E-REGISTRATION SYSTEM IMPLEMENTATION AMONG SECONDARY SCHOOLS IN KENYA

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A MANAGEMENT RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION OF THE UNIVERSITY OF NAIROBI.
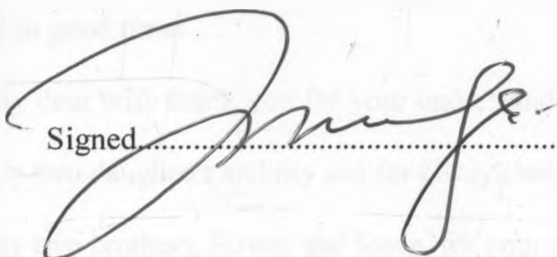
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DECLARATION

I declare that this management research project is my original work and has not been submitted for the award of a degree in any other University.

Signed..Date...2.9.1.2............................

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This management research project has been submitted for examination with my approval as university Supervisor.

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ACKNOWLEDGEMENT

DEDICATION

To my dear wife Fonice Obanyi and my children; Janice, Daphne and Hannington for the love, understanding and support in the entire period of pursuing my studies. Thank you for always staying awake until late hours to give me moral support.

To both my late dad and mum for helping me to appreciate the value of education. You gave me the foundation.

To all my siblings; Edwin, Lydia, Steve, Rose, Richard and Irene thanks for your prayers and support.

To my dear friends; Beatrice, Solomon and Samuel, Who have been very supportive and a great encouragement to me. God bless you all.

ABSTRACT

The general features of an e-registration system adopted by schools as ordered by KNEC generates a unique form number for individual candidates, validates various student details, registers in batches into schools, generates examination numbers for candidates, selects compulsory subjects by default for all candidates, among other things. Currently, little research has been done on how E registration has benefited the schools. That was what inspired this study. This study had three objectives namely to: determine the benefits of the implementation of e-registration in secondary schools, determine the challenges encountered in the implementation of e-registration by secondary schools and to establish the relationship between the level of adoption of e-registration and the benefits of e-registration Implementation. The study adopted a descriptive study approach to investigate these objectives. The study found that all the schools had adopted E registration of candidates for KCSE examination as prescribed by KNEC. The study however found that the schools were faced with challenges in the adoption of the E registration system. These challenges were technological challenges, communication challenges and infrastructure challenges. The study found that the schools adopting the E registration benefited in terms of Ease of correction of mistakes, Ease of retrieval of records, Convenient storage of records, Accessibility of records, Accuracy of records, Ease of confirmation of records, Avoiding malicious alteration of records, Avoiding unauthorised access to records, Reducing paper work, Portability/ mobility of records, Backup System for records, Avoiding loss of records and Time management. The schools observed these benefits to a great extent through the implementation E registration.

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ACRONYMS AND ABBREVIATIONS

ICT	-	Information Communication Technology
IS	-	Information Systems
IT	-	Information Technology
EOPUSA	-	Executive Office of the President of the United States of America
KNEC	-	The Kenya National Examinations Council
KCSE	-	The Kenya Certificate of Secondary Education
KRA	-	Kenya Revenue Authority
JAB	-	Joint Admissions Board
IEBC	-	Independent Electoral and Boundary Commission
MOEST	-	Ministry of Education, Science and Technology
MIC	-	Ministry of Information and Communication
USB	-	Universal Serial Bus
CD-ROM	-	Compact Disc-Read Only Memory
PDA	-	Personal Digital Assistance
MMS	-	Multimedia Messaging Service
CCTV	-	Closed-Circuit Television
RFID	-	Radio Frequency Identification
GEC	-	Ghana Electoral Commission
UNDP	-	United Nations Development Program
KNBS	-	Kenya National Bureau of Statistics
AFIS	-	Automated Fingerprint Identification System

CHAPTER ONE: INTRODUCTION

1.1 Background

The growth of digital connectivity, the outright improvements inInformation Communication Technologies and the realization of global competition are changing the way organizations do their business today (Ndou, 2004). ICTs usage has thus become a very important factor in the improvement of organisations operational efficiencies. Suffolk and Jordan (2009) observed that ICT is an essential tool that can be used in the improvement of operational efficiency.

A study by Hernes (2000), observed that in Norway, more than half the population is connected to the Web and some 80% have mobile phones. Also there are many telephones in Tokyo or Manhattan as in the whole of Sub-Saharan Africa. However in many developing countries practically all telephones are found in the capital. Bissau has more than 95% of telephone lines in Guinea-Bissau, and Freetown has more than 85% of lines in Sierra Leone. A majority of villages in many developing countries lack power, let alone internet connectivity

Skewed ICT policies favour urban regions and can impact negatively on the development of infrastructure and amenities in rural regions. Further still, there is also high cost of ICTs to rural users as a result of low earning power and acute shortage of training resources in the rural regions (Fong, 2009). To add to the aforesaid, Bjorn & Stein (2007) observed that users in rural areas are becoming more "elite", tend to be younger, are better educated, are willing to spend relatively more money on internet use, they use the internet for more "instrumental" purposes, like research and information seeking. The

gender divide indicates the female users are considerably fewer. The geographical distance of access to ICT is also bigger in rural areas.

1.1.1 E-registration

E-registration is also known as electronic registration or web based registration or even online registration (Strauss, 2000). E-registration can also be defined as a form of registration where lodgement of documents occurs in electronic format only (Paper documents are not lodged) and all registrations are made on electronic register. Depending on the underlying model, the documents can be either digitally signed electronic documents or instructions/applications delivered in a secure messaging environment (O'Sullivan, 2007).

The general features of an e-registration system for National Examinations in secondary schools is as follows: generates a unique form number for individual candidates, validates various personal details, registers in batches into schools, generates examination numbers for candidates, selects compulsory subjects by default for all candidates, while other subjects are selected by the candidates, examination timetable and syllabuses are downloadable, generates photo album on centre basis and photo card containing relevant information about individual private candidates at the close of entry, allows viewing and modification of existing details on e-entry form for specified number of times before loading, denies changes to candidate's picture once attached to e-form, displays rules and regulations in addition to an attestation which must be accepted /checked to make registration valid, regulates entry periods, generates various reports for monitoring and planning purposes (Adeyegbe, 2007).

Another form of e-registration system is the Biometric Voter Registration (BVR) which represents a means to accurately capture unique physical features of an individual in addition to demographic data of a voter. Its intent is to prevent multiple voter registration and voting, as well as mitigating voter fraud (GEC, 2012). BVR captures the physical characteristics of humans such as fingerprints, face, iris and hand geometry. This information is then stored in a database and is used for identification. No two people share the same physical attributes; it thus becomes hard for an individual to register twice. Biometric systems also represent solutions with regard to extra features needed in voter registration and minimise errors that come with manual systems (Aluanga-Delvaux, 2012, p. 19).

BVR are structured in such a manner that, multiple systems store and process data critical to the Biometric Registration, the systems are mainly: AFIS software which includes adjudication functions and severs, Voter database, Management software, Database servers, Data collection software, Data storage software, Digital mobile voter registration kit. After data is captured on digital registration kits, backups are taken on USB flash drives and data is extracted using the data collection software. Files collected by data collection software are then loaded into Voter registration database. The administrative tool of the voter registration software provides the following capabilities: Registration and removal of Registration Officer, Registration Assistant and Data entry Operator, Setting-up polling Station, Loading Polling Station data and Restoring Polling Station data (GEC, 2012).

