3. The Cost of Software Influence on ICT Development

MOE, (2007), free software licenses. Microsoft Corporation is providing free access to its operating software for schools and higher education in order to reduce cost of buying and using computers. The company will work with the organizations involved in the supply of computers to the institutions to install the software in the machines.

2.4 Socio- Cultural Factors Influencing ICT Development

Socio- cultural factors are important in the implementation of an ICT project, Tanzania Government, (2003). Drawing on research from Jamaica and Tanzania, Marfon Haganaars, (2003), concludes that the cultural dimensions of an ICT development project are as important as the organizational, technical and financial dimensions that are normally addressed.

2.4.1 Traditional Cultural Values effect on ICT Development.

A technology has a technical effect if it has a social construction. Different perception of information and communication technologies (ICT's) by people in less developed or more developed areas are caused by a variety of forces present in the local environment in which technologies are introduced.

The so called socio-cultural aspects like cultural values, regional priorities, institutional relation, and political dynamic and educational background influence the perception of potential use group, and therefore have an impact on the adoption and use of ICT technology, Tanzania Government report,(2003).

According to Marjon H, (2009), socio- cultural aspects can highly influence the adoption process of ICT services in developing region. Rogers, (2003), ICTs were identified as a crucial component in the strategy to improve the production and marketing of agricultural commodities. Many small scale farmers in Kenya in Magu District complain that the scales used by middlemen to weigh their produce are incorrect. While an ICT service might provide farmers with adequate price information, but due to belief that ICT gadgets are foreign to them makes most farmers avoid ICT's which could have given more information on weighing location elsewhere. This belief hampers the ICT development in farming community, Mac Donald, (2003).

Ogecha,(2003), has it that, most farmers in Kasipul Kabondo has not fully embraced ICT's in IPDM particularly in times of planting harvesting sorting the seeds and storage facilities .Ogecha (2003) attributes lack of ICT technology to perception and cultural attitude towards ICT development in Kabondo.

2.4.2: Lack of Understanding of ICT

The socio- cultural environment in ICT mediated communication influence ICT- enable research communication by researchers in Kasipul Kabondo Constituency in Agricultural, bio technology , environmental science and health science. Ogecha,(2003).

Hofstede, (2001), Rogers, (2003) has it that social and cultural environments affect the adoption of ICT. This was also supported by studies of Bagchi and Udo,(2007). Musa, (2005) underscored the need for an understanding of the context on which to base ICT adoption framework for communication.

Ali and Brooks, (2008), put it that, socio-cultural system hinders ICT medicated communication. Such cultural factors include; low ICT appreciation, perception about ICT potentiality and use, attitude, demographical factors and traditional cultural values.

Bogch and Udo,(2007) has it that , lack of ICT appreciation in both the internal and external institution environment is attributed to lack of understanding and fear which prevents the ICT development, owing to this lack of understanding it is noted that the computer communication was viewed as dangerous to state government transaction. A legislature reported that ICT is empowering his constituents too much because he did not understand the usefulness of ICT in development activities.

The general lack of understanding of the potential contribution of ICT to development led to low or lack of its prioritization when it come to budgeting and resources allocation by the government, Rogers, (2003).

2.4.3. The Fear Factor of ICTs, Developmental activities.

Rodgers, (2003), put it that, ICT is a technology that people are still inherently afraid of due to general fear of the unknown regarding ICT technology and that the older generations people fear looking foolish and learning new things, the fear of showing that they don't know how to turn on a computer. The fear factor resulted in a gap in utilizing ICT for research communication. People fear ICT technology and they don't want to touch it. Inadequate ICT still aggravated the fear of computer mediated communication and e- publishing which is among greatest barriers to ICT – enabled communication.

According to GOK, (2006), reported that, fear of ICT technology in demising naturally and many people are using ICT in Kenya as could be witnessed from the packed internet cafes an indication that ICT has been accepted and its useful appreciated.

GOK, (2004),government understand the importance of ICT- mediated communication and has spearheaded the development of the E- government ministries and department in mainstream science, technology and innovation capacities by leveraging new and emerging ICT infrastructure . GOK ,(2007), reports that, two ministries, one in charge of higher education , science and technology and the other in charge of ICT , have been set up to address ICT mediated communication and higher education , science , technology and innovation.

Rogers, (2003), reported the issue of early adopters and the laggards as regard ICT adoption, the laggards, are reluctant to adopt ICT because they want to check the effects on the

early adopters of ICT, some have even refused to adopt the use of mobile phones for fear of risk as reported by Hofstede, (2001), idea of ascertaining avoidance where people tend to avoid the unfamiliar for fear of negative consequences. This underscore the need for massive awareness campaigns before introduction of any new technology, therefore there is need to build awareness to prepare institution for the introduction of ICT.

The uncertainty surrounding ICT had also resulted in scientist unwillingness to communicate what one government official called inelasticity of communication between people because you have gotten fears which are building as a result of inadequate training GOK, (2005).

At the institutional level, there was fear that the efficiencies associated with ICT would affect the employment rate, such as secretarial staff. These scenarios instill fear and result in a go slow in ICT adoption. The fear of loss of extra income from overtime as ICT increased work efficiency has made people to resists ICT adoption. This has made people to resist the adoption of ICT and the transparency of ICT- mediated operations and communication caused those working in sector open to corruption to fight ICT adoption for fear that their dubious deals would be exposed. This is called cultural fear of the unknown, GOK, (2004), because people are not sure related fears were a significant barriers to the adoption of ICT within government institutions.

Fear of hacking into computer system and stealing data has made scientists reluctant to use ICT to communicate research information hence hindering the ICT development in research institutions thus the fear of loss of control of expertise, Macdonald, (2003)

Fear of virus attacks in institution that could not afford anti-virus protection has discouraged adoption and use of ICT for use in communication, Limo, (2008).

include certified (Microsoft) courses and other based on foreign syllabi such as institute for management of information system (IMIs) and city and Gold of UK.

Abel Chambership, (2008), however the capability of such Programmes (ICTs) with the African Education curriculum and industry is limited- therefore, an assessment of the requirements of trainings in ICT as a factors influencing use is Paramount, some challenges include low ICT literacy in African, which is a major obstacles to the development information society and such is the reason for the research study.

Elochukivu Ukwanda, (2011), put it that, the areas of education, health, social policy, commerce and trade, government, agriculture, communication and science and technology all benefits from access powered by ICT. These resource are interlinked and synergetic, individuals can visit and exploit relevant information sources, which often point to additional source of information and to knowledge individuals.

Abel Chambership, (2008), put it that inadequate institutional capacity among formal training providers to increase intake and output numbers of ICT graduate is critical, however private schools are promoting ICT literacy, though only on a small percentage of the pupils are ICT literate by the time they leave secondary school. A number of research institutions have acquired human capacity to work with ICT tools such as computers.

However, the level of use of ICTs and the outcome of such activities needs to improve problems/ challenges facing ICT skills training are- shortage of teachers with ICT skills to meet the requirements of the schools, thus limiting ICT penetration within the education system, another is inadequate awareness on the benefits of integrity ICTs in the administration of the

delivery chain in the education sector, lack of coordinated approach in the adoption and implementation of initiatives targeted at the deployment of ICTs within the educational system.

Brynjolfsson, (1995), has it that, ICT significantly changes corporate behaviour and organization structure, which should increased productivity, this was supported by Hill, (2000), and ICT brings changes across the board.

Hitt and Brynjolfsson, (1996), and Lichtenberg, (1995), found a clear positive relationship between firm level ICT investment and multifactor productivity, despite a great deal of individual variation in firms success with information technology many other studies also suggest that information technology contribute to substantial increases in output and productivity as in Green, and Marresse, (1996), and supported by Kelly, (1994).

Sahay, and Avgerou, (2002),has it that while it appears attractive to derive indicators from one context and apply them to another, there remains the problem of drawing frameworks from other disciplines without taking into full account the local context and issues. Heeks, (2005), argues that improved ICT development project intervention need to be associated with local data content and local ICT skills.

Avergou, (1998), and Gigler, (2004), argue that focusing on technological factors such as rate of technology adoption, internet hosting and computer ownership volume should not be the only solution towards ICT led development in developing countries but the assessment and transformation of that ICT data to meaningful knowledge as well as the availability of the social resources

Avergou, (1998), has it that, people capabilities to access and assesses data and acquires and share knowledge need to be considered in ICT impact research in developing countries. ICT

mediated intervention may deliver information on for example farming methods or practice basic health practice, environmental awareness, access to market, pricing, education or training, Anwer,(2007). Heeks, (1998), support this notion through identifying user's actual demands of what they are capable of and willing to pay for the services associated with ICT development projects initiatives.

Traditionally, ICT impact research towards development has been carried out in order to understand the social / economic developmental impact, Adam, and Wood, (1999). Literature on ICT and development in developing countries emphasizes that local context and content are important while studying the impact of ICT towards development, Contradie, (2003).

As we focus on the economical and social impact of ICT within a specific context, Heeks, (2005), information chain model is useful technique to understand ICT led developmental impact in rural areas.

Marriott, (2004), and Sangster, (2005) has it that, educational technology, such as Computer- asset instructions was used in the syllabus so that students could work with spreadsheets and data bases. The dimensions of integration were then suggested, integrating ICT skills and integrating ICT as an educational support tool.

Monk, (2006), has it that, integrating ICT as educational support tool focuses on using ICTs as a teaching and learning strategy to improve the learning experience and gain efficiencies in terms of supporting teaching staff, Reynolds, (1991). Sangster, (1992), has it that, some key failure factors revealed are staff resistance to the ICT innovation due to issues such as conflicting demand on staff time, unacceptable learning methods to students, long-serving members of staff and unwillingness to accept other than traditional teaching methods.

Gazely and Pybus, (1997), pointed out, limited resources both in terms of staff and infrastructure, technology infrastructure problems such as software incompatibility, access problems and technical support as the main problems experience in integrating internet-based on-line assessment Sangster, (2005)

Lack of structural support in teaching ICT long and Mac Gregor, (1996), and a number of extant educational issues and beliefs, such as change of resistance, dominant use of scientific methods in education which trains rather than educates and passive knowledge acquisition.

