

**ICT ADOPTION AND INSTITUTIONAL PERFORMANCE OF SECONDARY SCHOOLS
IN UGANDA: A STUDY OF PRIVATE SECONDARY SCHOOLS IN MAKINDYE
DIVISION, KAMPALA CAPITAL CITY AUTHORITY**

BY

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DECLARATION

I declare that this dissertation is my original work, and it has never been presented to any institution of learning for any award.

Signed: **Date:**

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APPROVAL

The contents of this dissertation unless where referenced are original and have never been presented to any university for the award of the Degree of Masters of Business Administration.

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Date:

DEDICATION

This work is dedicated to my wife, Mrs. Kyatuhair Angella and my children who greatly missed me throughout my study period. I also owe special dedication to my parents, Mr. Tumwesigye Benon and Ms. Tumukunde Teddy who laid for me an academic foundation that has led me to this level. Lastly to all my brothers and sisters for their motivation and developmental ideas.

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LIST OF ABBREVIATIONS/ ACRONYMS

| | |
|-----|--------------------------------------|
| IT | Information Technology |
| ICT | Information Communication Technology |
| TAM | Technology Acceptance Model |

ABSTRACT

The study examined the relationship between perceived usefulness, perceived ease of use, user acceptance and performance of secondary schools in Makindye division. A cross sectional survey design with a sample size of 209 respondents was used. A self-administered questionnaire and interview guide were used to collect responses. Measurement of the relationships of the study were done and subjected to rigorous data processing and analysis using the relevant statistical computer software packages.

Findings indicated that there were positive and significant relationships between perceived usefulness and performance, perceived ease of use and performance and user acceptance and performance with user acceptance having the highest relationship with performance. Results from regression analysis revealed that among all the study variables; perceived usefulness, perceived ease of use and user acceptance, user acceptance was the stronger predictor of performance. Further, the findings revealed that the model could only explain 39.1% in variance of the performance of schools. In conclusion, the findings revealed that all the independent variables were significant predictors of performance. This is confirmation that perceived usefulness, perceived ease of use and user acceptance were key determinants of performance of schools in Makindye division.

The study recommends that other factors which were not part of the model be used to study school performance or in other sectors. Likewise, the management of schools and the directors should draw a lot of emphasis on user acceptance of ICTs as this would greatly enhance school performance. It is also recommended that a longitudinal study be carried out so as to bring out the true nature of the study. Lastly but not least, the model should be used to study other institutions in the different sectors.

CHAPTER ONE

GENERAL INTRODUCTION

1.1 Introduction

This chapter comprised of the background to the study, the statement of the problem, the theoretical/conceptual framework, purpose of the study, objectives of the study, the hypotheses, the scope of the study, the significance and operational definition of terms and concepts presented. The study was an assessment of *ICT adoption and institutional performance of Secondary Schools in Uganda: A study of Selected Secondary Schools in Makindye Division, Kampala Capital City Authority*. The *ICT adoption* was the independent variable and institutional performance was the dependent variable.

1.2 Background to the Study

The 21st century has witnessed an embracement of Information Communications Technology (ICT) in the day to day operations as a means of improving performance. The growth in importance of ICT is quite recent (Hyperdictionary 2010). This process has involved making substantial investments in Information Technology (IT) in order to achieve competitive advantage, by spending enormous sums of money on computer hardware, software, communication networks, databases and specialized personnel and therefore improve organizational performance. According to Turban, Rainer, and Potter (2001), Information Communications Technology (ICT) is a facilitator of organizational activities and processes which results into improved overall performance. So it is very important for every manager

and professional staff member to learn about IT from the standpoint of his or her specialized field, and also from the standpoint of IT across the entire organization.

Significantly, Fary (1984) claims that most jobs in the 21st century will require some use of computers together with communication networks, so members of the workforce unable to use them will be at a disadvantage. Palvia, Palvia, and Zigli (1992) report that many organizations including higher educational institutions are aware of these rapidly changing environments and see Information Technology as not just a set of tools for computing, but rather as a strategic tool to bring organizations growth, prosperity, motivation and profitability. It is further suggested by Petrides (2000) that ICT is already seen to be playing an integral role in organizations, more specifically in universities, as higher education institutions strive to maintain goals of quality, efficiency and effectiveness.

ICT is an important aspect in the performance of organizations worldwide at present and in the future and it seems to be most useful in obtaining information for individuals, organizations and countries. We therefore cannot help think that the world is getting smaller and more competitive because of increased ICT adoption among corporations. In spite of the fact that the growth in importance of ICT is quite recent (Hyperdictionary 2010), it is now very popular in many countries worldwide including the U.S and Australia. While there are some convergent results from the IT adoption research, the effects of some determinants remain debatable. While most researchers have found perceived usefulness to be a key determinant in IT adoption, there has been mixed results for the perceived ease of use construct.

This is particularly evidenced in the researches of Adams et al. (1992), Hu et al. (1999), Igbaria et al. (1995) and Ndubisi et al. (2001). Furthermore, research involving technology acceptance has been repeated over the last two decades in other fields such as engineering, communications, information science, software development and few specific modalities of health care (Hauser and Simmie, 1981; Davis, 1989; Gallupe et al., 1988). However, there is need to investigate the effect of the adoption of ICT on the institutional performance in secondary school.

1.3 Statement of the problem

Uganda developed its initial ICT national policy in 2003, Tanestik (2007). The policy framework document that delineated the need for a national ICT policy recognized that Uganda would need to embrace the goal of lifelong education for all. One of the recommendations that were executed early in 2006 resulted into the establishment of a Ministry of ICT to address the convergence of ICT and to provide coordination of policy development (ICT4DGUYANA, 2006). Despite its worldwide acceptance, Secondary Schools in Uganda have lagged behind in adoption of ICT. The popularity of ICT, its penetration rate (% of populations using the computers) in Uganda is still very low, accounting for only 13% of the population (World bank Stats 2011c). This rate has not changed considerably during the last few years. It also cannot be compared with the ICT penetration rate of the U.S.(77.9%), Australia (70.7% and other countries in South East Asia such as Singapore (67.2%) and Malaysia (40.2%) (World Bank Stats 2011b) whose companies make large profits and returns for their investors. Therefore this study sought to enhance the **academic** performance of secondary schools through ICT adoption.

1.4 General objective of the study

The study sought to establish the effect of ICT adoption on institutional performance of private secondary schools in Makindye division in Kampala Capital City Authority.

1.5 Specific objectives of the study

The study was guided by the following objectives:

1. To assess the effect of perceived usefulness of ICT on performance of private secondary schools in Makindye division.
2. To establish the effect of perceived ease of use of ICT on performance of private secondary schools in Makindye division.
3. To examine the effect of user acceptance of ICT on performance of private secondary schools in Makindye division.

1.6 Research Questions

1. What is the effect of perceived usefulness of ICT on performance of private secondary schools in Makindye division?
2. What is the effect of perceived ease of use of ICT on performance of private secondary schools in Makindye division?
3. What is the effect of user acceptance of ICT on performance of private secondary schools in Makindye division?

1.7 Scope of the study

The study was conducted in a given geographical, content and time scopes.

Geographical scope: The study was carried out in Luwafu Parish, Makindye division, Kampala Capital City Authority on nine secondary schools. The study comprised of only schools which are privately owned.

Content scope: The study sought to assess ICT adoption as a determinant of performance in private secondary schools in Makindye division, Kampala Capital City Authority and make recommendations to improve ICT adoption in private secondary schools.

Time scope: The study looked at a period starting from 2008 to 2012.

1.8 Significance of the Study

1. The study will add to the existing pool of knowledge, debate on ICT adoption and performance in private secondary schools. It will draw empirical evidence from a privately aided institution of higher learning which will be used as a future reference for other researchers.
2. The findings and recommendations will be useful to organizational policy makers in understanding the dynamics and the importance of ICT adoption in relation to academic performance in private secondary schools.
3. The study will bring out the relationship between ICT adoption and academic performance in private secondary schools.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This study aims at contributing to the discussion on the performance of private secondary schools by considering not only the quantitative variables already mentioned in the framework, but also those of a qualitative or strategic nature. It is structured starting with a brief summary of the different theoretical approaches analyzing the decision on ICT adoption and performance. Then, the research objectives are discussed.