Studies on user requirements of e-registration should be continuous and at intervals to receive feedback from users by managers of portals with a view to meeting user requirements for better ease of use. It may not be enough to just initiate online registration and associated services without considering user perceptions, requirements needs and challenges; all these contribute to the overall goal of an institution enhancing usage capabilities (Olasina, 2010).

E-registration implementation in a developing country context can be understood through the Heeks ITPOSMO model (Heeks, 1999). It works at a *Concept-Reality gap,* which is the gap that exists in an organisation between the conceptions and public sector realities that determine the success or failure of an information age reform. Heeks argues that the success or failure of information reform depends on the extent of mismatch between the conceptions and world views of the stakeholders involved in the development of the IS and the public sector realities (Heeks, 1999).

1.1.2 Information and Communication Technology in Education

Weber (2003) says that the term ICT can be defined as "...the artificial resources we use to develop, implement, operate, use, maintain and manage an information system." He further says that these artificial resources can be classified as hardware and software.

The rapid growth and improvement in ICT has led to the diffusion of technology in education (Gulbahar & Guven, 2008). ICT is now being used widely in education. Its use has permeated a number of areas: Administration in schools, the teaching learning process and even registration. Cairncross (2003) underscores the importance of ICTs use

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in the management of education and enhancing the teaching process. He says that ICTs use in the management of educational institutions and further use in the teaching of computer skills to young people may enhance inward growth of the youth. This means intellectual development is greatly improved by use of ICTs.

Oye et al (2011) said that academic staff in developing countries, during the use of ICT, face challenges that range from; lack of funds, lack of opportunities for training, lack of sponsorship by the school management, inability to acquire personal ICT facilities, lack of ICT facilities at the work place, poor electricity supply, lack of ICT knowledge, insufficient time due to work load, lack of interest in learning, and lack of time for practice.

The USA, which is a developed country, uses advanced ICTs like The School District Demographic system (SDDS), which is a web based resource operated by the National Centre for Education Statistics (NCES) of the U.S. Department of Education. Through the SDDS, the NCES website provides access to schools district demographic and related geographic data that is not available for the other sources. Geospatial analysis of education data helps the user to better understand and visualize current demographic characteristics, assess patterns and change taking place in the educational environment as well as plan for improved educational programs and opportunities (EOPUSA, 2012).

According to Redd (2002) some benefits of ICT usage include: Individualization of learning, interactivity, low per unit cost, serving multipurpose teaching functions and diverse audiences, high speed delivery, wide reach at low cost and finally uniform quality. The corresponding challenges are high infrastructure and start-up costs, ICTs

tends towards centralised uniform content in economies of scale, ICTs are not ideally located and problem sensitive, poor access of ICTs is still an issue, ICTs tend to create a new class of knowledge-rich and knowledge-poor groups, ICT is essentially a delivery system and finally it is hard to assess its impact.

1.1.3 Secondary Schools in Winam Division

Winam Division is in Kisumu District, Nyanza Province, Kenya. The district lies in a depression that is part of large lowland on the Nyanza Gulf, along Lake Victoria. The district covers a total area of 1177.5 Sq Km, of which 918.5 Sq Km is land and 259 Sq Km is occupied by water mass (KNBS, 2011).The Division has about 39 Secondary Schools located in varied geographical and economic backgrounds within the division (DEO, 2012). The schools are located in either an urban or rural setting within the division.

In the year 2010, Kenya National Examination Council issueda circular advising schools to brace for the transition from Manual to the Online Registration System (KNEC, 2011). The schools were required to download the registration forms from the KNEC website on www.knecregistration.ac.ke/kcse , register their candidates, and then upload the data. The KNEC provides all KCSE examination centers with a USERNAME and PASSWORD to upload the file. The system requires the school principal or a designee (one user per school) to send a short message system (SMS) to 6062 using the following format: KCSE#school-code to 6062(KNEC, 2011). This system introduced implementation

challenges that are different from those that had been experienced with the manual system.

1.2 Research Problem

Countries experiencing an economic boom will always have unprecedented levels of transactions lodged for registration. This leads to commensurate growth in demand for ancillary services such as the inspection and provision of official copies of register records in various departments within organisations. The move towards online services and more specifically e-registration has been essential in enabling organisations to cope with this demand (O'Sullivan, 2007). Most incentive companies' worldwide have assumed that there have been substantial, tactical, and strategic benefits and overall improvements, both internal and external, since the inception of on-line registration (Boyd, 2002). However in the process of e-registration implementation many institutions have gone on board without regard for infrastructural support, availability of internet access to users and user education (Olasina, 2010). Furthermore, designers, consultants, ICT vendors or aid donors from developed countries that dominate the IS/IT design process in developing countries often bring with them the mentality; "If it works for us, it will work for you". They therefore impose a design derived from that context that mismatches developing country realities (Heeks, 2002). The aforesaid have created challenges for e-registration implementation.

In the year 2011, the Kenya National Examination Council (KNEC) adopted a new computerized examination registration system to relieve itself of the challenges it faced in

prior years as a result of manual registration of candidates. This was necessitated due to the failure of their system to effectively respond to electronic queries for exam results sent online or via SMS. However the adoption of this new system proved to be a challenge to many schools, those in Winam Division included (Siringi, 2011).

A number of studies have been done on use of ICTs focusing on Educational Institutions. Hernes (2000) studied the Emerging Trends in ICT and Challenges to Education Planning. Farrell, (2007) looked at ICT in Education in Kenya. Matovu (2009) focused on the Availability, Accessibility and Use of Information and Communication Technology in Management of Students Academic Affairs in Makerere University. In their study Hennessy, et al (2010) looked at Developing the Use of Information and Communication Technology to Enhance Teaching and Learning in East African Schools. Kubasu (2010) focused on the Analysis of Information and Communication Technology for Social Inclusion in Kenyan Schools. On the other hand Okewa (2011) looked at Information and Communication Technology Adoption among Public Secondary Schools in Kisumu County, Kenya. However none of these studies concentrated on the Implementation of E-Registration in educational institutions. This study therefore sought to look at the implementation of E-Registration among Secondary Schools in Winam Division, Kisumu County, Kenya. The study sought to answer the questions; what are the benefits and challenges encountered in the implementation of e-registration by secondary schools? What is the relationship between level of adoption and the benefits of e-registration implementation?

1.3 Research Objective

The objectives of the study were to;

1. Determine the benefits of the implementation of e-registration in secondary schools.

2. Determine the challenges encountered in the implementation of e-registration by secondary schools.

3. Establish the relationship between the level of adoption of e-registration and the benefits of e-registration Implementation.

1.4 Value of the study

The findings of this study will be useful to stake holders, in the education sector. These would include: the school management, the government, KNEC, teachers, students, parents and donors. All these stakeholders will get more information in their role in the KCSE e-registration process.

Some institutions that may have an interest in this study are those that are involved in Online Registration processes. These would include: Universities, JAB, IEBC, Immigration department, financial institutions, Internet service providers, KRA. Finally this study will contribute to the addition of knowledge on e-registration, and may be used by researchers as a pedestal for further investigations on Online Registration.