2.5.2. Effects of Level of Education in Learning Institutions on ICT Development.

There is however, growing evidence that ICT application to the core business of education can accelerate and improve learning on a number of fronts, from basic skills, BECTA, (2000), put it that, ICTs are being applied to the management of learning and to the business models of educational delivery hence enhancing ICT adoption.

CEO forum, (2001), links assessment and accountability with access, analysis and most importantly, alignment of ICT in educational system in USA. Eisner Eliot, (1998), has it that, the interaction capacity of ICTs provides more opportunities for students to engage as creators and manipulation in the learning process.

DEETYA, (1996), supports by saying ICT supports us in bringing together aesthetic as well as scientific consideration allowing us to overlay knowledge and meaning with skills and competence, we can, for example, enable students to design in ways that demonstrate perspective difficult to create classroom spaces that create new ways of ICT adoption.

Williams, (1999), has it that, we can use ICTs to qualitatively improve cognition by conceptualizing more creatively, improving teachers knowledge and by tailoring learning resources to meeting the particular needs of a child at every state of his/her education. Brain research now available to all teachers with an ICT connection enable us to stimulate specific brain and to be more targeted in efforts to stimulate cognition in individual students.

DEETYA, (1996), put it that, teachers wishing to teach using ICT, will be both more efficient and effective as they employ ICTs to reach their goals. Systems, principles and teachers training institutions can use ICT to drive in these directions, using it to provide the scaffolding for the teachers as the teachers does for the student hence ICT integration in institutions.

Dias, and Atkinson, (2001), point out; Research indicates that some of the most interesting and innovative uses of ICTs take place in classrooms where multiple uses of ICTs are implemented. Dias, (2001), has it that, if we are to achieve quality outcomes for the students of the future, we must use ICTs to assist us to manage the convergence. As Dobbs, (2001), has it that, information and communication technologies play a significant part in multiskilling because they provide enabling tools to speed processes and link knowledge. Multiskilling in one response, knowledge management, using the capacity of digital technology based on ICT development.

CEO Forum, (2001:13), has it that, schools can only be effective in enhancing teaching, learning and helping students achieve well- desired educational objectives when the standard, objectives, teaching, curriculum, resources, technology use and assessment are all aligned to ICT. Jes, (2001), has it that, ICT provides valuable tools to align the system to promote student

learning by providing a means to monitor alignment and communicate the initiatives to the public hence providing ICT adoption.

2.5.3: ICT and Research- mediated Communication

Garvin, (2000: 218), comments, to take advantage of this capacity of ICTs to assist us in evaluation we will need to develop a more research oriented culture in teaching. Oliver, (2001), commented that, the other factor required to avoid the quality of education improves with ICT application is the training and quality of teachers and related professionals in the creation, use and interpretation of data and application generated from use of those ICTs. Allen, (2000), we need teachers who have attained to date and its interpretation of ICT.

We need systems that aggregate the right things and that make it easy for teachers to record their observation, we need more diagnostic specialists in education as well as more identification of teachers who are good conceptualizes and multi- media Communicators, ICTs, open up much the same opportunity in education as medical technologies opened in the health industry thus encourages ICT adoption.

Stigliz, (2002), pointed out that, ICT also support the process of learning, knowledge networking, knowledge codification, teleworking and science system, ICT could be used to access global knowledge and communications with other people, ICT is available only on a very limited scale, and this raises doubt about developing countries' ability to participate in the current ICT- induced global knowledge economy which hinders ICT development in LDCs.

Walshan, (2001), put it that, there has been concern that there is unequal distribution of ICT in LDCs that may in fact further contribute to the marginalization of poor countries in relation to ICT development and to disruption of the social fabric, hence one can conclude that

the concept of digital slavery is inevitable for developing countries as far as ICT is concerned. Thus the greatest impact of ICT revolution will revolve around the Digital divide equation.

According to GOK survey, (2006), use of mobile phones is growing meteorically in Kenya. By the end of 2006, Kenya had 7.3 million subscribers. Kenyans use mobile phones for wide variety of tasks that have the potential of both reducing poverty and promoting economic growth. M-pesa users can deposit cash with a registered M- pesa agent. M-pesa monitors all the money, the float is held in a single account at the commercial Bank of Africa in Nairobi. The M-pesa is aimed at the nearly 80% of Kenya living in rural areas who do not have a bank account, most rural dwellers have no necessary technical skills to operate the M-pesa and therefore there is need for ICT training for the youths, women and old people living in the rural areas.

During the 1980s and into this decade, U.S business poured billions of dollars into IT training as computer power exploded and prices plunged with this surge in computing power, many commentators in the media have pointed to the computer revolution as a key factor in economic growth and productively – this reflects the efforts of U.S companies taking full advantage of the huge emergence of information technology. Michael J. Mandel, (1994), by emphasizing on IT training for the necessary skills to be acquired.

Computers are the vanguard of economic revolution, is altering the form, nature and future course of every economy in the world.

2.6. The Influence of Power Supply on ICTs Development.

Belaji, V, (2001), has it that, the service of ICTs can enhance rural community opportunities by improving their access to power supply to enable ICT usage in the rural areas.

The development of road network and rural electrification schemes play a complementary role in attracting telecommunication rollout and ICT related services.

Peter Meisen, (2008), has it that, most problems that exist in rural areas of Afghanistan such as poverty, healthcare, trade and ICT, are linked to the lack of access to electricity. He suggested that solar energy and other renewable sources of energy are used; he said solar energy can be installed on homes and buildings in rural areas that are already connected to the grid, allowing solar power to flow to all customers on that grid. Distributed solar power can also be installed in non- grid connected rural villages and homes.

According to Nigeria National policy for IT (2006) reported that the Nigeria nation 3,500 Mega watts of electricity against a required minimum of 5,500 mega watts.

About 40% of Nigeria enjoys electricity from the national grid. However, electric power supply is sporadic, and a several communities in urban areas lack electric power. To date 57 of the local government headquarters are yet to be connected to the grid. The government increased the number and accelerated the development of power generations facilities nationwide after the return to democracy-Rural communities are worse off because of the absence of infrastructure. In pursuit of the vision to improve access to electric power, most especially by rural dwellers, the government signed into law the Nigerian electric power sector Reform Act (EPSRA) which established the Nigerian. Electricity regulatory commission (NERC) and the rural electrification Agency (REA). The REA is responsible for implementing the rural electrification fund, regulating rural electrification functions not covered by the NERC, and promoting rural electrifications.

According to Osei Tuti Agyeman, (2007), the challenge is the lack of electric power and telecommunications infrastructure in a substantial part of the country. Mobile telecommunication currently covers 60% of the national territory, but mobile telephone companies generally power their base stations using electric power generators since the power holding company of Nigeria (PHCN) is unable to supply them with power. This phenomenon is prevalent nationwide and constitutes bottleneck to effective country deployment of ICT in education.

Osei, (2007) put it that, it has projected that Nigeria will be a net supplier of electric power by the end of 2007 when its massive cross-country electric power grid construction and interconnection projects are completed. It is hoped that mobile operators will introduce technologies that permit internet access on their networks across the country to facilitate the implementation of e-learning programmes.

According to Abel, (2008), the existence of roads and electric power whether via grid or off-grid (using renewable/ non-renewable) technology can increase the uptake of ICT tools such as computers TV, Radio, and internet. This strategy is imperative for schools and health centers which are major growth centres in urban and rural areas. Therefore, the delivery of electricity in rural is a pre-requisite for ICTs usage in rural areas.

Brenda Zulu, (2007), put it that, the lack of main energy supply in many rural and remote areas is a major obstacle to deploying telecommunication (ICT) Infrastructure, applying emerging (IT) technologies to empower rural communities towards attainment of millennium Development Goals (MDGs) in order to bridge the digital divide between urban and rural areas. According to the, MDG 2007, civil society report Zambia energy is an important sector that has an impact on all the millennium Development Goals. MDG (2007), many government agencies

and Non- Governmental organization (NGOs) are currently working to support broader or massive use of IT (Telecommunication and information technology) systems in electrified rural areas, therefore the government should consider closely linking renewable energy specialists with rural telecommunication and ICT initiatives.

Issa, (1998: 132) Observes that the rural populace suffers from accurate low productivity, social and economic retrogression due mainly to ignorance which is also a direct consequence of either inadequate or total lack of information provision to them due to lack of power supply that ICTs require.

DISO (2005: 287) commented that “the structural and infrastructural problems, official corruption, unstable political and economic policies growing insecurity and unstable power supply hamper this development – Rural areas inhabitants today Kasipul-Kabondo included are not reaping from the fruits of enormous wealth the country has due to lack of power supply which ICTs requires. Most schools, health centres and government offices lack power supply (electricity) which hampers installation of ICTs in these institutions. Information services that will greatly enhance their productivity, transform their community into a lively and enlightened one, and empower their economic base. Generally in rural areas there is an a cute shortage of information services. This makes the rural community incapacitated and makes it difficult to associate with other communities to develop and make progress. This is due to unreliable power supply in rural areas which ICTs requires.

According to GOK, (2010), the government has introduced effective use of solar power for rural development. Solar cells could be used to provide power supply, which would reduce the sufferings of rural communities, especially farmers. Recently, an attempt was made by the

Energy Research Centre to use solar power to generate electricity for a sampled population of rural inhabitants, which included parts of Kasipul – Kabondo community. The attempt was successful, and some villages and others are enjoying solar –powered electricity.

2.7. Institutional Factors influencing ICT Development

According to Hofstende, (2001) organizational environment affects the ICT development supported by Bagchi and Udo,(2007) that organizational barriers to the adoption of ICT includes ICT governance.

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2.7.1 How ICT Governance affects ICT Development.