2.2 Theoretical Review

The theoretical framework that is developed for this thesis is based on three well established theories which are the Theory of Reasoned Action (TRA), the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT), and on the conceptual framework built by Talukder, Harris and Mapunda (2008). This chapter exposes how the models, developed to examine ICT innovation adoption, have improved over time. The foundation of the model of this research is the Unified Theory of Acceptance and Use of Technology that were initially introduced by Venkatesh, Morris, Davis and Davis's (2003).

2.2.1 Theory of Reasoned Action (TRA)

Being introduced and proposed by Ajzen & Fishbein in 1975 and 1980, the theory of reasoned action (TRA) was formed from the social psychology setting which is concerned with the factors of consciously intended behaviors. TRA has been developed and refined

continuously for social study purpose (Lam, Cho & Qu, 2007). The TRA conceptual framework is based on a divergence among constructs such as beliefs, attitudes, intentions, and behaviors (Al-Gahtani & King, 1999). In the disciplines of social psychology, TRA also has been applied by researchers to examine human behavior. Liao and Landry (2000) suggest that individual's attitudes towards the acceptance of IT have significantly influenced the intention to adopt IT. The usage of information system (IS) can be explained by behavioral intention models or behavioral decision theories. The study by Lam, Cho, and Qu (2007) found that an effective adoption of IT depends on positive intention towards IT adoption.

Al-Gahtani and King (1999) argue that TRA was developed by distinction among beliefs, attitudes, intentions, and behaviors. Miller (2005) defines all three components of the theory as follows: attitudes: the aggregate of belief about a particular behavior weighted by evaluations of these beliefs; subjective norms: the beliefs of people weighted by the importance one attributes to each of their opinion will affect one's behavior intention; and behavior intention: a function of both attitudes toward a behavior and subjective norms toward that behavior. According to Ajzen and Fishbein (1980), behavior belief is defined as positive or negative assessment of an individual's evaluation of performing a certain behavior. Behavior beliefs are described as an individual's subjective possibility that performing the target behavior will result in consequences and the evaluation term refers to an implicit evaluative response to the consequence (Talukder, Harris & Mapunda, 2008).

On the other hand, normative belief is defined as an individual's opinion of the social pressures to perform or not perform the behaviour (Ajzen & Fishbein, 1980). TRA propose

that a person's behavioral intention is strongly influenced by the subjective norms and the person's attitude about the behavior (Lam, Cho & Qu, 2007). Behavior that developed from an individual's relative strength of intention is measured by behavior intention. Belief about the aftermath of performing the behavior accumulated by her or his valuation of these aftermaths are the part of attitude variables. Attitude is described as a person's perception that implementing the behavior is bad or good, that they are in favor of, or against, implementing the behavior (Talukder, Harris & Mapunda, 2008). Furthermore, individual's attitudes are described as individual's feeling of the favorableness or un-favorableness of her/his performance of the behavior. Attitude is the function of evaluation outcomes and behavioral beliefs. The intention of IT adoption would be affected by employee's attitude towards the acceptance of IT (Liao & Landry, 2000).

Moreover, Lam, Cho and Qu (2007) also suggested that attitude towards information system is a cumulative belief along with other factors such as self-efficacy, TTF (task-technology fit), and IT beliefs. Moreover, prior study assumed that subjective norms is contemplating the normative belief and motivate individuals to adopt technology innovations. The mechanism of internationalization and compliance can lead subjective norms to directly affect individuals' usage behavior (Schillewaert, Ahearne, Frambach & Moenaert, 2005). Fusion of perceived expectations from relevant individual or groups along with intention to comply with these expectations are measured by subjective norm. Taylor and Todd (1995) argue that the subjective norm is a key factor in an organizational setting.

The subjective norm is a function of an individual's belief that groups or individuals assume that individual should or should not execute the behavior and the individual's motivation to accord with the referents. Furthermore, another study also assumed that subjective norms contemplate the normative belief motivating an individual to adopt technology. Therefore, the mechanism of internalization and compliance can lead subjective norms to directly affect individual's usage behavior (Schillewaert, Ahearne, Frambach & Moenaert, 2005).

2.2.2 Technology Acceptance Model (TAM)

Firstly proposed by Davis in 1986, the Technology Acceptance Model (TAM) has been dominating the area of IT/IS adoption studies. Originally, TAM was developed with the intention of examining IT adoption at an individual level (Oh, Cruickshank, & Anderson, 2009). Better measures for predicting and explaining IT use is the main objective of the introduction of the TAM, in which the main focus was to examine the new theoretical constructs, perceived usefulness and perceived ease of use (Davis, 1989). This model was modified and developed from the Theory of Reasoned Action (TRA), importantly addressed for describing user acceptance of information technology. Previously, a study conducted by Venkatesh and Morris (2000) explained that in the study that focused on the individual diversity and social influence, the TAM model is relevant to predict the relationship between individual behaviour and technology usage.

The model has been introduced to have better predictive validity for both initial adoption as well as continued usage for a variety of information technologies (Karahanna, Agarwal & Angst, 2006). The TAM model proposes that some determinants will significantly influence

the decision of each individual about how and when they will use a new technology (Davis, 1989). TAM can be described as a theory that focuses on information systems theory that investigates the relationship between the attitude of individuals to accept and use the technology (Bruner & Kumar, 2005). The major objective of TAM is to measure the effect of two strategic variables dealing with cognitive and affective determinants of technology acceptance.

Two specific variables, perceived usefulness and perceived ease of use, which are hypothesized as significant factors of user acceptance, have been examined using correlation and regression analyses to reveal the empirical relationship with another constructs (Davis, 1989). Perceived usefulness is described as whether the prospective individual user tends to adopt or not to adopt an application to the extent that they admit it will assist them perform their tasks better (Talukder, Harris & Mapunda, 2008). Perceived usefulness was originally described by Davis (1989) as the degree to which the user admits that adopting a particular system would elevate their job performance. On the other hand, perceived ease of use has been defined as the degree to which the user admits that implementing a particular system would be free of effort (Davis, 1989).

TAM believes that actual technology adoption is determined by intention to use, which is viewed as being jointly determined by the person's attitude toward adopting new technology innovation and perceived usefulness (Nan, Xun-hua & Guo-qing, 2007). Therefore, perceived usefulness and perceived ease of use are those two determinants that importantly have relevance for acceptance of information technology behaviours (Talukder, Harris &

Mapunda, 2008; Bruner & Kumar, 2005; Davis, 1989). User intentions are introduced as the direct determinant of usage. Furthermore, as a mediating variable in the model, intentions are having a crucial role for not only indubitable reasons but also rational reasons (Taylor & Todd, 1995).

Furthermore, attitude towards usage is directly influencing behavior intention. Finally, perceived usefulness and perceived ease of use jointly affect attitude towards usage. The most important contribution of this concept is the relative strength of the usefulness-usage relationship compared to the ease of use-usage relationship (Davis, 1989). Moreover, Davis, Bagozzi, and Warshaw (1989) argue that research models ideally are categorized as good, helpful and strong if it has the ability not only to predict but also able to give clear explanation that is useful for researchers and practitioners to identify why a particular system may be acceptable or not acceptable. Therefore, appropriate corrective stages can be provided.

Following the concept established by the theory of reasoned action, TAM proposes that computer usage is significantly influenced by behavioral intentions. However, there is a slight difference between TRA and TAM. TRA proposes that behavioral intention is influenced by an individual's attitude toward technology adoption and its subjective norms (Davis, Bagozzi & Warshaw, 1989). On the other hand, TAM postulates that an individual's attitude toward technology adoption is influenced by perceived usefulness and ease of use. A subjective norms construct in the TRA model has been eliminated in TAM since the result of some research that used TRA showed that this construct is not significant as a predictor.