CHAPTER TWO: LITERATURE REVIEW

2.1 Information Communication Technology (ICT) in Education

According to Noor-Ul-Amin (2010) ICTs for education refers to the development of ICT specifically for teaching/learning purposes, while ICTs in education involves the adoption of general components of ICTs in the teaching learning process. ICT in Education can be considered in three key ways: ICT integration, ICT equipment, and ICT foundation skills (MOEST, 2005).

Krishaveni and Meenakumari's (2010) found out that ICT plays a vital role in supporting powerful, efficient management administration in education sector. It is specified that technology can be used right from student administration to various resource administration in an education institution. E-learning is often used in distance learning through electronic media such as CD-ROMs, mobile phones, video conferencing, e-mails, websites, interactive TV and satellite broadcasts (MIC, 2004). ICTs can be used in examination management, by setting examinations using ICTs and also in record keeping of the examinations results, since electronic storage reduces chances of loss of marks (Matovu, 2009, p. 33).

In a study by Papanastasiou and Angeli (2008) it was found out that for successful integration of ICT in schools teachers actual knowledge and use of various computer software for professional and personal purposes, teachers confidence and attitudes towards technology, the technology infrastructure and support in the schools, as well as

teacher's beliefs in the use of technology as an agent of change, are very important factors. According to Buabeng-Andoh (2012) the most frequently used hardware, by teachers, was the computer, whereas word processing was the most frequently used software, and this agreed with Becker et al (as cited in Buabeng-Andoh, 2012) who found out that some of the most commonly used ICTs by teachers are word processing software, CD-ROM reference software, and World Wide Web browsing software, regardless of the subjects that the teachers taught.

The teaching profession is evolving from emphasis on teacher-centred, lecture-centred instruction to student-centred interactive learning environments. Therefore designing and implementing successful ICT-enabled teacher education program is the key to fundamental wide-ranging educational reforms (Ololube, 2006).The National ICT policy for Education and Training aims to integrate ICT into education and Training systems, and to use it to promote and enable education reform (MOEST, 2006).

2.2 Government-to-Citizen (G2C) Systems

Government to Citizen refers to public services provided by the government to its citizens via electronic means (Clift, 2004, p.3). A World Bank study (as cited in Wicander, 2011) observed that e-Government systems are introduced by the public sector in developing countries to improve efficiency and transparency. From the aforesaid, in the education sector, online registration is an example of G2C system. But Adeyemo (2010) notes that the main challenge of e-government implementation in any developing country is whether the intended objective of reaching the citizens is actually realised. He

further says this can be achieved by the provision of adequate ICT infrastructure, improving online services and dedicating itself to improving the countries level of literacy.

In many countries, content must be provided in more than one language or dialect, that is, e-government must also address the needs of those who are illiterate. But even though language barrier can be addressed, the digital divide, divides those who access the internet and those who cannot, those who have learnt essential computer skills and those who have not. Those who are disadvantaged cannot access information that can provide economic opportunities and also cannot share in the benefits of e-government. Governments must make sure that those who are already educated or have internet access are not the only ones who benefit from e-government. Even in areas where access to technological infrastructure is nearly ubiquitous, there are still marginalised groups who are unable to make use of ICTs because they are not e-literate (The World Bank, 2002).

Kumar and Sinha (2007) said that:

> While e-Government is often thought of as "online government" or "internet-based government" ... Some non-internet forms include Telephone, Fax, PDA, SMS text messaging, MMS, Wireless networks and services, Bluetooth, CCTV, Tracking systems, RFID, Biometric Identification, Road Traffic Management regulatory enforcement, Identity Cards, Smart Cards and other NFC applications; Polling station technology (where non-online e-voting is being considered), TV and radio-based delivery of Government services, email, online community facilities, Newsgroups and Electronic mailing lists, Online chart, and Instant messaging technologies.

All these notwithstanding, ICT and e-Government can only thrive when the necessary technical infrastructure is available. Sufficient investment need to be made into setting up wide reaching backbone networks, broadband access and the required system and networks (UNDP, 2003).

2.3 E-registration Adoption

Adoption could be defined as the decision to make full use of an innovation as the best course of action available. But innovation adoption is the process through which an individual passes from first knowledge of an innovation to a decision to adopt or reject and to confirm this decision (Rogers, 2003).

In the process of e-registration adoption, administrators of Universities have had to either go about the website creation with the use of in-house developers or use contract vendors. The latter are firms offering colleges and universities sophisticated websites through which students can obtain campus and other information and engage various collegial and institutional services (Olasina, 2010). ICT facilities such as computers, management information systems and internet are the most commonly used devices for examination management, such facilities for examination management are mainly applied in processing examination results, tracking students' academic progress, grading of students according to their performance, communication between lecturers and heads of departments and communication to students via emails. To add to the aforementioned, it

is noted that electronic registration systems are more reliable than the manual registration system (Matovu, 2009).

One major difference in the mode of e-registration of school and private candidates is that for the school examination, batch registration is involved, while for the private candidates' examination, registration is on a single entry basis. Furthermore, for school candidates there is the option of offline registration and a software installation (management module) for uploading of entries. Personal Identification Number generation for schools is also by means of the management module. Private candidates on the other hand purchase scratch cards from authorised dealers for use (Adeyegbe, 2007).

2.4 Benefits of E-registration

Benefits of using e-registration in education include: the fact that e-registration provides information in real-time; electronic format allows confirmation of student's enrolment status; students are also able to find and schedule the courses they need; it is used as a confirmation of students intent to remain enrolled; it also focuses on less paperwork hence increasing cost efficiency; secure registration process allows for easy access to student files; intranets and portals provide an infrastructure through which end-users can gain effective access to information sources needed to assist in daily tasks such as effective decision making, planning and research (Brakel, 2003).

A report on Electronic registration in selected Secondary Schools by Band, Muijs, & Lindsay (2005), concluded that; fast dynamic data collection frees up teaching time in the classroom and support-time across the school; computerised data can be analysed and

presented in numerous ways to give key feedback to teachers, managers and educational welfare officers (e.g. attendance patterns, pupils at risk, types of absence, post registration truancy) and can be integrated with existing students records database systems; data can be instantly and directly accessible throughout the school, so teachers can react quickly and make timely interventions to combat poor attendance or truancy; and finally replacing paper-based solutions that are prone to error ensures improved accuracy of data, hence enabling confident planning, monitoring and decision making.

2.5 Challenges encountered during E-registration

Key among the challenges is the cost implication for installation and need for well trained staff. Other problems linked to the environment, such as humidity and rain, and the danger of software bugs. Operation of the system must also be considered, especially if hardware components come from different manufacturers. Kits get obsolete very fast and organizations have to continuously invest in latest components. Capturing physical data may also come with complications given socio-cultural implications of doing so among some communities. For instance, there are some traditions and customs that attach negative beliefs to the capturing of a person's photograph or fingerprints (Aluanga-Delvaux, 2012, p. 19).

Gant (2008) in his study observed that, the internet wireless technologies extend the boundaries of government ministries, opening the way for computer viruses and attacks, fraud and computer cyber-crimes hackers threaten the security and reliability of computer systems. Human error may occur in various situations ranging from data entry, systems analysis design mistakes, programming and implementation. Additionally computer

systems are vulnerable to unintentional threats such as environmental hazards, earthquakes, tsunamis, power failures, hurricanes and fires.