The important role top management in innovation development is based on the type of innovation and communication that are put in place, Schneider, (2009). Oyomno,(2006), defines ICT governance as the framework within which stakeholders play a complementary roles in the development of a sustainable ICT capability thus conclude institutional framework which is important in the development of ICT.

The ICT governance institute (2003), of UK sees ICT governance as being integral to enterprise governance. It views ICT governance as consecutive of the leadership and organizational structure and processed that ensures that the enterprises embrace ICT.

Rodgers, (2003), has it that, effective communication among members based on constructive relationship, a common language and shared commitment are key to ICT development. ICT governance such as political institutional leadership, institutional framework policy and strategy, legislation and regulatory framework has control over mass media channels.

2.7.2 ICT Development and Institutional Leadership

Oyomno, (2006), underscored the centrality of leadership in ICT development and concluded that leadership and cultural factors affects the development of ICT in Kenya and noted that lack of leadership and appreciation affects ICT development.

Governance institute UK, (2003), has it that, ICT governance like other governance subjects, is the responsibility of the board and executive of the institutions.

2.7.3. Institutional Framework Influence on ICT Development

Oyomno, (2006), sees institutional framework as key to the sample flow of information knowledge. Oyomno,(2006), says there is no mechanism for integrating ICT into work routine thus hindering ICT development in institution. Most departments still regard ICT as another department in the institution. Lack of an institutional framework for ICT implementation lead to low adoption of ICT in Kenya institution GOK, (2007) Survey

ICT infrastructure like student computer laboratories and stand alone computers and accessories with the necessary content that could facilitate communicate are required for ICT development in educational institutional. Casal, (2007), stressed on human development not technology itself, should guide the design and evaluation of ICT program Simborg, (2008), and Berness,(2005), call for rethinking concerning adoption of electronic health records (EHRs) system in America.

Mutula, (2001), said that policy framework and clear strategies for ICT development is pegged on the institution, vision, mission and mandates to guide and enforce the implementation of ICT. Ondari Okemwa, (2002), stressed the need for a shared vision in a virtual organization.

Oyomno,(2006), stressed the need for ICT policy to address issues pertaining to ICT development in African countries.

MIC, (2004), reported that Kenya government has spear headed development of e-government strategy to address science technology and ICT issues GOK, (2007).

2.7.4 Policy Strategy, Legislation and Regulatory Framework.

Borgman,(2007), has it that, scholarly policy is an important dimension of ICT development in a nature thus an ICT policy is designed to strengthen the ICT infrastructure. Oyomno,(2006), concludes that lack of or poor government policy and strategy and legislations framework policy framework has been a barrier to ICT development in Kenya.

Mutula,(2007), Ndede Amadi,(2006), confirm that the absence of any ICT policy regulatory framework to govern ICT implementation both at the national and institutional level has hindered ICT development in Kenya. In addition bureaucracy clarified information Hofstede, (2001), has it that ,the restructuring government regulation requiring clearance before one could communicate government information has led to slow ICT development in government institution where most documents are classified as top secret that means one cannot communicate government information freely even with ICT .

Wafula and Etta, (2006), commented that, there is need for inclusion of ICT policies and not the outdated policies which do not recognize digital communication. Most failure in ICT application development is caused by poor planning and management. Management of ICT projects is often made more difficult by overly hierarchical organizational structures that are not conducive to innovation ideas. This is due to management resistant becoming aware of the

benefits of ICT application, Munoz, (2006). Lack of computer and telecommunication infrastructure is a key problem to ICT development, Musa (2005).

2.7.5. Effect of Institutional Culture on ICT Development.

There is no culture in most institution as regards to ICT development resulting in low ICT development and the culture of not wanting to share information while ICT is about sharing information (culture of rigidity) within many public institutions when it comes to ICT development.

Rodgers, (2003), has it that, effective communication denotes free flow of information to those who need it over existing mass in agricultural based economy and ICT development could help inform agricultural practices but ICT is controlled by the urbanite educated whose culture is quite different from people in the farming sector . The urbanites are people with resources to afford computers and hence slow penetration of ICT in Kenya. Those in the rural village do not know what a computer and have no access to mobile phone system. In addition the rural dwellers low literacy level is a problem to ICT development, Muthayan,(2004), where the elite call the shots in ICT development, Hofstede,(2001).

2.7.6. Capacity for ICT Development

Augerou,(2004),stated that, it is not enough for organization to have access to technology and information resources to their own advantage. Human capital is a requisite national capability and essential determinant of the capacity of any country to effectively and sustainably develop and use its ICT assets Oyomno, (2006).

Rodgers ,2003 , has it that , there is need for adequate exposure to any technology to reach the threshold level for maximum for proficiency communication, Bogchi and Ud, (2007), pointed out that , most population lack of ICT skill and exposures which hinders ICT development in Kenya , thus their ICT is inadequate supported by Rodgers 2003 that people are not moving rapidly to take advantages of ICT to do their research and this has been an impediment for ICT development because they are not competent enough to use ICT.

GOK,(2007), reported that, lack of computer skills had been so bad when computer were introduced in Kenya that many institutions locked up donated computer for lack of skilled personnel to operate them, nobody was able to connect computer . The hardwares were purchased without the corresponding investment in training.

2.7. 7.Lack of Assessment of Institutional e- readiness with ICT Development.

E- readiness assessment provides baseline information for planning and for making a comparison across countries and region , and hence , it is important to base, any ICT development on the institutional e- readiness.

GOK, (2003), reported that, owing to world pressure to develop ICT, the easier thing has been to buy computer, sometimes not even based on real needs. Rodgers, (2003), put it that any new innovations like ICT require time to be able to reach the threshold exposure for development. There is need to prepare ground for ICT adoption by analyzing the needs of the target group to enhance ICT development.

Ndede Amadi,(2006), said that, the call for an e-readiness assessment to establish the degree to which society is prepared to participate in the global information is important, Ndede Amadi,

(2006), argues that , the first step in any approach to introducing ICTs into a society is to consider its ability to integrate ICTs.

2.7.8. Appropriate Content and ICT Development

Lack of appropriate content in the institutions is a key barrier to development of ICT in Kenya. Wafula and Etta, (2006), called for development of e- content to serve Kenya's cultures. Oyomno,(2006), reinforce the fact that content and application are important aspects of a national ICT investment.

Bagchi and Udo, (2007) , has it that web content is not well organized and its nature and format , were unsuitable for web hosting in Kenya , there is a gap between infrastructure and the content , and there is need to be more active in repackaging our report and also repackaging them in a way that we can host our reports and also repackaging them in a way that we can host our website for greater access.

Borgman, (2007), proposed layered cyber infrastructure model, in which the supremacy of content is on the top while the ICT infrastructure comes at the bottom. Limo, (2008), Digital content is used to address institutional needs and goals. Limo, (2008), added that digital learning content must address a learning need and its structure and functionality must fit the curriculum set by the authorities concerned student centered approach.

2.7.9 Resource and ICT Development.

There is no or adequate funding specially allocated for implementation and sustainability of ICT infrastructure and programmes. Lack of appreciation of ICT had led to lack of ICT prioritization nationally and institutionally. GOK report (2006), consequently, ICT was not a

budget line for most institution money is a threat to access ICT development, Mutula,(2001),the Ministry of Education needs to help in addressing ICT so that it can have allocation to help the ICT needs.

GOK report, (2006), there is need for government to rethink and prioritize ICT in budget towards ICT development in Kenya.

2.8 Summary of Literature Review

Success and progress in developing countries lies with the development of their rural communities. Effective information service delivery and coordination is the essential ingredients for development.

During the last two decades, the world witnessed an unprecedented growth in areas of information communication and technology (ICT). ICT helps people to communicate effectively, overcomes the limitation of time and spaces, empowers people by providing information and knowledge, provides income generating and learning opportunities, increase government transparency and efficiency and enables people to express their concern and to actively participate in decision making processes, Asian Development Bank, (2004).

Therefore, it is necessary to remove the impediments faced by the developing rural economy and provide basic infrastructure in rural arrears to enable the spread of ICT. This would enable ICT to be part of a comprehensive socio-economic development strategy for rural development as a means not an end lee and lee, (2004).

Access to information by rural population in often limited, hindering the use of new technology and information by them- Rural and remote areas have less access to ICT's compared

to their urban counter parts. Rural areas are characterized by low infrastructure for ICT usage, long distance to maintain and repair ICT, small market size, low affordability, literacy and ICT literacy and low awareness of opportunities and benefits of ICT.

The literature Review highlighted factors influencing information and Communication technologies development , Kasipul - Kabondo Constituency, Homa-Bay Kenya, which includes the influence of economic factors on ICT development, Socio- cultural factors influencing ICT development, the influence of personnel on ICTs development, the influence of power supply in ICTs Development and institutional factors influencing ICT development, summary of literature review, theoretical framework of the study and the conceptual framework.

Conceptual framework has been used to help in the explanation of the independent variable (IV) and dependent variable (DV).

2.9.Theoretical Framework of the Study

Theoretical framework is a collection of interrelated ideas on theory attempting to clarify why things are the way they are, introducing new ideas and views of the research problems allowing understanding the background of the problem, helping to conceptualize topic in its entirety and to acknowledge problems from a wider perspectives for objectivity, Kombo and Tromp, (2006).

This study is based on the system theory by L. Von Beralanffy, (1930), on how human body systems relate to one another. The theory postulate that a system is made of sub-systems, which are different, but all work towards achieving a common goal and each sub-system has a part to play.

A system is a composition of several components (Units or Sub systems) working together to accomplish a set number of objectives. Typical examples of systems include transport, system and ICT system. System theory provides a frame work by which groups of elements and their properties may be studied jointly in order to understand outcomes such as ICTs systems. System thinking focuses on causes, rather than events or occurrences around project in solving problems effectively.

System depict the following features there is an orderly in operation (organization) there are objectives to be accomplished (central objective), a way in which things are tied together (integration), a way in which the components interacts, a way in which components depend on each other (inter dependence). System will comprise of the following elements INPUT – this is the element that initiates an activity such as the ICTs funds and rural users' processor – this element transform the input into result such as ICTs to grow in rural areas Data- is analyzed.