2.2.3 Unified Theory of Acceptance and Use of Technology (UTAUT)

User acceptance of new technology is known as one of the most comprehensive, robust, powerful and influential research topics in the latest information systems literature and has generated some new theoretical models (Venkatesh, Morris, Davis, & Davis, 2003; Yeow, Yuen, & Tong, 2008). Generally, there are two basic motivations - extrinsic and intrinsic motivation that are extensively investigated and considered as the key factors influencing user acceptance of technology innovations. Specifically, extrinsic motivation is defined as motivation that is coming or is generated from the external environment – they include rewards or recognition. On the other hand, intrinsic motivation is defined as motivation that comes, or is generated, from the inside of each individual (such as feeling interested, engaged, and satisfied (Lee, Cheung, Chen, 2005).

Further, Kim, Shim, and Ahn (2011) argue that extrinsic motivation is more likely to have significant influence on adoption of traditional technology. However, since ICT innovations significantly influencing individuals' lives, both extrinsic and intrinsic motivation also have a crucial impact on adoption of sophisticated technology innovations by individuals. Generally, there are two basic motivations, which are extrinsic and intrinsic motivation that have been extensively examined and considered to be the key factors that influence the user acceptance of technological innovations. Furthermore, extrinsic motivation is defined as attitude and/or behavior that comes or is generated from the external environment, and intrinsic motivation which is defined as attitude and/or behavior that is triggered by the inner desire to adopt technological innovations (Kim, Shin, & Ahn, 2011).

Furthermore, the Unified Theory of Acceptance and Use of Technology (UTAUT) was initially introduced by Venkatesh, Morris, Davis & Davis (2003) to consolidate prior TAM-related studies and they integrated constructs of eight prominent models (Hennington & Janz, 2007). Based on in-depth review of eight highly reputable models, UTAUT became a more powerful predictor of the probability of technology innovations success (Lu, Yao & Yu, 2005). UTAUT is also able to assist in the understanding of the determinant of technology acceptance in order to create management interventions. The four objectives of UTAUT are: to examine the extant user acceptance models; to empirically confront the eight models; to formulate the Unified Theory of Acceptance and Use of Technology (UTAUT); and finally to validate UTAUT. Eight different models from previous studies have been provided to be reviewed in order to get an integrated view of user acceptance and to reveal how the usage of technology is strongly influenced by individual differences (Marchewka, Liu & Kostiwa, 2007).

Previously, many researchers were confronted with the situation where there were various models and theories about user acceptance of new technology areas, and they needed to choose one of them (Venkatesh, Morris, Davis, and Davis, 2003). The diverse models of IT acceptance were completely unified by Venkatesh, Morris, Davis, and Davis (2003) wherein they incorporated the foundations of eight prominent models - TRA, TAM, Motivational Model, Theory of Planned Behavior (TPB), Combined TAM-TPB, Model of PC Utilization, Innovation Diffusion Theory, and Social Cognitive Theory - into a Unified Theory of Acceptance and Use of Technology (UTAUT). Therefore, review and synthesis are strongly

needed to consolidate previous user acceptance studies toward a unified view of user acceptance (Venkatesh, Morris, Davis, & Davis, 2003).

Some recommendations, such as including other constructs and moderating factors that are suggested by previous studies are also accommodated in this model. As suggested by Adam et al. (1992), moderating factors have been applied to UTAUT to examine the relationship between perceived usefulness, ease of use, and intention to use that are moderated by gender, age, gender, experience, and voluntariness of use (Marchewka, Liu & Kostiwa, 2007). Being examined on a large real world data set and due to its objective to integrate and confront eight major theories, the UTAUT model is widely recognized as an important concept, though it does not include cultural factors. The result revealed that intention is significantly influenced by performance expectancy.

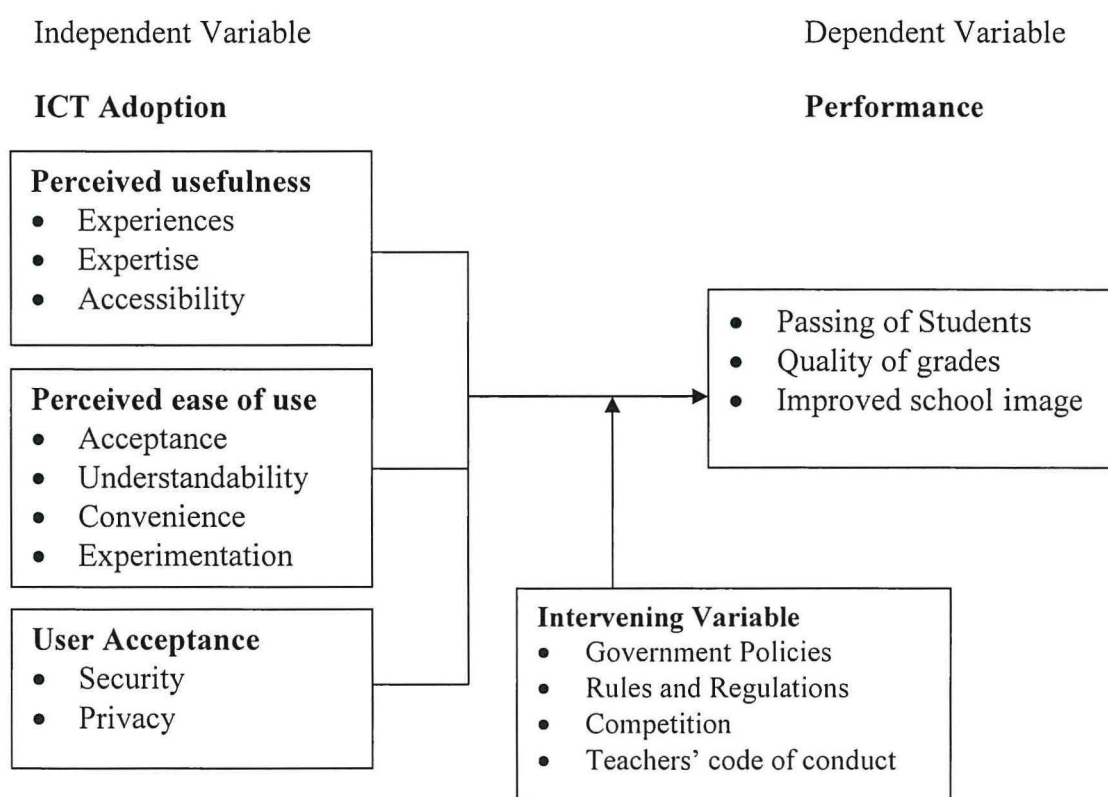
Conceptual Framework

The framework shows the relationship between independent variable and dependent variable as well as moderating variables. According to Mugenda and Mugenda (1999), an independent variable is a variable that has an influence on the dependent variable. When the independent variable is present, the dependent variable is also present and with each unit of increase in the independent variable, there is an increase or decrease on the dependent variable as well. In other words, the variance in the dependent variable is accounted for by the independent variable. In this study, performance was the variable of primary interest for investigation and it is the dependent variable.

Performance was measured according to passing of students, quality of grades and improved school image. According to Sekaran (2003), a moderating variable is the one that emerges between the independent variable and dependent variable. The presence of a third variable (moderating variable) modifies the original relationship between the independent and dependent variable. The dependent variable is the performance and the independent variable is ICT adoption. In this study government polices, rules, regulations, competition and teachers' code of conduct were identified as the moderating variables as outlined in Figure.

1.1 below

Figure 1.1: Conceptual Framework



Source: From a review of literature of Liao and Cheung (2002); Guriting and Ndubisi, 2006; Jaruwachirathanakul and Fink, 2005; Eriksson et al., 2005; Laforet and Li, 2005.

Figure 1 above explains the association between ICT adoption and performance variables. ICT adoption as an independent variable has a causal outcome on the dependent variable (students' academic performance). The ICT adoption comprises of perceived usefulness, perceived ease of use and user acceptance whereas, performance was measured using passing of students, quality of grades and improved school image. Therefore, the study attempted to establish how the identified ICT adoption dimensions affect students' academic performance in private secondary schools with the government policies, rules, regulations, competition and teachers' code of conduct moderating the relationships.