Schools experience various difficulties in the process of operating e-registration systems that they may have adopted for use. Some relate to perceived inadequacies of the system per se, while others are concerned with the competence of staff, which is a training issue. The former includes both hardware and software problems. Some schools also experience a situation where the additional facilities they chose to purchase are not available when the system was installed. Finally during the process of system upgrade, disruption to the system is always a problem for schools (Lindsay, Muijs, Hartas & Band, 2006).

2.6 Theories and Models of ICT usage

Delone and Mclean IS success model, proposes six different categories of dimensions of IS success: Systems quality, Information quality, User, User satisfaction, Individual impact, and Organizational impact (Perez-Mira, 2010). Systems quality-measures technical success; Information quality-measures semantic success; and Use, User satisfaction, individual impacts& Organisational impacts- measure effectiveness success. The use of the system and its information products then impacts or influences the individual user in the conduct of his/her work, and these individual impacts collectively result in organisational impacts (Delone & Mclean, 2003, p.2). Two models that discuss 'fit' or equivalents to 'fit' factor are the task-technology model (TTF) by Goodhue and the design-reality gap model by Heeks (Mohamadali & Garibaldi, 2012, p.120).

According to the TTF model, the higher the fit between tasks and technology, the better is the performance of information system (Bleich & Slack, 2010).

The Heeks model, commonly known as the ITPOSMO model suggests that the success or failure of a new Information System depends on the existence of the gap between reality and design conception of the Information System (Mohamadali & Garibaldi, 2012, p.120). Heeks (2004) introduced the triangle gaps approach as follows: *Hard-Soft Gaps*, which is the difference between actual technology (hard) the reality of social factors such as people, culture and politics in which the system operates (soft); *Private-Public Gaps*, which is the existing gap between systems design for the private sectors and applications for the public sectors one; *Country Context Gaps*, is the existing gap when implementing e-government systems for both Developed and Developing Countries. The factors of ITPOSMO model are summarised as; **I**, means Information types between government and stakeholder; **T**, means Technology used in agency for implementation, **P**, means Processes in agency; **O**, means Objectives and Values in agency for successful implementation; **M**, means Management Systems and Structures required in agency; **O**, involves time and money requirements (Syamsuddin, 2011).

2.7 Conceptual Framework

Figure 2.1 The Conceptual Framework

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┌─────────────────────┐
│ Information          │─────────┐
└─────────────────────┘         │
┌─────────────────────┐         │
│ Technology           │─────────┤
└─────────────────────┘         │
┌─────────────────────┐         │
│ Process              │─────────┤
└─────────────────────┘         │       ┌───────────────────────────┐
┌─────────────────────┐         ├──────▶│ E-Registration            │
│ Objectives and values│────────┤       │ implementation outcomes   │
└─────────────────────┘         │       └───────────────────────────┘
┌─────────────────────┐         │
│ Staffing numbers and│─────────┤
│ skill level          │         │
└─────────────────────┘         │
┌─────────────────────┐         │
│ Management systems   │────────┤
│ and structures       │         │
└─────────────────────┘         │
┌─────────────────────┐         │
│ Others (Time and     │────────┘
│ Money)               │
└─────────────────────┘
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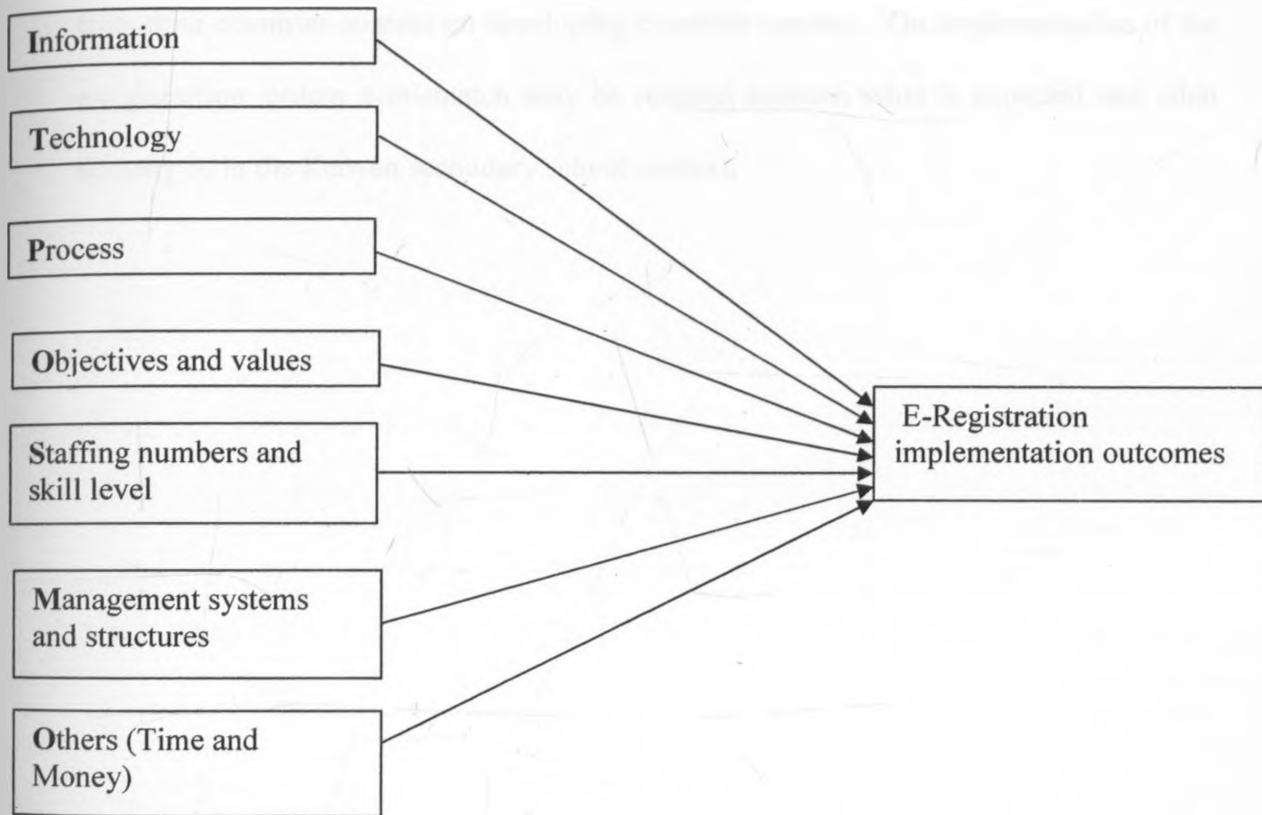
Borrowing from ITPOSMO model (Heeks, 1999), the following are the factors that affect e-registration: Information, Technology, Process, Objectives and Values, Staffing numbers and Skill level, Management System and Structures and Others (Time and Money).

2.7 Summary of Literature Review

There seems to be a mismatch between design of the IS and reality, as most of these systems are made for use in the context of developed countries. Heeks (2002) Stated that designers, consultants and ICT vendors from developed countries impose designs derived from their countries context on developing countries context. On implementation of the e-registration system a mismatch may be realised between what is expected and what actually is, in the Kenyan secondary school context.