Output- this is the ultimate result after processing such as information for decision making. Control – this element synchronize the various activities within the given system for ICTs in rural areas and schedules. Feedback- this element measures performance by comparing the inputs and output and is of two types namely- positive feedback enhances performance since the result are in line with anticipated results- negative feedback necessitates the need for action to reverse the performance that is unsatisfactory

Feed forward is the putting of resources well in advance to alleviate possible future dismal performance. Environments are the surroundings of a given system for examples villagers and their leaders such as area chief Wikipedia, (2012). Boundary – this element determines the limitations of what defines what is within and without the system such as ICTs system – Each

and every department and the entire project have a boundary of activities it can engage in and each department as the boundary of function that it performs.

A project as a system – A project is an open system that brings together people to undertake activities for purposes of achieving an objective and therefore could be profit system. Any project is therefore a system as it has interaction, central objective, interdependence, interaction, central objective, interdependence, integration and organization.

Wikipedia (2009) – these projects are made up of people in different department that are governed by known policies and procedures and work together in order to achieve the anticipated results/(aims)As in the critical theory the study holds that IV (independent variables) influences DV (dependent variables in ICTs in rural areas. This would be true if sub systems are investigated and show the influence on ICTs skills.

However there is a short coming of the theory which may take long and drag some aspects of the project (Kombo and Tromp), (2006)

2.10. Conceptual Framework

According to Reichel and Rommey, (1987), in Kombo and Tromp, (2006), a conceptual framework is a set of ideas and principles taken from relevant fields of inquiry and used to structure subsequent presentation.

Conceptual framework involves forming ideas about relationships between variables in the study and showing these relationships graphically or diagrammatically, Mugenda and Mugenda, (2003).

ICTs skills had baseline studies done, design for ICTs plans affects the transformation of rural project effectiveness like use of M-PESA which is basically ICTs oriented.

However, intervening variables have also influence on ICTs development in institutions of rural areas projects effectiveness.

The conceptual framework on the Dependent Variable (DV) and Independent Variable (IV) as shown diagrammatically in figure 2.2.



CONCEPTUAL FRAMEWORK

TITLE: FACTORS INFLUENCING ICTs DEVELOPMENT

INDEPENDENT VARIABLES

X₁: Cost of ICTs infrastructure

- The cost of hardware's'
- Attractive Investment Incentives
- The cost of software

X₂: Socio – cultural factors

- Traditional cultural values
- Lack of understanding of ICT
- Fear of ICT innovation
- Attitude and perception of ICT
- Demographic factors e.g gender, age

X₃: Trained Personnel

- Skills acquired from ICT
- Level of education on ICT
- Types of training in ICT+

X₄: Access to power and ICTs development

- Types of power supply available
- The cost of power
- Knowledge on the use of power.

X₅: Institutional factors on ICTs development.

- ICT – governance
- Capacity of ICT communication
- Demand for ICT and teaching
- Resources

DEPENDENT VARIABLES

Y –ICTs development indicators

- e-learning
- e- mobile banking
- e- health
- e- agriculture

INTERV ENING VARIABLES

- Religious influence
- Government policy
- politics and leadership
- legal issues
- Poverty and ICT development

Fig 2.1 Conceptual Frame Work

Source: Researcher 2012

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This section consists of research design, target population , sample size and sampling procedures , research instruments , validity of the instruments , Reliability of the instruments, Data collection procedures, Data analysis techniques and Ethical consideration.

3.2. Research Design

This is an arrangement of conditions for collection and analysis of data combining relevance to the purpose of the study. A conceptual structure within which research would be conducted. This constitutes the blue print for the collection measurement and analysis of data Kothari CR, (2003).

The study adopted a descriptive design which was suitable for this study as it is a description of the state of affairs as it exists. The research was conducted through descriptive survey design which was the method of collecting information by interviewing and administering a questionnaire to a sample of individuals. The research design entailed selecting a sample for analysis. The analysis of quantitative and qualitative data was done.

For the purpose of the study, the descriptive survey design provided the information needed for non- biased conclusion and suggestion.

3.3. Target Population

The study was conducted in Kasipul - Kabondo Constituency, Homa Bay County, Kenya.

This constituency is accessible to the researcher which helped in the cutting down on the cost of the study.

The study targeted public and private institutions in Kasipul - Kabondo Constituency such as, learning and health institutions , ICT service providers , Banks, Supermarkets and ICT cyber cafes.

Table 3.1. Target Population

S/NO	INSTITUTIONS	POPULATION
1	Secondary Schools	74
2.	Health Institutions	4
3	Educational centres (DEO, AEO)	2
4	Provincial Administration	2
5.	ICT Service providers	4
6	Banks	5
7	Super markets	2
8	ICT Cyber Cafes	4
	TOTAL	97

Source : GOK Statistics 2000

3.4. Sample Size

A sample is part of the accessible target population that has been procedurally selected to represent the target population, Kothari, (2003). The sample size consisted of 85 of the target population. The table 3.2 illustrates the sampled population.

Category	Sub-category	Count
Demographic	Gender	45
	Age	30
	Ethnicity	15
	Religion	10
	Marital Status	20
	Education	15
	Income	10
	Occupation	15
	Region	10
	Urban/Rural	10
Socioeconomic	Income Level	15
	Occupation	10
	Education	15
	Marital Status	10
	Age	15
	Gender	10
	Region	10
	Urban/Rural	10
	Religion	10
	Ethnicity	10
Psychological	Personality	15
	Attitudes	10
	Beliefs	10
	Values	10
	Emotions	10
	Stress	10
	Motivation	10
	Self-esteem	10
	Resilience	10
	Life Satisfaction	10

Table: 3.2 Sample Population

Institution	HOD'S	Librian/ Accountant	Science Teachers	Total No of interview per institution
A. Agorosare	2	1	4	7
B. Ringa	2	1	4	7
C. Wangapala	2	1	4	7
D. Dudi	2	1	4	7
E. Ober	2	1	4	7
F. Kalando	2	1	4	7
G. Rachuonyo District Hospital	MOH 1	1 Accountant	4 Nurses	6
H. GOK – MoEducation				
I. Provincial Adminstration	D.E.O 1	1	1 officer	3
J. Safaricom	DC 1	Accountant	4 officers	5
K. Airtel	C.E.O 1	-	4 Field agents	5
L. Yu – providers	C.E.O 1	-	4 Field agents	5
M. Orange	C.E.O 1	-	4 Field agents	5
N. Cyber cafes - Oyugis	C.E.O 1	-	4 Field agents	5
O. Super market – (Shirvling)	1	-	4 agents	5
P. KCB Oyugis	1	Accountant	1 agent	2
	1	1	-	2

TOTAL	22	10	44	85
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Source :GOK Statistics 2008

3.4.1. Sampling Procedure

The sample size was chosen according to stratified random sampling with strict randomization from the target population.

3.5. Sampling Technique

This is a process of selecting a number of individual objects from a population such that the selected group is representative of the characteristics found in the entire group, Orodho and Kombo, (2002).

Probability techniques that was used was convenient for the constituency and division and purposive sampling for the constituency and division officials that of stratifies random sampling for the institutions.

3.6. Research Instruments

Qualitative and quantitative data were collected from Primary and secondary sources. Questionnaires and interview schedules tools were used to collect relevant information for the study, time available and objectives.

Research on views, opinion, perception, feelings and attitudes investigated using questionnaires and interview schedule this support Toulitos and Compton, 1998, Bell, 1995)

The data was collected using questionnaires which were self made by the researcher – there was questionnaires for members of the private and public institutions and those who hold positions in those institutions. This can be used to gather data over a wide area this support Kombo and tromp, (2006)

The questionnaires were both open and closed ended questions and each objective had five questions each thus a total of 25 questions were answered by respondents. The researcher was concerned with views, opinion and facts which questionnaires addressed.

The questionnaires were administered to 85 respondents from the private and public institutions using ICTs who were literate while interview schedules were administered to illiterate respondents using ICTs. The interviews were done using structured questions.

Interviews schedules were also used to obtain bio data and objective items that were required to meet the specific objectives of the study. The researcher involved the use of research assistant that was to be trained by the researcher who also met the respondent face to face.

The purpose of questionnaire and interview schedules was to fulfill objectives 1,2,3 4 and 5 and to answer the research questions 1,2,3,4 and 5 respectively. Secondary data was collected at the Rachuonyo South District headquarters (Kosele) information and ICTs offices and the data was analyzed.

3.6.1 Piloting of the Instruments

The piloting was done a week before the real study using 3 (three) schools, Agoro Sare High school, Ringa High School and Kalando Secondary School market centres (Oyugis Market,

Ober market and Kadongo market) and rural groups Oyugis integrated project, Maendeleo ya Wanawake Oyugis Branch, Oyugis Sport Youth Group. These had 9 respondents.

The questionnaire administration, was successful due to good rapport with respondents that helped reveal ambiguities, inconsistencies, this supported Borgand Gall, (1998).

3.6.2 Validity of the Instruments

Validity of the instruments is to observe the effectiveness of the instruments to be used in soliciting for information, validation of the questionnaire and interviews schedule to be in carrying out research study.

Validity is defined as the accuracy and meaningfulness of inferences which are based on the research results, Mugenda and Mugenda, (1999), validity is a subject concerning what can be measured. An instrument is validated by providing that its items are representative of the skills and characteristics that it is purported to measure.

For this study, instruments validity enabled content items to be representative which was done through a pilot study. The instrument was based on literature reviews which formed the objectives of the study from which questionnaire and interview schedules were derived. These instruments items were related to the research questions.

3.6.3 .Reliability of the Instruments

Reliability is the measure of the degree to which research instruments yields consistent result after repeated trials, Mugenda and Mugenda, (1999).