2.4 Review of the Literature

2.4.1 Information Technology

ICT is defined as any technology that facilitates communication and assists in capturing, processing and transmitting information electronically (Apulu and Latham, 2009). Mugodi and Flemming (2003) define ICT as the goods and services that support the electronic display, processing, storage and transmission of information. Kawalek and Ramani (2007) refer to ICT as a broad term that is used to describe any technology from simple acquisition of hardware to the full implementation of the system. ICTs are regarded as tools used for changing world values and making society a knowledge based environment where things are processed electronically (Hassan and Willie, 2006), and have a revolutionary impact on the manner in which organisations conduct businesses, how people see the world and how people live (Dabesaki, 2005). Gyampoh-Vidogah et al. (2007) describe ICT as the overall management and control of an organisation's investment in information including identifying and sharing management information and ensuring that standardisation, control, security and integrity of data are stored in a way that benefits a particular organisation. The World Bank

(2004) further defines ICT as consisting of the hardware, software, networks and media for the collection, storage, processing, transmission and presentation of information in the form of voice, data, text and images.

Many researchers use the terms Information Technology (IT) and Information and Communication Technology (ICT) interchangeably; however, Ruiz-Mercader et al. (2006) describe IT as a means of convergence of computers, hardware, software, telecommunications, internet, electronics and the resulting technologies. This can be measured through the inventory of applications owned by organisations. E-Business Watch (2006) and Ion and Andreea (2008) state that ICT includes networks, computers and other data processing and transmitting equipment including software. This research adopts Beckinsale and Ram's (2006) as well as Mpofu et al.'s (2009) definitions of ICT which state that ICT is any technology used to support information gathering, processing, distribution and use. In this research, ICT is also regarded as the application of software used to serve major business functions (Laudon and Laudon, 2004) including accounting and human resources software, customer relationship management (CRM) and supply chain management (SCM), internal IT usage such as internet and email as well as enterprise resource planning (ERP) that integrates all business functions into a single computer system. According to Manuelli et al. (2007), ICT comprises different technologies such as computers, internet and websites as well as fixed-line telephones, mobile phones and other wireless communication devices, networks, broadband and various specialised devices.

ICT is fast becoming one of the main drivers of change in organisations (Adebambo and Toyin, 2011). ICT has been defined above as any technology that facilitates communication and assists in capturing, processing and transmitting information electronically (Apulu and Latham, 2009). In other words, ICT is simply a wide range of computerised technologies. Ritchie and Brindley (2005) describe ICT as the array of primarily digital technologies designed to collect, organise, store, process and communicate information within and outside an organisation. Also, Barba-Sánchez et al. (2007) view ICT as a collective term for a wide range of software, hardware, telecommunications and information management techniques, applications and devices, that could be used to create, produce, analyse, process, package, distribute, receive, retrieve, store and transform information. Davenport (1993) refers to ICT as an enabler of organisational change. In contrast, Apulu and Latham (2009) describe ICT as a tool that brings about competitive advantage which in turn, helps to deliver business value in organisations.

Heeks (1998) states that ICT has almost the same meaning as IT but emphasises that ICT or IT is different from Information Systems (IS). Heeks (1998) further defines IT as computing and telecommunications technologies that provide automatic means of handling information while information systems are defined as systems of human and technical components that accept, store, process, output and transmit information. Peppard (1993) argues that some literature use the terms IS and IT interchangeably even though they may not necessarily mean the same. According to Laudon and Laudon (2006), information systems are a set of interrelated components that collect (or retrieve), process, store, and distribute information to support decision making and control in an organisation whilst information technology refers

to all the hardware and software that a firm requires, in order to achieve its business objectives. This implies that there is a close link between IT and IS since one depends on the other. IT will be of no value if it is not linked to IS thus, for IS to succeed it requires IT.

Similarly, in business, ICT is often classified into two broad types of product; the traditional computer-based technologies and the sophisticated/advanced or more recent and fast-growing range of digital communication technologies that allow people and organisations to communicate and share information digitally (Dai, 2009; Xuesong, 2009). More recent technologies have enabled organisations to share and disseminate information between various users simultaneously, customise functionality and achieve higher levels of interactivity (Maneche and Schoensleben, 2004). Recent technologies are also more sophisticated and help organisations to reduce their operational costs, enhance customer service levels and satisfaction, thereby providing higher quality of information for better decision making by managers. According to Apulu and Latham (2011b), the rapid development of ICT has changed the conventional way of conducting businesses in many organisations, while Erumban and de Jong (2006) advocate that ICT has created a revolution by making the world seem smaller and improving potential economic growth.

2.4.2 Perceived Usefulness

The importance of perceived usefulness has been widely recognized in the field of electronic banking (Guriting and Ndubisi, 2006). According to Davis (1993) usefulness is the subjective probability that using the technology would improve the way a user could complete a given task. According to the TAM, perceived usefulness is the degree to which a person believes that using a particular system would enhance his or her job performance. According to Davis

et al. (1992), perceived usefulness refers to consumers' perceptions regarding the outcome of the experience. Davis (1993) defined perceived usefulness as the individual's perception that using the new technology will enhance or improve her/his performance. Similarly, Mathwick et al., (2001) defined perceived usefulness as the extent to which a person deems a particular system to boost his or her job performance.

Within the organizational context, a system that is high in perceived usefulness is one that the user believes will have a positive use-performance relationship. In fact, IS adoption research suggests that a system that does not help people perform their jobs is not likely to be received favourably. The ultimate reason that users exploit electronic systems is that they find the systems useful to their information needs or search tasks (Hong et al., 2002). A system high in perceived usefulness, in turn, is one for which a user believes in the existence of a positive use-performance relationship.

2.4.3 Perceived Ease of Use

Davis et al., (1989) noted that perceived ease of use as the extent to which a person accepts as true that using a exacting method would be at no cost. Rogers (1962), affirmed that perceived ease of use is the term that represents the degree to which an innovation is perceived not to be difficult to understand, learn, or operate. Rogers further stated that perceived ease of use is the degree to which consumers perceive a new product or service as better than its substitutes. According to Mathieson (1991), the perceived ease of use is the consumer's perception that banking on the internet will involve a minimum of effort. Ease of use refers to their perceptions regarding the process leading to the final electronic banking outcome.

In a simplified manner, it can be stated that ease of use is how easy the Internet as a banking medium is to use (Gefen & Straub, 2000). TAM (Davis, 1989; Davis et al., 1989) posits perceived ease of use as the extent to which a person believes that using a particular system will be free of effort. Daniel (1999) pointed out the perceived ease of use as one's experience how conveniently uses a technology. Drew on the concept of this, Venkatesh (2000) stated that with increasing direct experience with the target system, individuals adjust their system-specific ease of use to reflect their interaction with the system. Venkatesh added that in the case of electronic banking, savings of time, money, and convenience have been quoted as perceived ease of use. The degree to which an innovation is ease to understand or use could be considered as perceived ease of use (Zeithaml, Parasuraman, & Malhotra, 2002). At the same time, perceived ease of use is the extent to which an innovation is ease and communicable to consumers (Snel, 2000). In relationship with this Karjaluoto, Mattila, and Pento (2002) acknowledged that simplicity or complexity is the extent to which consumers perceive a new innovation as easy or difficult to understand or use.