CHAPTER THREE: RESEARCH METHODOLOGY

3.0 Research Design

A cross sectional survey of descriptive nature was under taken in this research. It was the appropriate design for this study as all the units in the population were studied. Muganda (2010) stated that "Surveys allows a researcher to obtain the same kinds of data from a large group of people (or events) in a standardized and systematic way.

3.1 Population

The population of the study included all the thirty nine secondary schools in Winam division as per records at the District Education Officer, Kisumu East District, as at March 2012 (see Appendix 1). A census was used in this study. The respondents were the School heads, teachers in charge of the e-registration process and teachers in the ICT/Computer department. The choice of this group was on the basis that they were involved in the e- registration process for KCSE, or in the use of ICTs.

3.2 Data collection

The study relied on both primary and secondary data of quantitative nature. Primary data was collected from the teachers in charge of e-registration and also those in the ICT department. This was done using self-administered questionnaires. Given that the time of study was short, use of questionnaires came in handy, because it was both cost effective and was to be used to cover a vast area within a short time. Fowler (2002) noted that,

self-administered questionnaires are cheap, easy to administer to a large number and can be most usable form of gathering data in survey research. Secondary data was derived from websites, reports, magazines and journals. The questionnaire consisted of questions focusing all the seven dimensions of the ITPOSMO model as introduced by Heeks (2003).

3.4 Data Analysis

Descriptive statistics of quantitative data, which was obtained through the survey instrument, was treated as follows: data related to part A was analysed using frequencies and percentages, data related to part C was analysed using means and standard deviations, data related to section D was analysed using factor analysis. Comparison of data related to part B and part D was done using linear regression.

Factor Analysis summarizes important information contained in the data by a few numbers of factors and identification of the constructs or dimensions that underlie the observed variables. It isolates and eliminates variables that do not seem to belong with the rest of the variables, as well as the dimension captured by a measure. Thus the principal component analysis reveals how several measures of a domain can be combined in a single measure (DeCoster, 1998).

CHAPTER FOUR: DATA ANALYSIS ANDRESULTS

4.1 Introduction

This chapter presents the results and discussions of the study findings as captured from the analysis of the objectives. The study had three objectives, namely to: determine the benefits of the implementation of e-registration in secondary schools, determine the challenges encountered in the implementation of e-registration by secondary schools and to establish the relationship between the level of adoption of e-registration and the benefits of e-registration implementation.

4.2 Demographic characteristics of the respondents

This section presents the demographic information of the respondents involved in the study. The demographic information explored was: the department of service and awareness of the respondents on the E – registration. Figure 4.1 below shows the department that the respondents were sampled from.
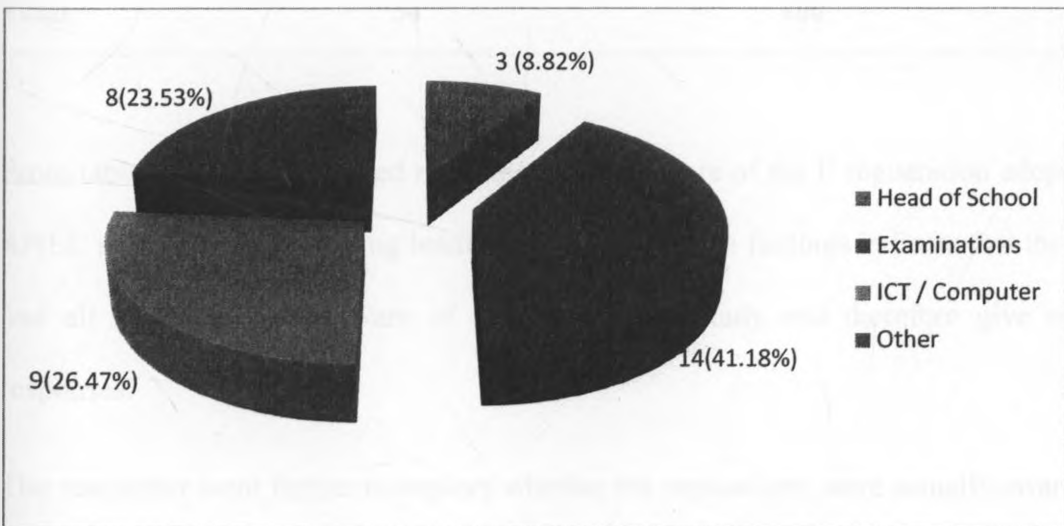
Figure 4.1: Department of service

From figure 4.1, a total of 3 (8.82%) respondents were heads of their respective schools, 14 (41.18%) respondents belonged to the examination department, 9 (26.47%) respondents belonged to the ICT department and lastly 8 (23.53%) respondents belonged to other departments in the school. from this results it is clear that the study had the views of head teachers, teachers from the examination department, teachers from the ICT departments and other teachers in general. This was a clear indicator that the study was not only representative in its findings but it involved respondents who were aware of issues to do with E registration.

The study explored whether the respondents' awareness of E registration and presented the findings in table 4.1.

Table 4.2: Awareness of E registration

Awareness of E registration	Frequency	Percentage
Aware	34	100
Not aware	0	0
Total	**34**	**100**

From table 4.2, all the sampled respondents were aware of the E registration adopted by KNEC and used for registering learners for KCSE. These findings indicate that the study had all the respondents aware of the topic under study and therefore give reliable responses.

The researcher went further to explore whether the respondents were actually aware of E registration. This the researcher did by giving a question to the respondents asking them

to state what E registration actually meant. The respondents were to choose a number of options in responding to this question. Table 4.2 below shows the responses of the respondents.

Table 4.2: Meaning of E – registration

Meaning of E – registration	Frequency	Percentage
Doing registration online	15	44.12%
Use of ICTs to keep, record and analyse data	15	44.12%
Using the internet to do registration.	3	8.82%
Use of computer for registration.	1	2.94%
Total	**34**	**100%**

From table 4.2 above, most respondents believed that E registration meant doing registration online, 15 (44.12%) respondents believed that E registration meant using ICT to keep record and analyse data, 3 (8.82%) respondents believed that E registration meant using the internet to do registration and lastly 1 (2.94%) respondent said that E registration meant using the computer to do registration.

4.3 The benefits of the implementation of e-registration in secondary schools

The first objective of the study examined the benefits of implementation of E – registration. The researcher explored these benefits by presenting the respondents with a list of factors concerning E - registration for them to rate the extent to which these factors were benefits to E - registration. The respondents responded as very great extent, great extent, moderate extent, small extent and not at all. Very great extent had a score of 5, great extent had a score of 4, moderate extent had a score of 3, small extent had a score of 2 and not at all had a score of 1. The scores for each of the respondents were summed up

and divided by the total number of respondents to give a mean score. A mean score ranging between 0 and 1.5 meant that the factor was not a benefit to E registration. A mean score ranging between 1.5 and 2.5 meant that the factor was a benefit to E registration to a small extent. A mean score ranging between 2.5 and 3.5 meant that the factor was a benefit as a result of implementing E registration to a moderate extent. A mean score ranging between 3.5 and 4.5 meant that the factor was a benefit resulting from the adoption of E registration to a high extent and lastly a mean score greater than 4.5 meant that the particular aspect was a benefit as a result of adoption of E registration to a very great extent. Table 4.3 shows a summary of the benefits for the adoption of E registration.