According to Borg and Gall, (1986), reliability is the level of internal consistency or stability of the measuring device overtime. A measuring instrument is reliable if it provides consistent results.

The reliability of the research instruments was measured using split-half techniques which according to Roscoe, (1969), involved splitting the instruments into halves – thus the spearman- Brown Pearson correlation coefficient was used $R_x = \frac{2+r}{1+r}$ R_x reliability of the entire test r is the Pearson (r) correlation between the two halves.

$$\begin{aligned} \text{Reliability of scores on Test} &= \frac{2 \times 8}{1 + \frac{10}{10}} \\ &= \frac{2 \times 8}{1 + 0.9} \\ &= \frac{16}{1.9} \\ &= 0.8 \end{aligned}$$

The coefficient of 0.8 was an indication of good reliability as asserted by Mugenda and Mugenda, (2003)

The questionnaires and interview schedules were constructed and conducted using Piloting (Pre- testing) by the use of the test-retest method and split-half to get the reliability.

3.7. Data Collection Procedure

This describe how the data was collected from the respondents using questionnaires and interviews – this was done after the researcher sought permit from the ministry of Higher

4.4.1: Access to ICT Products and its Effects on Growth and Development of ICT

The researcher asked the respondents to indicate how access to ICT products affects ICT development. The responses were as in table 4.8.

Table 4.8 Access to Current Information on ICT by Institution

RESPONSE	FREQUENCY	PERCENT
Strongly disagree	13	16
Disagree	10	12
Uncertain	5	6
Agree	24	30
Strongly agree	29	36
TOTAL	81	100

Table 4.8 shows 36 percent of the respondents strongly agreed that access to current information on ICT development, 30 percent agreed, 26 percent strongly disagreed, 12 percent disagreed and 6 percent were uncertain. The findings implies that access to ICT products have influence on ICT development.

4.4.2 Licensing Regulating, Procedures and Process Influencing ICT Development.

The respondents were asked to state whether licensing regulating, procedures and process influence ICT development. The study findings were as in the table 4.9.

Table 4.1: Response Return Rate

Response rate	Sample	Response	Percentage of response rate
Response institutions	42	40	95
GOK ministries	14	14	100
ICT service providers	20	18	90
Private sector	9	9	100
Total	85	81	95

Considering the findings of table 4.1, the respondents were perceived to be excellent as a return of 95% was received.

The table reveals that the overall response return rate was 95 %. Out of this GOK ministries and private sectors reported 100 %, secondary institutions 95% and ICT service providers return rate was 90%.

4.3.: Demographic Variable of the Respondents.

The investigator established the demographic variable of the respondents through looking at the age, sex, level of education, years of stay in Kasipul – Kabondo, level of education and the position in the institution.

4.3.1. Age of the Respondents

The respondents were asked to indicate their ages in the given age brackets, field data revealed the information as represented in the table 4.2.

Table 4.2. Age of Respondents

Age in years	Frequency	Percent
18-30	21	26
31-40	47	58
41-50	11	14
51 + above	2	2
Total	81	100

Table 4.2 reflects majority of the respondents, 58 percent lied in the age group of 31-40 years. This was followed by 26 percent who were in the age group of 18-30 years. Age group of 41-50 years had 14 percent and the last respondents had 2 percent which lied in the age group of 50 + above years.

The table indicates that the working class/adult uses ICT more than the old (50+ above years). This therefore supports the idea that ICT policy should target the age group 31-40 that are

in college and schools. As reflected by 26 percent age 18-30 years, the young people also use the ICT.

Age bracket 51 and above shows that adult /old people also uses ICT but at a lower percentage of 2%. The presence of some adults using ICT implies that ICT is used by all age group as indicate in the table 4.2

4.3.2 Gender of the Respondent

The respondents were asked to indicate their sex as male or female. The field data revealed the information an indicated in table 4.3

Table 4.3. Gender of the Respondents

Sex	Frequency	Percent
Male	64	79
Female	17	21
Total	81	100

Table 4.3 revealed that majority of respondents were male 79 percent while female were 21 percent

This indicates that there is gender imbalance in the use of ICT in Kasipul Kabondo Constituency. The imbalance indicates that ICT adoption has not been equal for both males and female.

4.3.3: Education Level of Respondents

The investigator asked the respondents to indicate their highest level of education and training. Field data revealed information as indicated in table 4.3

Table 4.4 Education Level of Respondents

Education Level	Frequency	Percent
Primary	–	–
Secondary	62	77
Diploma	11	13
Degree	8	10
Total	81	100

Table 4.4 reflected that majority of the respondents had Secondary education at 77 percent. Diploma holders 13 percent and 10% of the respondents were Degree holders. The table also shows that no respondents had Primary Education.

This indicates that ICT users in institutions had Secondary education and Diploma and only a few were Degree holders both in public and private institution.

4.3.4 Level of Education of Respondents.

The respondents were asked to indicate their level of education. The field data response was as indicated in the table 4.5.

Table 4.5 Level of Education of Respondents

RESPONSE	FREQUENCY	PERCENT
Primary	-	-
Secondary	62	77
Diploma	11	13
Degree	8	10
Total	81	100

Table 4.5 reflects that majority of the respondents had secondary level of education at 77 percent. Diploma holders 13 percent while Degree holders were only 10percent. The table also shows that no respondents had primary level of education.

This indicates that ICT users in institution have secondary level of education and Diploma and few degree holders in both public and private institutions.

4.3.5: Years in Kasipul – Kabondo

The investigators asked the respondents to state the number of years he or she had been in Kasipul – Kabondo Constituency. The study findings were as in the table 4.6.

Table .4.6 years in Kasipul - Kabondo

NO. OF YEARS	FREQUENCY	PERCENT
0-2	17	21
3-5	53	65
6-10	11	14
11+ ABOVE	-	-
Total	81	100

Table 4.6 revealed that majority of the respondents at 65 percent had been in Kasipul-Kabondo for a period of 3-5 years. This was followed by 0-2 years at 21 percent and the rest had been in Kasipul – Kabondo between 6-10 years at 14 percent.

The table showed that nobody had been in Kasipul- Kabondo above 10 years and 3- 5 years of respondents in Kasipul Kabondo is the majority of ICT users. This implies that ICT use in Kasipul Kabondo started recently and therefore has not advanced.

4.3.6 Position in the Institution

The investigator asked the respondents to state the position they hold in their respective institutions. The response was as indicated in table 4.7.

Table 4.7: Position in the Institution.

NO. OF YEARS	FREQUENCY	PERCENT
Principal/head teacher	6	7
HOD's in institutions	62	77
Librarian	10	12
Accounts clerks	4	4
Total	81	100

Tables 4.7 revealed that majority of respondents were HODs in the institution which accounted for 77 percent. The second most respondents were librarians at 12 percent, Principals were the third respondents accounting for 7 percent and the last was accounts clerk at 4 percent of the respondents.

This implies that the use of ICT was most dominant with HOD's in the institutions which led to imbalanced in the sectors.

4.4.Economic Factors Influencing ICT Development

The study looked at access to ICT products and its effects on growth and licensing regulations.

4.4.1: Access to ICT Products and its Effects on Growth and Development of ICT

The researcher asked the respondents to indicate how access to ICT products affects ICT development. The responses were as in table 4.8.

Table 4.8 Access to Current Information on ICT by Institution

RESPONSE	FREQUENCY	PERCENT
Strongly disagree	13	16
Disagree	10	12
Uncertain	5	6
Agree	24	30
Strongly agree	29	36
TOTAL	81	100

Table 4.8 shows 36 percent of the respondents strongly agreed that access to current information on ICT development, 30 percent agreed, 26 percent strongly disagreed, 12 percent disagreed and 6 percent were uncertain. The findings implies that access to ICT products have influence on ICT development.

4.4.2 Licensing Regulating, Procedures and Process Influencing ICT Development.

The respondents were asked to state whether licensing regulating, procedures and process influence ICT development. The study findings were as in the table 4.9.

Table 4.9 Licensing Regulating, Procedures and Process

RESPONSE	FREQUENCY	PERCENT
Strongly disagree	-	-
Disagree	7	9
Uncertain	16	20
Agree	36	44
Strongly agree	22	27
TOTAL	81	100

Table 4.9 showed that 44 percent of the respondents agreed that licensing regulating, procedures and process affects the development of ICT, 27 percent strongly agreed , while 20 percent disagreed and 9 percent were uncertain and disagreed respectively , none of the respondents strongly disagreed

4.4.3 Regulatory Requirement inhibits Investments in ICT.

The respondents were asked to state how regulatory requirement inhibit investment in ICT.

The study was as indicated in table 4.10.

Table 4.10 Regulatory Requirements inhibits Investments in ICT

RESPONSE	FREQUENCY	PERCENT
Strongly disagree	2	2
Disagree	11	14
Uncertain	17	21
Agree	32	39
Strongly agree	19	24
TOTAL	81	100

As indicated in table 4.10, 39 percent of the ICT providers surveyed agreed that regulatory requirements inhibits investments in ICT , 24 percent strongly agreed, 21 percent were uncertain , 14 percent disagreed while 2 percent strongly agreed. The results therefore give an indication that regulatory requirements do affect investments in ICT and thus affecting ICT development.

4.5 Factors Influencing Information and Technologies Development.

The factors investigated were , cost of ICT infrastructure , the influence of trained personnel on ICT development , the socio- cultural factors affecting ICT development ,the influence of power supply on ICT development and institutional factors affecting ICT development in Kasipul Kabondo Constituency, Homa- Bay county , Kenya in Rachuonyo South District.

Table 4.17 Knowledge in ICT Training

RESPONSES	FREQUENCY	PERCENT
YES	76	94
NO	5	6
TOTAL	81	100

The table 4.17 indicates 94 percent of respondents said they had ICT skills and 6 percent of respondents said they had no training skills in ICT this shows that majority of respondent had undergone ICT training this facilitate ICT development.

Trained personnel

4.6.5 The Responses Regarding Management Skills and the Growth and Development of ICT sector.

The respondents were asked to rate how management skills affects the growth and development of ICT. The study findings were as in table 4.18.