2.4.4 User Acceptance

Snel (2000) originally introduced the concept of perceived credibility in terms of the confidence and consequences associated with a consumer's actions. Consumer researchers defined perceived credibility as a consumer's perceptions of the assurance and favorable consequences associated with buying a product (or service). According to Jacoby and Kaplan (1972), perceived credibility is defined as the degree to which a user feels the certainty and pleasant consequences of using an electronic application service, when there is no financial risk, physical risk, functional risk, social risk, time-loss risk, opportunity cost risk, and

information risk. Karjaluoto, Mattila, and Pento (2002) ascertained the perceived credibility as trust. The perceived credibility is the extent to which one partner believes that the other partner has the required expertise to perform the job effectively and reliably. Likewise, Zaheer, McEvily, and Perrone, (1998) stated that one's trustworthiness or credibility in an electronic bank might not be derived only from prior familiarity with the bank, but also from calculative, institutional and identification and beliefs about the bank. Credibility is associated with outcome beliefs such as have of knowledge about the distribution of potential outcomes and the controllability of outcome attainment (Luo & Strong, 2000).

However, credibility is difficult to capture objectively (Pavlou, 2001). As said by Singh (2001), perceived credibility is defined through some of the measures that are available to banks include secure socket layer encryption methods to protect data being transmitted from the bank to the customer and vice versa, regular upgrades of firewall hardware and software, and digital signatures. Consequently, perceived credibility is used as a new construct to reflect the security and privacy concerns in the adoption of Electronic banking (Ba & Pavlou, 2002). In the context of electronic banking, perceived credibility refers to the security and reliability of transactions over the Internet (Goldfinger, 2001). Webchek (2002) also reported that there is a perceived lack of safety in electronic transactions. Perceived security is defined as the extent to which one believes that the electronic banking is secure for transmitting sensitive information (Moon and Kim, 2001).

Koufaris (2002) also identifies security as a factor influencing customer adoption. Security encompassed low risk associated with electronic transactions, safeguarding personal information, and safety in completing electronic transactions (Koufaris, 2002). The perceived

lack of security on electronic banking is definitely a stumbling block (Chen, Gillenson, & Sherrell, 2002). Using the technology acceptance model as a theoretical framework, this study introduced perceived credibility as a new TAM factor to reflect the user's security and privacy concerns in the adoption of electronic banking. Hence, from the previous discussion the researcher will opt the definition of Jacoby and Kaplan (1972) to define perceived credibility.

2.4.5 Benefits of ICT

The benefits of ICT cut across all sectors of the economy and all fields of human activities. ICT is said to improve the standard of living and enhance business operations as well as organisational efficiency (Udo and Edoho, 2000; Ion and Andreea, 2008). Fullanteli and Allegra (2003) state that ICT offer enterprises a wide range of possibilities for improving their competitiveness. It is commonly accepted that ICT offers many potential benefits to organisations so as to make them more efficient, effective and competitive (Fink and Disterer, 2006). Niamsorn et al. (2011) state that ICT has transformed and changed the way people work and communicate in organisations. According to Ion and Andreea (2008) ICT enables companies to communicate, collaborate and conduct transactions internally with their customers and suppliers, as well as distributors via the internet. ICT also allows companies to obtain and process, accumulate and exchange information. Ion and Andreea (2008) and Apulu and Latham (2011c) comment that with ICT, organisations can exchange real-time information and build closer relationships with their customers, suppliers and business partners. Also, customers can receive immediate feedbacks that allow companies to react faster to customers' changing demands and to recognise new market niches.

According to Fullanteli and Allegra (2003), ICT provides mechanisms for gaining access to new market opportunities and specialised information services such as distance consulting, continuous training, new advisory modes, and so on. This implies that organisations that are able to exploit the potentials offered by ICT can handle innovative processes such as Supply Chain Management (SCM), Customer Relationship Management (CRM) and Knowledge Management (KM) more effectively (Fullanteli and Allegra, 2003). Modimogale and Kroeze (2009) state that ICT can fulfil a number of business needs such as strategic, operational and marketing needs or a combination of all of them. Manecke and Schoensleben, (2004) argue that ICT is vital for a company's external relationships, particularly the cross-company workflow. It also helps in sending and retrieving information both within and across diverse organisations and has contributed significantly to the closing of communication gaps (Mouelhi, 2008).

According to Brynjolfsson and Hitt (2000), the use of ICT can help to cut down the costs of coordination, communication, information processing and also enable efficient service provision at lower cost. Sewanyana (2009) describes ICT as a strategic tool that enables users to become efficient and effective. Kajogbola (2004) argues that users and suppliers can now communicate more easily and faster with the use of ICT, such as by electronic mail (E-mail). ICT provides quicker responses to market needs and allows more flexibility in product design, production and equipment delivery. In addition, ICT opens more opportunities for training, and the re-training of existing staff in the mastery of the new and sophisticated

equipment (Mouelhi, 2008). In other words, the use of ICT has led to the acquisition of additional capabilities by employees in many organisations.

Moreton and Chester (1997) stress that there are some organisational initiatives that is impossible to realise without the use of ICT. It provides an unparalleled method of processing, analysing and communicating the information from both inside and outside business which is needed to detect and understand the patterns and pace of change. Moreton and Chester (1997) further state that ICT has the potential to assist businesses enormously by supporting the drive for increased customer satisfaction and enabling the streamlining of business processes (including links to suppliers and customers). Also, Lefebvre and Lefebvre (1996) identify the sociological and psychological impacts of ICT on employees in the workplace. Hence, Mouelhi (2008) concludes that the introduction of ICT applications in a firm has impacts on work-group effectiveness, organisational climate, job satisfaction, personal growth and accomplishments.

2.5 ICT Adoption

According to the TAM, customer adoption behavior is determined by the intention to use a particular system, which in turn is determined by the perceived usefulness and perceived ease of use of the system. Liao and Cheung (2002) utilized an alternative research approach in Hong Kong who investigated the adoption of virtual banking within the framework of the TPB, which assumes that customer adoption is determined by intention to perform the behaviour. However, factors affecting the adoption of a new information technology are likely to vary with the technology, target users, and context (Moon & Kim, 2001). According

to Sohail and Shanmugham (2003), customer adoption describes beliefs about having necessary resources and opportunities for an individual's intention to perform. These are facilitating conditions, which refer to the availability of resources, i.e. the technological resources and infrastructure needed to engage in the adoption.

Lee and Allaway (2002) suggested that the adoption of electronic banking depends on the service firm's resource management by lowering delivery costs and by releasing service personnel to provide better and more varied service. The current trend reflects a decrease in the number of branch transactions and an increase in the number of electronic transactions. Some banks are segmenting their markets by developing lower cost delivery systems in order to increase customer adoption. Cost savings have been the compelling reason for outsourcing by many banks (Bradley & Stewart, 2003). Adoption of electronic banking is important not only in terms of reducing costs and improving competitiveness but also in terms of a bank's ability to retain the existing customer base and to attract new customers (Akinci, Aksoy and Atilgan, 2004).

2.5.1 General ICT Indicators in Uganda's Context

Uganda developed an ICT policy where it regards ICT as a driver and enabler of economic development. As a result of good policies undertaken by the government, among which are the trade liberalization, privatization, civil service reform, financial sector reform, decentralization among many others in the last decade, Uganda has had an impressive economic performance with an average GDP growth of about 6% per annum. In 1996, as part of ICT policy reform process, the government liberalized the telecommunication sector and opened it for competition by licensing multiple players. There are now several cellular and

mobile telephone networks, mobile radio communication, paging services, courier services, private radio and television stations, multipurpose community tele-centres providing communication services of fax, telephone, e-mail and Internet, media services, computer services to name a few. By 1996, Uganda's telephone density was as low as 0.25 lines per 100 people, and Kampala City had 2.8 lines per 100 people. The telephone density rose to 2.5 lines per 100 people by 2003 and to 6.5 lines per 100 people by 2006. The number of Internet Service providers increased from 2 in 1996 to 17 in 2006 (Uganda Communication Commission, 2005). By end of 2003, the Internet usage was 0.5 per 100 people, which is 125 Internet users (ITU 2004).