Table 4.3: Benefits of Implementation of E registration

Benefits of E registration	Mean score	Standard deviation
Ease of correction of mistakes	4.15	1.077
Ease of retrieval of records	4.15	1.132
Convenient storage of records	4.12	.977
Accessibility of records	4.12	1.008
Accuracy of records	4.09	1.026
Ease of confirmation of records	3.97	1.114
Avoiding malicious alteration of records	3.97	1.141
Avoiding unauthorised access to records	3.94	1.071
Reducing paper work	3.914	1.190
Portability/ mobility of records	3.88	1.094
Backup System for records	3.85	1.105
Avoiding loss of records	3.85	1.048
Time management	3.76	1.075

The study found that the most significant benefits arising from the adoption of E registration was that it led to the ease of correction of mistakes and that it led to ease of retrieval of records, they had mean scores of 4.15. The second beneficial factor arising as a result of the schools adopting E registration were convenience of storage of records and accessibility of records. They had mean scores of 4.12. The third most important benefit arising as a result of adoption of E registration was accuracy of records; it had mean score of 4.09. The fourth most significant benefits of adopting E registration were ease of confirmation of records and avoidance of malicious alteration of records; with a mean of 3.97. The fifth significant benefit arising from the adoption of E registration was avoidance of unauthorised access to records. It had had a mean score of 3.94. The sixth most beneficial aspect arising as a result of adoption of E registration was reduction of paper work with a mean score of 3.91. The seventh most proposed benefit arising as a resulting from the adoption of E registration was portability of records; it had a mean score of 3.88. The other benefits arising from adoption of E – registration were: Backup System for records, avoiding loss of records and Time management. They had mean scores of 3.85, 3.85 and 3.76 respectively.

All the mean scores were ranging between 3.5 and 4.5 meaning that they were factors that arose from adoption of E registration to a great extent. The mean scores also had standard deviations that were relatively small meaning that the mean scores were representing a large portion of the data used in the study.

4.4 The challenges encountered in the implementation of e-registration by secondary schools

The second objective explored the challenges encountered in the implementation of E – registration. The researcher explored these challenges through the use of factor analysis.

Table 4.4: Total Variance Explained

Component	Initial Eigen values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.628	36.280	36.280	3.628	36.280	36.280	2.958	29.582	29.582
2	1.994	19.936	56.216	1.994	19.936	56.216	2.256	22.559	52.141
3	1.451	14.509	70.725	1.451	14.509	70.725	1.858	18.584	70.725
4	.875	8.754	79.479						
5	.647	6.472	85.951						
6	.482	4.815	90.766						
7	.376	3.763	94.530						
8	.268	2.679	97.209						
9	.170	1.698	98.907						
10	.109	1.093	100.000						

Extraction Method: Principal Component Analysis.

From table 4.4, there were 10 possible factors or components as shown in the first column. The factors represent linear combinations of the variables that have some uniform variance. Eigen values are the variance of the factors. The total number of factors is equal to the total number of variables in the factor analysis, in our case 10 variables. From table 4.4, the Eigen values associated with each factor represent the variance explained by that particular factor and is displayed in terms of the percentage of the variance explained (so factor 1 explains 36.28% of the total variance of the 10 variables in the factor analysis). Factor 1 also has an Eigen value of 3.628 meaning that factor 1 has a variance of 3.628. The first few factors explain relatively large amounts of variance. Thereafter we extract all the factors with Eigen greater than 1, which leaves us with three factors (and the percentage of variance explained) in the column labelled *Extraction Sums of Squared Loadings*. In the final part of the table (labelled *Rotation Sums of squares Loadings*), the Eigen values of the factors after the rotation are displayed. Rotation has the effect of optimising the factor structure and the consequence of this is that the relative importance of the factors is equalised. For instance before rotation, factor 1 accounted for 36.28% of the variance of the data structure, factor accounted for 19.936% and factor 3 accounted for 14.509% of the variance. However after rotation factor 1 accounted for 29.582% of the variance, factor 2 explained 22.559% of the variance and factor 3 accounted for 18.584 of the variance.

From the factor analysis it emerged that there were three underlying groups / factors that the actual challenges fell into. This is because they had total initial Eigen values greater than 1. From table 4.4, these three factors were the ones that explained the highest variance of all the variables in data and so their Eigen values are greater than 1. These three factors had a cumulative percentage of rotational sum of square loading of 72.725%; meaning that these three factors explained up to 72.725% of the total variance of the data. Having established that there were three factors that explained the highest variance in the data i.e. these were the factors that

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captured variables that were the actual challenges encountered in the implementation of E – registration, the study explored the composition of these factors. This was done through the rotated component matrix of the factor analysis presented in table 4.5.

Table 4.5: Rotated Component Matrix

	Component		
	1	2	3
Poor state of ICT.	.914		
Inaccessibility of ICT.	.799		
Irregular communication between school and KNEC	.768		
Inadequate internet service providers.	.613		
Ineffective Anti-virus protection	.574		
Irregular communication between school and KNEC		.937	
Unclear instructions from Information guide on KCSE e-registration.		.840	
Untimely communication on deadlines.		.723	
Low system speed during Usage			.797
Poor Internet connection.			.770

From table 4.5 factor 1 had 5 variables namely: Poor state of ICT, Inaccessibility of ICT, Irregular communication between school and KNEC, Inadequate internet service providers and Ineffective Anti-virus protection. These variables could be grouped under technological challenges. Factor 2 had 3 variables namely: Irregular communication between school and KNEC, Unclear instructions from Information guide on KCSE e-registration and Untimely communication on deadlines. These factors could be termed as communication challenges. Factor 3 had two variables namely: Low system speed during Usage and poor Internet connection. These factors could be termed as Infrastructure challenges.

The factor analysis presented a KMO and Bartlett's test to check on the suitability of the sample used in the study. Table 4.6 shows the output.

Table 4.6: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.621
Bartlett's Test of Sphericity	Approx. Chi-Square	150.772
	Df	45
	Sig.	.000

From table 4.6, the Bartlett's Test of Sphericity is significant and that the Kaiser-Meyer-Olkin Measure of Sampling Adequacy is greater than 0.6, which is the suggested minimum. These results indicate that the sample that was involved in the study was adequate enough to warrant the use of factor analysis. The Bartlett's Test of Sphericity tests a null hypothesis that original correlation matrix of the variables is an identity matrix against an alternative hypothesis that the correlation matrix of the variables is not an identity. It the correlation matrix is an identity matrix it means that all the variables are independent and not related to one another and if the correlation matrix is not an identity matrix it means that some variables are related. For factor analysis to be authenticated then there needs to be some relationship between the variables. In our case the significance / P value of the Bartlett's Test of Sphericity is 0.000. Since the P value is less than 0.05 it means that the variables are related and so use of factor analysis is correct.

4.5 The relationship between the level of adoption of e-registration and the benefits of e-registration Implementation.

The third objective of the study explored the relationship between level of adoption of E registration and the benefits of E registration. Level of adoption was captured using a set of 11 statements examining the level to which E registration was adopted in the schools. The statements were the extent to which the schools had adopted E registration for: students admission, KCSE registration, capturing internal examination records, capturing other examination records, capturing students attendance records, keeping students personal records, keeping teachers attendance records, fees payments, keeping administrative records, checking students results and to using for K.C.S.E. subject selection. The respondents responded through

five options namely: to a very great extent which was given a score of 5, to a great extent which was given a score of 4, to a moderate extent which was given a score of 3, to a low extent which was given a score of 2 and not at all was given a score of 1. The scores for every school were summed up to give a value representing the level of adoption of E registration in the schools.