Table 4.18 Responses Regarding Management Skills

RESPONSE	FREQUENCY	PERCENT
Strongly disagree	2	2
Disagree	5	6
Uncertain	9	11
Agree	49	61
Strongly agree	16	20
TOTAL	81	100

Table 4.18 indicated that majority of the respondents agreed that management skills affects the growth and development of ICT development sector; where 61% agreed, 20 % strongly agreed while 11% were uncertain and the remaining 6 % disagreed while only 2% strongly disagreed.

4.6.6: Adoption of Skills and Expansion

The respondents were further asked rate how adoption of ICT technological skills affects ICT development. The study revealed the information shown in table 4.19.

Table 4.19 Adoption of Skills and Expansion

RESPONSE	FREQUENCY	PERCENT
Strongly disagree	3	4
Disagree	7	9
Uncertain	11	14
Agree	47	57
Strongly agree	13	16
TOTAL	81	100

The table 4.19 reveals that majority of the respondents agreed that low technological skills and adoption affects ICT development , specifically 57, percent agreed 14 percent were uncertain while 9 percent disagreed with 4 percent strongly disagreeing. The study indicated that adoption of ICT technological skills affects ICT development.

4.7: Institutional Factors Affecting ICT Development

The factors investigated here were; government policy, capacity of ICT communication, demand factors for ICT and teaching and lastly resources with IGT development.

4.7.1 ICT and Government Policy

The respondents were asked to rate how they feel government policy influence ICT development. The respondents gave the findings as in table 4.20

Table 4.20 ICT and Government Policy

RESPONSE	FREQUENCY	PERCENT
Strongly disagree	-	-
Disagree	11	13
Uncertain	23	29
Agree	33	41
Strongly agree	14	17
TOTAL	81	100

Table 4.20 indicated that majority of the respondents picked the choice of agree 41 percent, 29 percent were uncertain while 13 percent disagree and strongly agree 17 percent. There was no respondent who strongly disagree.

4.7.2 Capacity of ICT Communication

The researcher asked the respondents to rate how capacity of ICT communication influence ICT development. The response was as indicated in table 4.21.

Table 4.21: Capacity of ICT Communication

RESPONSE	FREQUENCY	PERCENT
Strongly disagree	2	2
Disagree	10	12
Uncertain	16	20
Agree	36	46
Strongly agree	17	21
TOTAL	81	100

Table 4.21 indicated that majority of 46 percent of the respondents agreed, 21 percent strongly agreed, 20 percent were uncertain, 12 percent disagreed while only 2 percent strongly disagreed.

4.7.3: Demand Factors for ICT and Teaching

The researcher further asked the respondents whether they think demand factors for ICT and teaching affects ICT development. The response was as indicated in table 4.22

Table 4.22: Demand Factors for ICT and Teaching for ICT Development

RESPONSE	FREQUENCY	PERCENT
Strongly disagree	2	2
Disagree	10	12
Uncertain	11	14
Agree	38	47
Strongly agree	20	25
TOTAL	81	100

The study findings in table 4.22 revealed 47 percent of the respondents agreed, 25 percent of the respondents strongly disagreed, 14 percent were uncertain, 12 percent disagreed and only 2 percent strongly disagreed.

4.7.4: Resources with ICT Development

The respondents were asked whether resources could play a major role in ICT development. The responses were as indicated in table 4.23.

Table 4.22: Demand Factors for ICT and Teaching for ICT Development

RESPONSE	FREQUENCY	PERCENT
Strongly disagree	2	2
Disagree	10	12
Uncertain	11	14
Agree	38	47
Strongly agree	20	25
TOTAL	81	100

The study findings in table 4.22 revealed 47 percent of the respondents agreed, 25 percent of the respondents strongly disagreed, 14 percent were uncertain, 12 percent disagreed and only 2 percent strongly disagreed.

4.7.4: Resources with ICT Development

The respondents were asked whether resources could play a major role in ICT development. The responses were as indicated in table 4.23.

Table 4.23: Resources plays a major role in ICT development

RESPONSE	FREQUENCY	PERCENT
Strongly disagree	5	6
Disagree	12	15
Uncertain	13	16
Agree	40	49
Strongly agree	11	14
TOTAL	81	100

Table 4.23 indicated that the respondents rated their feelings as follows; 49 percent agreed, 16 percent were uncertain, 15 percent disagreed, 14 percent strongly agreed and lastly, 6 percent strongly disagree.

4.8 Socio- Cultural Factors Affecting ICT Development

The investigator investigated the influence of the following in ICT development; traditional values, lack of understanding of ICT, fear of innovation, attitude and demographic factors.

4.8.1: Traditional Values Influence ICT Development

The respondents were asked to rate their feelings on how they think traditional values influence ICT development. The study indicated the findings as was in table 4.24.

Table 4.24: Traditional Values with ICT Adoption

RESPONSE	FREQUENCY	PERCENT
Strongly disagree	2	2
Disagree	11	14
Uncertain	5	6
Agree	48	59
Strongly agree	15	19
TOTAL	81	100

Table 4.24 indicated 59 percent of the respondents agreed that the traditional values influence ICT development, 14 percent disagreed, while 6 percent were uncertain on the other hand 2 percent strongly disagreed while 19 percent strongly agreed.

4.8.2: Lack of Understanding ICT with ICT Development

The respondents were again asked if lack of understanding has an influence in ICT development. The study findings were as indicated in table 4.25

The table 4.25: Lack of Understanding of ICT and ICT Development

RESPONSE	FREQUENCY	PERCENT
Strongly disagree	9	11
Disagree	15	18
Uncertain	14	17
Agree	36	46
Strongly agree	7	9
TOTAL	81	100

As indicated in table 4.25, majority of the respondents agreed that was 46 percent, disagreed were 18 percent, uncertain were 17 percent, strongly disagreed were 11 percent and then 9 percent for strongly agree.

4.8.3: Fear of ICT Innovation

The investigator wanted the respondents to indicate through rating whether they feel ICT pose health hazard to the users. The responses were as in table 4.26.

Table 4.26: ICT (Computer) Pose Health Hazard

RESPONSE	FREQUENCY	PERCENT
Strongly disagree	3	4
Disagree	10	12
Uncertain	12	15
Agree	36	44
Strongly agree	20	25
TOTAL	81	100

Table 4.26 indicated that majority of the respondents agreed 44 percent, 25 percent strongly disagreed, 15 percent were uncertain, 12 percent disagreed while only 4 percent strongly disagreed.

4.8.4: Attitude and Perception of ICT

The respondents were asked indicated using the rating scale the influence of attitude on ICT development. The findings were as indicated in table 4.27.

Table 4.27 Attitude and Perception of ICT

RESPONSE	FREQUENCY	PERCENT
Strongly disagree	6	8
Disagree	19	23
Uncertain	24	30
Agree	27	33
Strongly agree	5	6
TOTAL	81	100

Table 4.27 revealed that agreed had majority of 33 percent, this was followed by uncertain with 30 percent, disagreed had 23 percent, strongly disagreed had 8 percent and lastly was strongly agree with only 6 percent.

4.8.5: Demographic Factors Affecting ICT Development

The respondents were required to indicate their views concerning the influence of demographic factors on ICT development. The findings were as in table 4.28

Table: 4.28 Demographic Factors Affecting ICT Development

RESPONSE	FREQUENCY	PERCENT
Strongly disagree	4	5
Disagree	6	7
Uncertain	9	11
Agree	38	47
Strongly agree	24	30
TOTAL	81	100

Table 4.28 shows that the respondents agreed with the demographic factors with a score of 47 percent, 30 percent were for strongly agree, 11 percent were uncertain, 7 percent disagreed while 5 percent strongly disagreed.

4.8.6: Access to Power and ICTs Development

The respondents were asked how different listed power supply in table influence ICT development. Their responses were as in table 4.29.

Tables 4.29: Types of power supply available

RESPONSE	FREQUENCY	PERCENT
Electricity	41	51
Wet/dry cells	31	38
Solar Energy	9	11
TOTAL	81	100

Table 4.29 indicated that majority of the respondents were for electricity which got 51 percent of the respondents. This was followed by 38 percent of the respondents and lastly, 11 percent of the respondents. The response implies that electricity as source of power has greater influence on ICT development.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS OF THE STUDY

5.1 Introduction

The chapter provides the summary of the main findings of the study and the conclusion. It also covered the recommendation of the study and ends with suggestions for further research.

5.2 Summary of the study findings

The study was to investigate the factors that influence ICT development in Kasipul Kabondo Constituency, Homa Bay County. It focused in the divisions of Kasipul Kabondo namely: Kabondo East, Ringa Division, Central Kasipul, Kabondo West, West Kasipul and East Kasipul. The research objectives were used to guide the collection of data required from the respondents. The stratified random sampling technique was used to select the sample and the technique of data collection was survey questionnaire which was administered to various members, ICT providers and users.

The study findings revealed that majority of the respondents, 58 percent were in the age group of 31-40 years. This was followed by 26 percent who were in the age group of 18 – 30 years. Age group of 41 – 50 years had 14 percent and lastly 7 percent of the respondents were in the age group of 50 and above years. Table 4.2 reflects that working Class/adult uses ICT more than the old 50 and above years. Concerning the sex, table 4.3 indicated that majority of the respondents; 79 percent were male while only 21 percent were female. The study also revealed that majority of the respondents had secondary education at 77 percent. Diploma holders 13 percent and 10 percent had degree. This indicates that ICT users need to be educated. The study

on the other hand revealed that majority of the respondents 65 percent had been in Kasipul Kabondo for a period of 3 – 5 years. This was followed by 0-2 years at 21 percent showing that ICT use was started recently in Kasipul Kabondo Constituency. Concerning position in the institution, the study revealed that majority of the respondents were HODs in the institution which accrued to 77 percent. The second most respondents were librarians at 12 percent, principals were third at 7 percent and lastly the clerks at 4 percent.