2.5.2 ICT Adoption in Developing Countries

A number of researches have been conducted on the adoption of ICT in both developed and developing countries. However, this section concentrates on ICT adoption on developing countries since the country under investigation is referred to as a developing country. Kamel (1995) conducted a study on ICT adoption in Egypt and identified ICT as a tool for socio-economic and cultural development. Hassan (1998) also conducted a study on ICT in Pakistan and proposed a framework for the IT industry development in Pakistan. Furthermore, Harindranath and Libenau (1995) conducted a research on issues affecting the Indian software industry with regard to changing State policy and increasing liberalisation in the Indian economy. Straub et al. (2001) also developed a model for the transfer of IT to the Arab world and highlighted the importance of transferring IT to developing countries. The study was able to assess the cultural influence of the Arab world with regard to transferring IT. Heeks (2008) conducted a research on ICT based enterprises in developing countries and

concluded that ICT in developing countries can be analysed at various levels. Nonetheless, Ashrafi and Mutarza (2010) suggest the need for more studies on ICT adoption in developing countries.

Sulaiman (2010) states that ICTs are expanding the possibilities for developing economies to participate in international markets. The internet, for instance, has changed the method in which goods and services are processed, delivered, sold and purchased. In other words, ICT has led to an ever growing number of people and businesses connected digitally. In the 21st century, ICT is regarded as an essential tool for businesses both in developed and developing countries. This is because ICT can assist businesses to remain competitive in both domestic and international markets (Kew and Herrington, 2009).

The diffusion of ICT in many countries by different sectors of the economy has been found to have a direct, positive impact on organisational efficiency and has played a role in the rapid development of these countries (Achimugu et al., 2009). Sahlfeld (2007) states that there is no indication that the benefits of ICT experienced by developed countries, such as reduced business costs and increased access to information, would not also amass to that of developing countries. According to Sahlfeld (2007), the main importance of ICT to businesses in developing countries is to access timely and accurate information regarding the supply of and demand for products and services in various markets. Meanwhile, some researchers have focussed their attention on how ICT may promote development in developing countries. For example, the Parliamentary Office of Science and Technology (2006) has identified that ICT can help developing countries tackle a wide range of health,

social and economic problems by improving access to information and by enabling communication. ICT can also play a role in reaching millennium development goals such as the elimination of extreme poverty, combating serious disease and achieving universal primary education and gender equality. Similarly, the OECD (2004) growth study concluded that ICT is a key input to productivity and growth performance. However, the benefits of ICT are still not fully realised in many countries, as ICT is often out of reach to the poor and those in rural areas.

Terero and von Braun (2005) observe that although the use of ICT remain concentrated largely in the developed world, nonetheless ICT diffusion is beginning to reach developing countries including the poor rural areas, bringing with it high hopes of positive development outcomes. While technological innovations such as mobile phones and wireless broadband access are playing an important role in building ICT levels globally, strong inequality still remains. Developing countries are still well behind developed countries in access to ICT (Terero and von Braun, 2005). Al-Shaikh (1998) notes that the “technological environment and the infrastructure of developing countries are still lagging behind the Western Countries”. Ihua (2009) states that developing countries are lagging behind, probably because the developed nations produce the technology, while the developing nations import it. Also, Beekhuyzen et al. (2005) note that access to ICT continues to be a global problem especially in developing countries. This shows that countries are digitally divided due to lack of access and availability of ICT. Mouelhi (2008) advocates that the adoption of ICTs, such as internet, mobile telephony and broadband networks, in many developed countries has been

found to have a positive effect on organisations' performance, yet not all countries are taking advantage of the revolution in the same way and at the same pace.

The World Bank report (2006) confirms that firms which use ICT grow faster, invest more, and are more productive and profitable than those that do not. Many studies that cover the experience of developed countries conclude that there is a positive relationship between the use of ICT and performance (Baldwin and Sabourin, 2001). According to Mouelhi (2008), the greatest benefits of ICT are realised when ICT investment is combined with other organisational changes and human capital upgrade. Also, Obijiofor et al. (2005) perceive ICT to be a major tool for kick-starting ailing economies and consequently in assisting developing societies to 'catch up' with the developed world. Still, Golding et al. (2008) affirm that there is a digital divide which shows that ICT adoptions vary between developed and developing countries with developing countries adopting ICT at a slower rate due to several factors militating against them.

2.5.3 Factors affecting ICT Adoption in Developing Countries

A developing country is described as a country in which most people have a low income and low standards of living with less access to goods and services as compared to most people in higher-income countries (Leslie and Gaskill, 2006). Developing countries face almost insurmountable barriers to accessing the electronic highway (Kapurubandara and Lawson, 2008). The problems of ICT in developing countries have been grouped into several categories. Some researchers have attributed these problems to organisational factors, environmental factors and lack of technical skills, amongst others. However, Okot-uma in

Kunda and Brooks (2000) suggests that the problems of introducing ICT such as e-commerce in developing countries can be classified into three generic categories: contextual, strategic and operational.

Contextual problems are the result of a poor match of models of developed countries' designs and applications to the developing countries context. Strategic problems relate to local, national and regional policy initiatives. Operational problems are faced by developing countries due to technical and economic constraints which include the non-existence of reliable background statistical information and inadequate capital to finance ICT and lack of skilled personnel (Kunda and Brooks, 2000). The issue of a deficiency of skilled human resources, economic constraints, system infrastructure deficiencies and application problems are also regarded as factors that affect developing countries in their quest to adopt ICT. Woherem (1993) states that the lack of skilled human resources is a principal barrier blocking the diffusion and effective utilisation of ICT in developing countries. Nonetheless, several developing countries suffer from both a lack of resources and a limited domestic market.

Meanwhile, some developing countries import ICT due to lack of indigenous ICT industries. According to Kunda and Brooks (2000), scarcity of foreign currency makes developing countries depend upon donor agencies for much of their ICT imports. Kari (2007) states that much of the developing world still lacks the most basic forms of information and communication infrastructure. Kapurubandara and Lawson (2006) consider the lack of telecommunication infrastructures, such as poor internet connectivity, lack of fixed telephone

lines for end user dial-up access, and the underdeveloped state of the Internet Service Providers (ISPs), as factors affecting the proper utilisation of ICT such as e-commerce, in a developing country such as Sri Lanka.

In developed countries, ICT has been used to change the manner in which businesses are conducted in order to have some forms of strategic advantage. Iacovou et al. (1995) and Mehrrens et al. (2001) argue that not all organisations are strongly inclined towards adopting ICT. Premkumar et al. (1994); Iacovou et al. (1995); Crook and Kumar (1998); Payton (2000) and Beatty et al. (2001) state that the extent of ICT adoption depends on the attitude of the organisation towards ICT technologies and the inclination or the propensity to deploy and use them. However, some authors (e.g. Davis et al., 1989; Rogers, 1995; Venkatesh and Davis, 2000) argue that these findings match studies on the individual acceptance of technology and the diffusion of innovations in organisations (Cooper and Zmud, 1990).

Therefore, Tarafdar and Vaidya (2006) recommend that understanding the fundamental factors behind the differences in organisational inclination with regard to technology adoption is essential, to enable organisations to assess the extent to which they are inclined to develop, deploy and use technologies. According to Ginsberg and Venkatraman (1992), different managers and organisations adopt different attitudes towards ICT depending on its perceived usefulness in the context of their work and organisational norms regarding the acceptance of new ICT. Checchi et al. (2003) and Roztocki et al. (2004) state that there is an imbalance of scholarly studies in the area of understanding the role of ICT in developing countries. Also, Prasad (2009) asserts that the lack of scholarly focus tends to hinder the

development and use of ICT in developing countries since businesses lack the vital information that could provide directions for the successful use of ICT.

Weiner and Rumiany (2007) further state that the implementation of ICT in the developing world is often inhibited because the infrastructure, human capital development and financial resources that are necessary to implement ICT effectively, are either absent or of a poor quality. They argue that ICT policies adopted in developing countries have the ability to increase (rather than decrease) the digital divide within countries, and in so doing make it even more difficult for businesses in rural areas to compete. They justify this point by arguing that when new technology is introduced in developing countries, it is usually made available in urban areas that have the required infrastructure and market, thereby making those areas become more competitive. With the rapid advances in technology there is a growing fear that rural areas, which are already hampered by large distances from markets and plagued with poorer quality infrastructure, will be further disadvantaged by their lack of ICT (Kew and Herrington, 2009).