The benefits of E registration was also computed using a set of 13 questions namely the extent to which E – registration led to: time management, ease of confirmation of records, ease of correction of mistakes, reducing paper work, portability/ mobility of records, ease of retrieval of records, avoiding malicious alteration of records, accuracy of records, convenient storage of records, accessibility of records, backup system for records, avoiding loss of records and avoiding unauthorised access to records. Just like it was the case for the level of adoption of E registration, the respondents responded through five options namely: to a very great extent which was given a score of 5, to a great extent which was given a score of 4, to a moderate extent which was given a score of 3, to a low extent which was given a score of 2 and not at all was given a score of 1. The scores for every school were summed up to give a value representing the benefits of implementation of E registration.

The variable for level of adoption of E registration and the benefits of E-registration implementation were correlated and regressed to establish the relationship and the effect of E registration on success. Below is a variable definition of the variables.

Y = The benefits of E registration

X = Level of adoption of E – registration

Table 4.7, shows the correlation between level of adoption of E registration and the Key successes of E – registration.

Table 4.7: Correlation between the level of adoption of e-registration and the benefits e-registration Implementation

		Y	X
	Pearson Correlation	1	.609**
Y	Sig. (2-tailed)		.000
	N	34	34
	Pearson Correlation	.609**	1
X	Sig. (2-tailed)	.000	
	N	34	34

From table 4.7, the correlation between level of adoption of E registration and the benefits of E – registration was 0.609. It was a strong positive correlation meaning that an increase in the level of adoption of the E registration led to an increase in the benefits resulting from the adoption of E registration. The correlation was further found to be significant at 5% level of significance. This was established from the P value of the correlation matrix which was 0.000. since the P value was a value less than 0.05 it means that at 5% level of significance level of adoption of E registration and the benefits of E – registration were truly related and not just by chance.

The researcher went further and did a regression analysis with benefits of E – registration being the dependent variable and level of adoption of E registration being the independent variable. Table 4.8 shows the coefficient table of the regression analysis.

Table 4.8: Coefficient table of the regression analysis

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	55.141	6.882		8.013	.000
	X	0.935	.215	.609	-4.346	.000

a. Dependent Variable: Y

In Table 4.8, the Beta column indicates the values of the standardized regression coefficients. Beta represents the effect that a standard deviation difference in the independent variable would have on the dependent variable in standard deviation (the standardized scores of the dependent

variable). The results presented in table 4.8 suggest that the independent variable had significant regression coefficients. The linear regression model is shown below as:

$Y= 55.141 + 0.935X$

The model was highly significant and both the dependent and independent variable were important in the model. This was demonstrated in the p - value of the analysis of variance of the regression model below in table 4.9.

Table 4.9: ANOVA of the regression model

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	1716.654	1	1716.654	18.890	.000[b]
1	Residual	2908.082	32	90.878		
	Total	4624.735	33			

a. Dependent Variable: Y

b. Predictors: (Constant), X

The ANOVA had a p - value of 0.000, indicating that the independent variables have a significant effect on the dependent variable.

The study went ahead to assess the effect that adoption of E registration had on the benefits observed from the adoption of E registration through the coefficient of determination of the regression model as shown in table 4.10 below.

Table 4.10: Coefficient of determination of the regression model

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.609[a]	.371	.352	9.53297

As observed in Table 4.10, the multiple R is a correlation between the dependent variable (benefits as a result of adoption of E registration) and the independent variable (Adoption of E registration). The correlation between the dependent variable and independent variable was as high as 0.609 The R Square (R^2), which is an indicator of how well the model fits the data, is 0.371. R Square is the proportion of the variance in the dependent variable associated with

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variance in the independent variable. In other words, the independent variable explains 37.1% of the change in the dependent variable. The independent variables namely level of adoption of the E registration influenced37.1% of the benefits realised from the adoption of E registration in the schools.

CHAPTER FIVE: DICUSSIONS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary, conclusions and recommendations of the study, as captured in from the analysis of the study objectives. This chapter further gives recommendations for further study.

5.2 Discussions of findings

This section presents a discussion of the research findings as captured in the analysis of the research objectives. This section is therefore divided into three section based on the research objectives.

5.2.1 The benefits of the implementation of e-registration in secondary schools.

The first objective of the study examined the benefits of the implementations of E registration. The study found that the benefits that schools observed in the implementation of the E registration were: Ease of correction of mistakes, Ease of retrieval of records, Convenient storage of records, Accessibility of records, Accuracy of records, Ease of confirmation of records, Avoiding malicious alteration of records, Avoiding unauthorised access to records, Reducing paper work, Portability/ mobility of records, Backup System for records, Avoiding loss of records and Time management. The schools observed these benefits to a great extent through the implementation E registration. This agreed with Brakel (2003), whose findings stated that E-registration led to increase in cost efficiency and allowing for effective access to information hence leading to effective decision making planning and research.

5.2.2 The challenges encountered in the implementation of e-registration by secondary schools

The study found that the challenges observed in the implementation of E registration fell in three categories. The categories included: technological challenges, communication challenges and infrastructure challenges. These fall within the seven factors as observed by Heeks (1999) in his ITPOSMO model. Technological challenges included: Inaccessibility of ICT, Irregular communication between school and KNEC, Inadequate internet service providers and Ineffective Anti-virus protection. Communication challenges included: Irregular communication between school and KNEC, Unclear instructions from Information guide on KCSE E-registration and Untimely communication on deadlines. These factors could be termed as communication challenges. Infrastructure challenges included Low system speed during Usage and poor Internet connection. These finding are in congruence with those if Lindsay, Muijs, Hartas and Band (2006), who found out that the challenges experienced during E-registration could broadly be categorized as infrastructural and technological challenges.

5.2.3 The relationship between the level of adoption of e-registration and key benefits of e-registration Implementation

The study found that there was a significant positive relationship between level of adoption of E-registration and the benefits of E-registration. The correlation between level of adoption of E-registration and key successes of E-registration was 0.609. The correlation was significant at 5% level of significance. The study found that up to 37.1% of the benefits of E-registration was influenced by the adoption of E-registration.

5.3 Conclusion

The study concludes that there are three major categories of challenges encountered in E-registration namely; technological, communication and infrastructure. However, the implementation of E-registration brings with it a number of benefits. This is confirmed by the positive relationship between adoption of E-registration and the benefits of E-registration as shown by the regression model.

5.4 Recommendations

The study recommends that the schools should seek to mobilise the appropriate stakeholders to mobilise resources necessary to ensure that the schools have access to the relevant ICT infrastructure with good internet connectivity and speed. This will be important because this study established that, in the implementation of E registration, the schools were faced with the challenge of irregular and ineffective internet connectivity.

The study recommends that the KNEC should seek to make the instruction in the instruction guide on KCSE registration as clear as possible, so as to ensure seamless implementation of the E registration. This will be important because the study established that the schools were faced with the challenge of unclear instruction from information guide on KCSE E-registration. The study also recommends that schools should work towards ensuring that their teachers are computer literate so as to boost the process if implementation of E-registration.