On economic factors influence on ICT development, the study showed in table 4.7 that 36 percent of the respondents strongly agreed that access to current information influence ICT development. This was closely followed by 26 percent strongly disagreed and 6 percent were uncertain. Table 4.8 showed that licensing, regulating, procedures and process also had an influence. The findings showed that 44 percent agreed, 27 percent strongly agreed, while 20 percent disagreed and 9 percent were uncertain. Regulatory requirements had an influence of ICT development. Table 4.9 showed that 29 percent agreed that regulatory requirements inhibits investments in ICT, 24 percent strongly agreed, 21 percent were uncertain, 14 percent disagreed while 2 percent strongly agreed.

Concerning factors influencing information and technologies development, the following findings were found by the study. The cost of ICT infrastructure investigation revealed that majority 33% of the respondents strongly agreed that cost of ICT infrastructure influence ICT development. The other respondents were 24 percent agreed, 23 percent disagreed and 11 percent strongly disagreed. Access to current information was also found to have an influence. Table 4.11 indicated that majority of 57 percent agreed with factors. The study also investigated the influence ICT equipments and tools users (software). Table 4.12 indicated most respondents accepted not to be using ICT gadgets.

There was also investigation of personnel influence on ICT development. The study findings revealed that this objective had a great impact the table 4.13 investigated training skills and ICT development and revealed that 57 percent agreed that lack of mining affects growth and development of ICT on focusing on trained and skilled personnel influence, the response indicated the majority 66 agreed. Table 4.15 and indicated that there influence of level of ICT training. The findings revealed that 61 percent had certificate in diploma, 11 percent had degree in ICT training. This showed that ICT needs training on knowledge in ICT training, the study findings revealed that 95 percent accepted that the ICT skills while only 6percent said to have no training.

The study also investigated the institutional factors affecting ICT development. The study findings revealed that government policy had an effect. Table 4.18 indicated that majority 41 percent agreed that this factor influence table 4.19 also looked at the capacity of ICT communication. The findings in table 4.19 indicated the majority of 46 percent of the respondent policing agreed. When the investigator investigated on demand factors for ICT on teaching, the findings revealed that in table 4.20 that 47 percent of the respondents agreed. Last part of it, the investigation found out that the resources influence ICT development. The table 4.21 indicated majority of 49 percent agreed, 16 percent were uncertain, 15 percent disagreed, 14 percent strongly agreed and lastly 6 percent strongly disagreed.

The last objective investigated was socio - cultural factors on ICT development. The investigated findings were; the traditional values were found to be having greater effect. Table 4.22 revealed that 59 percent of respondents accepted these factors while only 2 percent strongly disagreed. There was lack of understanding of ICT. The table 4.23 indicated the majority of the respondents agreed with 46 percent. The fear of ICT innovation was rated at 44 percent agreed,

25 percent strongly disagreed, 15 percent were uncertain. This indicated that ICT pose health hazard to users. On attitude and perception, the study revealed that majority of the respondents agreed that attitude influence ICT development with majority 33 percent picking agreed. On demographic factors, the respondents agreed that demographic factors has and influence on ICT development. Majority agreed 47 percent.

On access to power and ICT development, most of the respondents said that electricity is necessary was 51 percent, 38 percent gave the option of wet/dry cells while only 11 percent picked on solar energy.

5.3 Conclusion

From the study, the conclusions based on the findings were drawn. As proven by past studies and based on the study findings, it can be concluded that ICT development is still low and seriously influenced by several factors.

The general lack of understanding of the potential contribution of ICT to development led to low or lack of ICT prioritization when it came to budgeting and resources allocation. Therefore there is need for intensive and extensive ICT awareness campaigns about the role that ICT could play in the development process so that they could priorities it so that it facilitate ICT development which affirms Mutula (2001).

Bagchi, (2007) makes the conclusion that as long as culture differences persist and nations look similarly dissimilar, cultural values will continue to influence the way ICT adoption and diffused in different areas. This shows the importance of addressing the cultural back ground of a society , those who are aware of the cultural background will be prepared to understand the future development of ICT in that nation. However, ready studies on ICT

development have failed to address this critical area of culture and thus the reason for the study.

Rodgers, (2003), observed that societal cultural norms, personal preferences and biases influence ICT development. Majority of the respondents are in favour that ICT tools stimulate effective and efficient teaching- learning process in ICT sector. Majority of the respondents said that it is time saving and easy to motivate students and economically have significant impacts on the use of ICT tools and equipment.

Most of the respondents said that communication is easier, easy to prepare and attractive and have a great impact that influences the use ICT. Majority of respondents said that lack of training and lack of availability of modern ICT tools in Education affects ICT development. Considerable portion of the respondents said that lack of knowledge about the use of ICT, lack of skill on ICT tools and lack of awareness of ICT have great impacts that limit the use of ICT tools in various institutions.

To fulfill the development needs of ICT project, those involved in the design and the implementation of ICT related projects and systems in the developing countries must improve their capacity to address the specific contextual characteristics of the organization sector, that are ICT friendly.

In deciding on the sample size, the researcher was guided by the quality of the data sources in forms of depth complexity and richness as Panell and Connaway (2004) put it, no single formula provides the correct sample size for a qualitative study thus a sample of 85 sample size was taken from a population target of 97 representing 88 percent.

The goal of the study was to explore barriers and enablers to ICT development in Kasipul- Kabondo Constituency, Homa – Bay, Kenya, with a view to developing an ICT communication framework. The findings from the analysis have added new knowledge regarding ICT development within the unique socio-cultural, economic environment, and personnel within the institutions.

On the practical side, the study was timely because it was a response to community interest in ICT adoption. The study filled a gap in ICT knowledge for the Kenyan government, donor agencies and NGO's. The ICT framework in institutions can serve to enrich the ICT implementation, planning and decision making process which is vital for economic development.

An e- readiness assessment in all institutions is necessary to provide baseline information for evaluating ICT growth and development. This would establish a point for comparison and a justification as to why such ICT adoption is necessary. The findings have revealed the importance of understanding the socio- cultural context because it influences how ICT was perceived and adopted.

Incentive investment in ICT is important in Kenya whereby ICT tools and equipment imported should be subsidized where the custom duties on ICT tools are reduced in order to promote ICT adoption. Licensing and regulatory of ICT in the institution by the government should be waived so that ICT tools and equipment becomes cheap to purchase.

In oral and socio- communal societies like Kenya, ICT required a multitude media approach. It emerged that demographic factors such as gender, age and poverty and literacy level affected ICT development and would need to be addressed in order to increase ICT adoption and use.

Infrastructural facilities such as electricity were found to be significant for ICT development and the government should provide funds.

To increase ICT adoption and use, intensive and extensive ICT campaign would be important to create awareness about the role that ICT could play in the development process. The review on the ICT development showed that the social and cultural environment affected ICT development Rogers (2003)

The findings presented a specific contextual analysis and illustration of the effects of the Kenya socio-cultural environment on the adoption of ICT such as ICT appreciation and perception, attitude, demographic on age and level of qualification, gender and poverty and literacy level and economic constraints as factors limiting ICT development.

5.4. Recommendation

The study recommends the following:

Concerning the economic factors, it was recommended that the government should subsidized ICT investment so as to reduce the cost of installing ICT tools and equipments. The government could do this through reducing the taxes on ICT equipments and tools (software and hardware).

Social cultural factors recommendation was that the cultural values of a society should be considered before the introduction of ICT in any society. This could be done by addressing the fear factor and attitude and perception towards the new technology (ICT).

On personnel, it was recommended that before the introduction of any innovation there should training of personnel to expose them to the new ICT knowledge.

There was also a problem experienced as concerns supply of power. It was recommended that the government should improve infrastructure in intuitions through rural electrification programmes such as providing electricity in schools and health centers.

Concerning institutional factors, it was recommended that institutions should have policy frame work on ICT governance. This should be done by introducing ICT teaching and learning in their institutions.

5.5 Suggestions for Further Research

The following were suggested for further research;

1. **Similar research could be carried out on factors influencing ICT development in Kasipul Kabondo Constituency, Homa- Bay County, Kenya, since there were some factors not covered in this study.**
2. **A study can be carried out on traditional teaching and how it affects ICT development in institutions**
3. **A study can also be carried on effects of religious factors on development of ICT in institutions.**
4. **A study should also be carried out on how political leadership influence ICT development in institutions.**

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APPENDICES

APPENDIX I: LETTER OF TRANSMITTAL

SONGA ADIMBO CYPRIAN

UNIVERSITY OF NAIROBI,

DEPARTMENT OF EXTRA – MURAL
STUDIES

P.O. BOX 2461

KISII.

To the ICTs users in Rachuonyo South District, Kasipul Kabondo Constituency,

Dear Sir/Madam,

RE: FACTORS INFLUENCING INFORMATION AND COMMUNICATION

TECHNOLOGIES DEVELOPMENT IN KASIPUL- KABONDO CONSTITUENCY HOMA –
BAY COUNTY, KENYA

I am a master of project planning and management student at the University of Nairobi carrying out a research on the above topic. It is therefore my humble request that you assist me by filling in the questionnaire and answering questions in interview guide correctly and honestly as possible.

Be assured that your identity and responses will be treated with utmost confidentiality.

For this reason do not write your name on the questionnaire.

I take this opportunity to thank you in advance for your willingness to participate in this important exercise.

Yours faithfully,

SongaAdimboCyprian

APPENDIX II: QUESTIONNAIRE

Please fill in the questionnaire diligently. Do not write your name. The information will be treated with confidentiality. Please tick or write your response in the space provide

SECTION A

1. What is your age? 18-30 years () 31- 40 years () 51 and above years ()
2. What is your gender? Male (), Female ()
3. Your highest level of education is? Primary (), Secondary (),
Diploma (), degree () any other, Specify ()
4. How long have you stayed in Kasipul – Kabondo 1-2 year ()
2-5 years () 5-10 years (), above 10 years ()
5. What is your position in the area? _____

SECTION B.