2.6 Perceived Usefulness on Performance

The importance of perceived usefulness has been widely recognized in the field of electronic banking (Guriting and Ndubisi, 2006; Jaruwachirathanakul and Fink, 2005; Eriksson et al., 2005; Laforet and Li, 2005; Polatoglu and Ekin, 2001; Liao and Cheung, 2002). According to them usefulness is the subjective probability that using the technology would improve the way a user could complete a given task. Based on theories in social psychology, such as the theory of reasoned action (TRA) (Ajzen and Fishbein, 1980; Fishbein and Ajzen, 1975) and

the theory of planned behavior (TPB) (Ajzen, 1985), the technology acceptance model (TAM) has been validated as a powerful and parsimonious framework (Davis, 1989; Davis et al., 1989). According to the TAM, perceived usefulness is the degree to which a person believes that using a particular system would enhance his or her job performance. According Mathwick et al., (2001), perceived usefulness as the extent to which a person deems a particular system to boost his or her job performance.

Pikkarainen et al. (2004) applied TAM in Finland and they found perceived usefulness as a determinant of actual behavior which encouraged the user of the twenty-first century banking to use more innovative and user-friendly self-service technologies that give them greater autonomy in performing banking transactions, in obtaining information on financial advices, and in purchasing other financial products. However, Gerrard and Cunningham (2003) noted that the perceived usefulness depends on the banking services offered such as checking bank balances, applying for a loan, paying utility bills, transferring money abroad, and obtaining information on mutual funds. There are extensive evidences proving the significance of effect of perceived usefulness on adoption intention (Chen and Barnes, 2007). Tan and Teo (2000) suggested that the perceived usefulness is an important factor in determining adoption of innovations. As a consequence, the greater the perceived usefulness of using electronic banking services, the more likely that electronic banking will be adopted (Jaruwachirathanakul and Fink, 2005).

2.7 Perceived Ease of Use on Performance

Researchers argued that perceived ease of use is the extent to which a person accepts as true that using an exacting method would be at no cost to that individual (Gefen and Straub, 2000;

Gahtani, 2001). At first Rogers (1962) affirmed perceived ease of use is the term that represents the degree to which an innovation is perceived not to be difficult to understand, learn or operate. He further stated that perceived ease of use is the degree to which consumers perceive a new product or service as better than its substitutes (Rogers, 1983). Similarly, Zeithaml et al. (2002) stated that the degree to which an innovation is easy to understand or use could be considered as perceived ease of use.

According to Mathieson (1991), the perceived ease of use is the consumer's perception that banking on the internet will involve a minimum of effort. Similarly, Consult (2002) noted that perceived ease of use refers to the ability of consumers to experiment with a new innovation and evaluate its benefits easily. Consult (2002) also affirmed that the drivers of growth in electronic banking are determined by the perceived ease of use which is a combination of convenience provided to those with easy internet access, the availability of secure, high standard electronic banking functionality, and the necessity of banking services.

Extensive research over the past decade provides evidence of the significant effect of perceived ease of use on usage intention, either directly or indirectly (Hernandez and Mazzon, 2007). Recently, Chen and Barnes (2007) have empirically found that two technological aspects of the interface, namely perceived ease of use and perceived usefulness significantly affect customer adoption intentions.

2.8 User Acceptance on Performance

The importance of security and privacy for the acceptance of online banking has been noted in many banking studies (Chen and Barnes, 2007). To be more precise, lack of privacy and security were found to be significant obstacles to the adoption of online banking (Chen and

Barnes, 2007). Roboff and Charles (1998) found that people have a weak understanding of online banking security risks although they are aware of the risks.

Furthermore they noted that although consumers' confidence in their bank was strong, their confidence in technology was weak (Howcroft et al., 2002). As the amount of products and services offered via the Internet grows rapidly, consumers are more and more concerned about security and privacy issues. According Hernandez and Mazzon (2007), privacy issues have proven important barriers to the use of online services. As trust, security, and privacy are multidimensional constructs and need further explanation, in this article we concentrate only on the aspects consumers are most concerned about.

2.9 Conclusion

This chapter discussed literature in relation to the study objectives. Here the researcher located, read and evaluated published articles of previous studies, made observations and opinions for the study. The literature offers a framework in which to address ICT adoption issues which determine academic performance. From the literature that was reviewed, the researcher established that ICT adoption determined academic performance much as little/no research had been carried out on the topic in relation to secondary schools in developing countries.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter focuses on the techniques that were used to obtain the required data for the study. It includes the research design, location of the study, population of the study, sample size, sampling techniques, sampling procedure, and data collection methods, instruments for data collection, validity and reliability of the instruments, data analysis and measurement of variables.

3.2 Research Design

A cross sectional survey design was used to investigate the effect of ICT adoption on performance of private secondary schools. According to Mugenda and Mugenda (2003), a cross sectional design is investigative and attempts to capture people's attitudes, feedback and their patterns of behaviour. Mugenda and Mugenda (2003) continue to argue that a cross sectional design makes a detailed examination of a single subject, group or phenomenon and enables collection of sufficient data regarding study variables. The study used both qualitative and quantitative approaches. Qualitative approaches provided in-depth explanations while the quantitative approaches provided the data needed to meet required objectives and to test hypothesis.

3.3 Area of the Study

The study was carried out in Makindye Division of Kampala Capital City Authority. According to the 2002 Population and housing census, Makindye division had a population of about 303,000 people with an average of 3.8 people per household. Makindye at its peak,

stands 1,230 metres (4,040 feet) above sea level. It affords a commanding view of the surrounding areas of the city and of neighboring parts of Wakiso District. It also affords a view of Murchison Bay, a part of Lake Victoria to the east and southeast of Makindye. The residential areas on Makindye hill are of middle class proportions. Many of the homes have adjacent plots of land which are often used to grow vegetables. The primary languages are English and Luganda. The schools include, Royal college Makindye, Crested Secondary School, Pearl high school- Makindye, Makindye Parents secondary school, Makindye college school, St. Catherine's College, Molly and Paul High school-Kibuye, New Excellence High School and St. Mbuga Vocational secondary school.

3.4 Study Population

Population refers to an entire group of individuals, events or objects having a common observable characteristic (Mugenda & Mugenda 2003). A population of 388 respondents was targeted which comprised of 18 school administrators, 45 students' leaders, 135 subject teachers, 18 PTA members and 72 heads of department for the 9 selected schools in Makindye division (District Education Office (DEO), 2012). A list of all private secondary schools in Makindye division was obtained from the DEO's office to comprise the study. For the administrators, any 2 of the head teacher, deputy head teacher or director of studies were selected, for the prefects any 5 were selected, for the PTA members, the chairperson and secretary were selected for each school, 15 subject teachers were selected for each school whereas, for the heads of departments, 8 were selected for the study.

3.5 Sample Size and Sampling Selection

A sample of 240 respondents was selected basing on a table for determining sample size developed by Krejcie & Morgan, (1970). The school administrators consisted of the head teachers, deputy head teachers and the directors of studies. For the heads of departments comprised the subject heads of the core subjects while student leaders comprised of school prefects.

Table 3.1: Sample Size

| Category | Population | Sample | Sampling Technique |
|---------------------|------------|------------|------------------------|
| Administrators | 18 | 14 | purposive sampling |
| School Prefects | 45 | 40 | purposive sampling |
| Heads of Department | 72 | 59 | simple random sampling |
| Subject Teachers | 135 | 103 | simple random sampling |
| PTA members | 18 | 14 | purposive sampling |
| Total | 388 | 240 | |

Source: Ministry of Education and Sports (2012)

3.5.1 Sampling Technique

Mugenda and Mugenda (2003) define sampling as a formulation of a procedure of selecting the subjects or cases to be included in the sample. In other words, a sampling technique is a plan for obtaining a sample from a given population. This study used the simple random sampling and purposive sampling methods to select the respondents. According to Mugenda and Mugenda (2003), simple random sampling involves allocating equal chance to the selected elements in the population. This method involved giving a number to every respondent in the accessible population, placing the numbers in a container and then picking any number at random. Simple random sampling was used because it allocates equal chance for each respondent during the election process. This was used during the selection of subject teachers and Heads of Departments.