5.5 Limitations of the study

The study relied on 87% of the population which might have lowered the accuracy of the accuracy of the findings. The study was also limited by the busy nature of the study respondents.

This is because the study was conducted in term three, a term whereby KCSE examinations are conducted, and so the teachers were busy preparing for the national examinations. The researcher overcame this challenge by explaining to the respondents the importance of the study for them to see the benefit of participating in the study.

The study was also limited by impassable roads leading to the schools. The researcher overcame this challenge by starting early to conduct the study so as to reach the schools in time. The study was also limited by bad weather during certain days of the study. The researcher made up for this limitation by allocating more days to compensate for the days that the researcher encountered bad weather.

5.6 Suggestions for further study

The study suggests that future researchers should do the same research in other parts of the country so as to compare with the findings of this study. The study further suggests that in future researchers should do the same study but also include the views of respondents sampled from the KNEC so as to make this study more inclusive.

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APPENDIX 1

SECONDARY SCHOOLS IN WINAM DIVISION

1. St. Peter's Nanga Sec Sch
2. Joel Omino Sec Sch
3. Lions High Sch
4. Kasagam Sec Sch
5. Nyamasaria Sec Sch
6. Orongo Sec Sch
7. Miwani Boy's Sec
8. Kibos Sec Sch
9. Hadassah Sec Sch
10. Nyalunya Sec Sch
11. Christ Church Sec
12. Okok Mixed Sec Sch
13. St. Aloys Mayenya Sec Sch
14. Dr.Aloo Gumbi Sec Sch
15. G.P. Owiti Chiga Sec Sch
16. St. Albert Angira Sec Sch
17. Obwolo Sec Sch
18. St. Peters' Kindu Sec Sch
19. Kibos V. I. Sec Sch
20. Got Nyabondo Sec Sch
21. Our Lady of Grace Sec
22. Kisumu Girls High Sch
23. Kisumu Boys High Sch
24. Kisumu Day High Sch
25. Xaverian Sec Sch
26. Joyland Special Sch
27. St. Ignatius Loyola Sec
28. Convent Sec Sch
29. Bishop Abiero Shaurimoyo Sec
30. St. Teresa's Girls' High Sch
31. St. Patrick's Sec Sch
32. Nyanza Christian Sec Sch
33. Highway Sec Sch
34. Muslims Sec Sch
35. Liberty Sec Sch
36. St. Joseph's Kisumu Sec Sch
37. Oasis of Hope Sec Sch
38. Kisumu S.D.A. Sec Sch
39. Shady Garden Sec Sch

Source: District Education Officer, Kisumu East District. (2012)

APPENDIX 2:   QUESTIONNAIRE

This questionnaire is designed to study Implementation of e-registration system by Secondary schools in Winam Division, Kisumu County, Kenya.

Your response in this questionnaire will be kept confidential and used for the intended purpose only.

PART A: Demographic Information

Department

☐   Head of School

☐   Examinations

☐   ICT / Computer

☐   Other

(If other, specify)_____

_____

Have you ever come across the term e-registration?   ☐ Yes   ☐ No

If yes what does it mean?

a) Use of computer for registration.

b) Use of ICTs to keep, record and analyse data.

c) Doing registration online.

d) Using the internet to do registration.

PART B: The Level of Adoption of E-registration in Secondary Schools.

To what extent does your School use e-registration to do the following?

(Please mark the space below the relevant number with an X in the grid based on the response key below)

1. Not at all   2. Small extent   3.Moderate extent   4.Great extent
5. Very great extent

	1	2	3	4	5
1. Students Admission					
2. KCSE Registration					
3. Internal Examination Records					
4. Other Examination Records					
5. Students Attendance Records					
6. Keeping Students Personal Records					
7. Keeping Teachers Attendance Records					
8. Fees Payments					
9. Keeping Administrative Records					
10. Checking Students Results					
11. Using for K.C.S.E. subject selection					

PART C: Benefits of implementation of E-registration in Secondary Schools.

To what extent has e-registration system benefited your School in doing the following?

(Please mark the space below the relevant number with an X in the grid based on the response key below)

1. Not at all   2.Small extent   3.Moderate extent   4.Great extent
5. Very great extent

	1	2	3	4	5
1. Time management					
2. Ease of confirmation of records					
3. Ease of correction of mistakes					
4. Reducing paper work					
5. Portability/ mobility of records					
6. Ease of retrieval of records					
7. Avoiding malicious alteration of records					
8. Accuracy of records					
9. Convenient storage of records					
10. Accessibility of records					
11. Backup System for records					
12. Avoiding loss of records					
13. Avoiding unauthorised access to records					

PART D: Challenges Faced during the Implementation of E-registration System in Secondary Schools.

To what extent have the following affected the implementation of e-registration in your school? (Please mark the space below the relevant number with an X in the grid based on the response key below) 1.Very Great Extent   2. Great Extent   3. Moderate Extent   4. Small Extent 5. Not at all.

	1	2	3	4	5
1. **Information** Unclear instructions from Information guide on KCSE e-registration. Irregular communication between school and KNEC Untimely communication on deadlines.					
2. **Technology** Poor Internet connection. Inaccessibility of Cyber Cafes. Inaccessibility of ICT. Poor state of ICT. Inadequate internet service providers. Low system speed during Usage Ineffective Antivirus protection					
3. **Process** Lack of clear guidelines on e-registration. Lack of e-registration in good time. Complexity of e-registration process					
4. **Objectives and Values** Unclear objectives Poor organizational values (e.g. non-transparency, non-accountability) Poor ICT perception of school community on e-registration.					
5. **Staffing numbers and skill levels** Inadequate number of staff numbers involved in e-registration. Lack of training on ICTs / Internet usage Irregular In-service training Low motivation levels among those working with the system					
6. **Management Systems and Structures** Lack of Principal's support. Lack of B.O.G's support Lack of P.T.A's support Poor collaboration between school and KNEC					
7. **Others (Time and Money)** Lack of finances. Little time allocated by KNEC for registration.					

UNIVERSITY OF NAIROBI

SCHOOL OF BUSINESS

MBA PROGRAM – LOWER KABETE CAMPUS

Telephone: 732160 Ext. 208
Telegrams: "Varsity", Nairobi
Telex: 22095 Varsity

P.O. Box 30197
Nairobi, Kenya

Date: 21st September, 2012

TO WHOM IT MAY CONCERN

The bearer of this letter James Felix Ochieng Odede

REGISTRATION NO: D61/64455/2010

The above named student is in the Master of Business Administration degree program. As part of requirements for the course, he is requesting to carry out a study on **Implementation of E-Registration System among Secondary Schools in Winam Division, Kisumu County, KENYA**
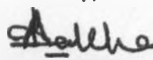
He has identified your organization for that purpose. This is to kindly request your assistance to enable him complete the study.

The exercise is strictly for academic purposes and a copy of the final paper will be availed to your organization on request.

Your assistance will be greatly appreciated.

Thanking you in advance. CO-ORDINATOR

Sincerely,

2 1 SEP 2012

MR. ALEX JALEHA   UNI
COORDINATOR, SOB, KISUMU CAMPUS

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