QUESTIONNAIRE

Objectives 1

A. Economic factors influencing ICT development

Tick as required in the bracket provided.

1. Cost of ICT tools and equipment affects ICT development
Strongly disagree () disagree () uncertain ()
Agree () strongly agree ()
2. Access to current information ICT influence ICT development
Strongly disagree () disagree () uncertain ()

Agree () strongly agree ()

3. Indicate ICT equipment and tools you use soft wares

Computer () internet () laptop () Ipad () None ()

4. Licensing regulation , procedures and process ICT affect development

Strongly disagree () disagree () uncertain ()

Agree () strongly agree ()

5. Regulatory requirement inhibits investment in ICT.

Strongly disagree () disagree () uncertain ()

Agree () strongly agree ()

B. Socio-cultural factors affecting ICT development

6. Traditional values influence ICT development

Strongly disagree () disagree () uncertain ()

Agree () strongly agree ()

7. Lack of understanding ICT affects ICT development.

Strongly disagree () disagree () uncertain ()

Agree () strongly agree ()

8. Fear of ICT innovation influence ICT development

Strongly disagree () disagree () uncertain ()

Agree () strongly agree ()

9. Attitude and perception towards ICT affects ICT development.

Strongly disagree () disagree () uncertain ()

Agree () strongly agree ()

10. Demographic factors influence ICT development.

Strongly disagree () disagree () uncertain ()

Agree () strongly agree ()

C. Trained personnel / technological skill factors influencing ICT development

11. Management skills affect ICT development

Strongly disagree () disagree () uncertain ()

Agree () strongly agree ()

12. Technological skills affect ICT development

Strongly disagree () disagree () uncertain ()

Agree () strongly agree ()

13. Training in ICT skills affect ICT development

Strongly disagree () disagree () uncertain ()

Agree () strongly agree ()

14. A pool of highly trained skilled personnel affects ICT development

Strongly disagree () disagree () uncertain ()

Agree () strongly agree ()

15. State the level of ICT training and learning attended in the recent time

Strongly disagree () disagree () uncertain ()

Agree () strongly agree ()

16. Do you have knowledge in ICT training

Yes () no ()

D. Power supply and ICT development

17. Do you have any knowledge on the usage of energy supply available?

Yes () No ()

18. Indicate the type of supply available

Electricity () wet/dry cells () solar energy ()

E. Institutional factors influencing ICT development

19. Institutional framework affects ICT development

Strongly disagree () disagree () uncertain ()

Agree () strongly agree ()

20. Capacity of ICT communication affects ICT development

Strongly disagree () disagree () uncertain ()

Agree () strongly agree ()

21. Demand factors for ICT learning and teaching affects ICT development

Strongly disagree () disagree () uncertain ()

Agree () strongly agree ()

22. Resources required for ICT affects ICT development.

Strongly disagree () disagree () uncertain ()

Agree () strongly agree ()

APPENDIX III: INTERVIEW SCHEDULE

The information will be treated with confidentiality. Please respond appropriately.

SECTION A

1. What is your age? 18-30 years () 31- 40 years () 51 and above years ()
2. What is your gender? Male (), Female ()
3. Your highest level of education is? Primary (), Secondary (),
Diploma (), degree () any other, Specify ()
4. How long have you stayed in Kasipul – Kabondo 1-2 year ()
2-5 years () 5-10 years (), above 10 years ()
5. What is your position in the area? _____

SECTION B.

QUESTIONNAIRE

Objectives 1

B. Economic factors influencing ICT development

Tick as required in the bracket provided.

1. Cost of ICT tools and equipment affects ICT development

Strongly disagree () disagree () uncertain ()
Agree () strongly agree ()

2. Access to current information ICT influence ICT development

Strongly disagree () disagree () uncertain ()
Agree () strongly agree ()

3. Indicate ICT equipment and tools you use soft wares

Computer () internet () laptop () Ipad () None ()

4. Licensing regulation , procedures and process ICT affect development

Strongly disagree () disagree () uncertain ()

Agree () strongly agree ()

5. Regulatory requirement inhibits investment in ICT.

Strongly disagree () disagree () uncertain ()

Agree () strongly agree ()

Socio-cultural factors affecting ICT development

6. Traditional values influence ICT development

Strongly disagree () disagree () uncertain ()

Agree () strongly agree ()

7. Lack of understanding ICT affects ICT development.

Strongly disagree () disagree () uncertain ()

Agree () strongly agree ()

8. Fear of ICT innovation influence ICT development

Strongly disagree () disagree () uncertain ()

Agree () strongly agree ()

9. Attitude and perception towards ICT affects ICT development.

Strongly disagree () disagree () uncertain ()

Agree () strongly agree ()

10. Demographic factors influence ICT development.

Strongly disagree () disagree () uncertain ()

Agree () strongly agree ()

C. Personnel / technological skill factors influencing ICT development

11. Management skills affect ICT development

Strongly disagree () disagree () uncertain ()

Agree () strongly agree ()

12. Technological skills affect ICT development

Strongly disagree () disagree () uncertain ()

Agree () strongly agree ()

13. Training in ICT skills affect ICT development

Strongly disagree () disagree () uncertain ()

Agree () strongly agree ()

14. A pool of highly trained skilled personnel affects ICT development

Strongly disagree () disagree () uncertain ()

Agree () strongly agree ()

15. State the level of ICT training and learning attended in the recent time

Strongly disagree () disagree () uncertain ()

Agree () strongly agree ()

16. Do you have knowledge in ICT training

Yes () no ()

APPENDIX IV: Table 4.29 Operationalization Table

OBJECTIVE	TYPE OF INDICATOR VARIABLE	MEASURE	LEVEL OF SCALE	DATA COLLECTION METHOD	APPROACH OF ANALYSIS	
To investigate how economic factors influence ICT development in KasipulKabo ndo.	Costs of ICT infrastructure (Independent variable)	<ul style="list-style-type: none"> • Computer available • Software/ internet available. 	<ul style="list-style-type: none"> • Number of ICT gadgets purchased • No. ICT users. 	Nominal	Interview Questionnaires	Qualitative Quantitative
		<ul style="list-style-type: none"> • ICT access • Usage of ICT skills in schools 	Nominal	Interview Questionnaires	Qualitative Quantitative	
To determine how personnel	Personnel (Independent variable)	<ul style="list-style-type: none"> • Personnel for developm 	<ul style="list-style-type: none"> • Accessibility to ICT tools 	Nominal	Interview	Qualitative Quantitative

influence ent.

ICT • Skills of

development • Education ICT

In Kasipul al culture

Kabondo of ICT • Professional

Constituency adoption s

, Homa Bay

County, • Accessibil

Kenya ity to ICT

ICT E- learning • Improved Nominal Interview Qualitative

development E- Business adoption of Questionnaires Quantitative

indicator E. ICT

(dependent Government • Improved

variable) E. Health Accessibilit

E. Agriculture y to ICT

• Schools

number that

have ICT

tools

To examine Socio- • Tradition • Change In Nominal Interview Qualitative

how socio- cultural values traditional Questionnaire Quantitative

cultural factors	factors	• Lack of values				
factors (independent influence variable)	(independent variable)	understanding of ICT	formed ICT			
ICT development in Kasipul Kabondo Constituency, HomaBay County Kenya		• The fear of ICT adoption	• No of men and women using ICT			
		• Attitude of demographic factors				
		- Men				
		- Female				
ICT development Indicators(Dependent variable)	E- learning E- Business E. Government E. Health E.Agriculture	• No. of ICT users in males/females	• Change in attitude of population	Nominal	Interview Questionnaire	Qualitative Quantitative
		• +ve perception towards ICT				

Power supply. To explore how power supply influence ICT development in Kasipul Kabondo Constituency Homa-Bay county, Kenya	Power supply (independent variable)	<ul style="list-style-type: none"> • Source of power supply • Type of power supply that affect ICT • Usage of power supply to adopt ICT 	<ul style="list-style-type: none"> • ICT tools with power supply • Computers with power supply • Internet /website with power supply. 	Nominal	Interview Questionnaire	Qualitative Quantitative
ICT development indicators(Dependent variable)	ICT development indicators(Independent variable)	<ul style="list-style-type: none"> E- learning E- Business E. Government E. Health E.Agriculture 	<ul style="list-style-type: none"> No of personnel Complaints No of schools & institution with ICT 	Nominal	Interview Questionnaire	Qualitative Quantitative

To determine how institutional factors influence ICT development in Kasipul Kabondo Constituency, Homa-Bay, Kenya	Institutional factors (independent variable)	<ul style="list-style-type: none"> • Good ICT governance • Capacity for ICT development • Demand for MIS • Resource /fund 	<ul style="list-style-type: none"> • Institutional framework of ICT • Control over mass communication of ICT • Human capital. - Basic awareness of ICT - ICT tools and appropriate content for ICT adoption - Demand for MIS 	Nominal	Interview Questionnaire	Qualitative Quantitative
ICT development indicators	E. Learning E. Business E. Banking	<ul style="list-style-type: none"> • No institutional with ICT 	of	Nominal	Interview Questionnaire	Qualitative Qualitative

(Dependent variable)	E.	• Human
	Government	capital of
	E. Agriculture	ICT
		• ICT
		tools/compu
		ters

THIS IS TO CERTIFY THAT:

Prof./Dr./Mr./Mrs./Miss/Institution
Cyprian Adimbo Songa
of (Address) University of Nairobi
P.O.Box 2461, Kisii.
has been permitted to conduct research in

Homa Bay

Location
District
County

on the topic: Factors influencing Information
and Communication Technologies Development
in Kasipul Kabondo Constituency, Homa Bay
County, Kenya.

for a period ending: 31st December, 2012.

Research Permit No. NCST/CD/12/012/09
Date of issue 24th October 2012
Fee received KSH 1,000



C. Adimbo Songa
Applicant's
Signature

[Signature]
Secretary
National Council for
Science & Technology

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