Purposive sampling is a sampling technique that allows a researcher to use cases that have required information with respect to the objectives of one's study. Cases of subjects are therefore handpicked because they possess the required information. Purposive sampling technique was used to select key informants who are the administrators, prefects and PTA members. This category of respondents was chosen since they are concerned with the decision making and planning processes of the schools and possess the required information with respect to objectives of the study.

3.6 Data Sources

The study adopted both primary and secondary data sources. Primary data was obtained from the field and in particular from the enterprise owners and managers in the geographical scope of the study which is Makindye division. Similarly, secondary data was obtained through the already existing firms' literature and any other literature from sector reports and journals. Primary data was obtained through the use of self-administered questionnaires and interview to respondents following systematic and established academic procedures, as suggested by (Nunnally and Bernstein, 1994). The questionnaires were used for the collection of data from enterprise owners while the interview guides for collection of data from administrators. Secondary data was obtained through the use of historical analysis of already existing literature on secondary schools. Here existing records and accounts that are published by the secondary schools were used as a means of acquiring secondary data.

3.7 Data Collection Instruments

Questionnaires were used to collect information during the study. The questions covered perceived usefulness, perceived ease of use and user acceptance. These were compared

against performance of the secondary schools. The items were anchored on a 5 Likert scales ranging from strongly disagree (1) to strongly agree (5). The questionnaire also contained the demographic characteristics such as gender, age, qualification and years in service. The interviews were conducted with people who are in directorship positions for information about performance and students and teachers for information on ICT adoption. Open ended questions were asked during the interviews with administrators.

3.8 Data Collection Procedure

The researcher obtained an introductory letter from Kyambogo University introducing him to the schools to allow him to carry out research. The researcher then introduced himself to the school administrators, where the study was carried out. On being granted permission the researcher first of all carried out a pilot study of the questionnaire and finally collected data from the respondents. The researcher personally distributed, administered and collected data from the respondents.

3.9 Validity and Reliability of Instruments

3.9.1 Validity Test

According to Mugenda & Mugenda, (2003), there are three techniques of validity in data; construct validity, content validity and criterion-related validity. Content validity is a measure of the degree to which data collected using a particular instrument represents a specific domain of indicators or content of a particular concept. Content validity can be assessed by using two different instruments which must measure the same concept. If the measurements are consistent with the theoretical expectation, then the data have construct validity. Validity was measured basing on a factor analysis which confirms the dimensions of

the concept that have been operationally defined, to ensure appropriateness of results. According to Nunnally (1972), values of 0.6 were acceptable when testing for validity. Validity of the instrument was obtained using the Content Validity Index (CVI) as presented in table 3.2.

Table 3.2: Validity Test

| Variable | Anchor | Content Validity Index |
|-----------------------|---------|------------------------|
| Perceived usefulness | 5 Point | .789 |
| Perceived ease of use | 5 Point | .854 |
| User acceptance | 5 Point | .898 |
| Performance | 5 Point | .808 |

Source: Primary data

According to Nunnally (1972), content validity indices of 0.7 and above are considered adequate. From the results, the average content validity index was .821, therefore meeting the acceptable standards.

3.9.2 Reliability Test

Reliability in research is influenced by random error (Mugenda and Mugenda, 2003). They continue to argue that random error may arise from inaccurate coding; ambiguous instructions to the subjects, interviewer's fatigue and interviewer's bias to mention a few and these errors are deviations from a true measurement due to factors that have not been addressed by the researcher. The researcher therefore has to ensure that the instruments minimize random error and hence increase the reliability of the data collected. In order to measure reliability, a score obtained in one item is correlated with scores obtained from other items in the instrument. Cronbach's Coefficient Alpha is then computed to determine how items correlate among themselves. Reliability of the instrument was ascertained using the

Cronbach's coefficient alpha (Cronbach's alpha (α) 0.5) test (Cronbach, 1946). To test for the internal consistencies of the scales used to measure the variables.

Table 3.3: Reliability and Validity

| Variable | Scale | Cronbach Alpha |
|-----------------------|---------|----------------|
| Perceived usefulness | 5-point | 0.63 |
| Perceived ease of use | 5-point | 0.70 |
| User acceptance | 5-point | 0.79 |
| Performance | 5-point | 0.67 |

Source: primary data

The table above displays the reliability indices/coefficients for all constructs used in the study. All alpha reliabilities (α) for all scales were above 0.6, ranging from 0.63 to 0.79 therefore meeting acceptance standards for research (Nunnally, 1978).

3.10 Data Processing and Analysis

Data from the field was compiled, sorted, edited and coded to have the required quality, accuracy and completeness for research. It was then entered into the computer with the facilitation of Statistical Package for Social Sciences (SPSS) for analysis. SPSS is a data management and analysis program. It allowed the researcher to store and analyze very large amounts of large data. The statistics that SPSS is capable of handling are far more complex than the statistics that are provided by excel which makes it more desirable as an analysis tool. Also, SPSS allows us to store our data, protocols (syntax) and results (output) in separate files, which makes analysis of large amounts of data much less cumbersome than excel. The data was cleaned and analyzed according to the research objectives and specific analytical tools were used during the analysis. For summary statistics, item means, frequency tabulation, correlations and regression analysis were generated to describe the sample characteristics and the objectives of the study.

3.11 Limitations to the study

The researcher encountered the following limitations

- i) Bias from the respondents who simply filled the questionnaires to please the researcher. The researcher conducted a face to face interaction to clarify the purpose and objective of the study.
- ii) On looking at the limited time which the researcher had to conduct the study, respondents suspected that the research findings were to be used for other purposes while others delayed with the questionnaires because of busy schedules. Here the researcher obtained permission from the administrators to protect the respondents and uncompleted questionnaires were followed up by the researcher.
- iii) The scales in the questionnaire that were adopted from other studies conducted in different environments from that of Uganda, this could have caused bias among the respondents. Here the researcher indulged experts in the field of ICT to moderate the scales adapted to fit the local environment.
- iv) Fear of giving confidential information by respondents, the researcher ensured at most good faith and anonymity by providing the letter seeking permission to carry out the study and also assured them that the information they provided would remain confidential and their permission would be sought in case it was to be published.

CHAPTER FOUR

ANALYSIS, PRESENTATION AND INTERPRETATION OF DATA

4.1 Introduction

This chapter presents results of the analysis and interpretation of findings. The chapter comprised of three sections. Section one presents the sample characteristics showing, gender, level of education, tenure in business, age group and marital status. The presentation begins with a description of the sample characteristics using frequency tabulation. The second section of the chapter presents statistics on the relationship between the study variables using the correlation matrix. Section three presents the results of the impact of the independent variable on the dependent variable using the regression analysis.

4.2 Response Rate

Out of the 240 questionnaires distributed, 195 usable ones were collected, giving a response rate of 81.3%.

4.3 Characteristics of respondents

To present sample characteristics, frequency tabulations and frequency distributions were used to indicate variations of respondents based on gender, age group, educational level, level of management and tenure in employment. The sample characteristics were presented basing on the responses from the respondents.

4.3.1 Respondent Category by Gender

Frequency tabulation was used by the researcher to present the gender distribution categories of the respondents. Table 4.1 below presents the results:

Table 4.1: Gender

| | Frequency | Percent |
|--------|------------------|----------------|
| Male | 104 | 53.3 |
| Female | 91 | 46.7 |
| Total | 195 | 100.0 |

Source: Primary data

According to the results in table 4.1, gender categories were male constituting 53% and female 47% of the respondents as shown in table 4.1 above. From the results the male respondents were the majority compared to the female as such there was no much disparity in the distribution of the genders. A summary of the results is presented in figure 4.1 below.

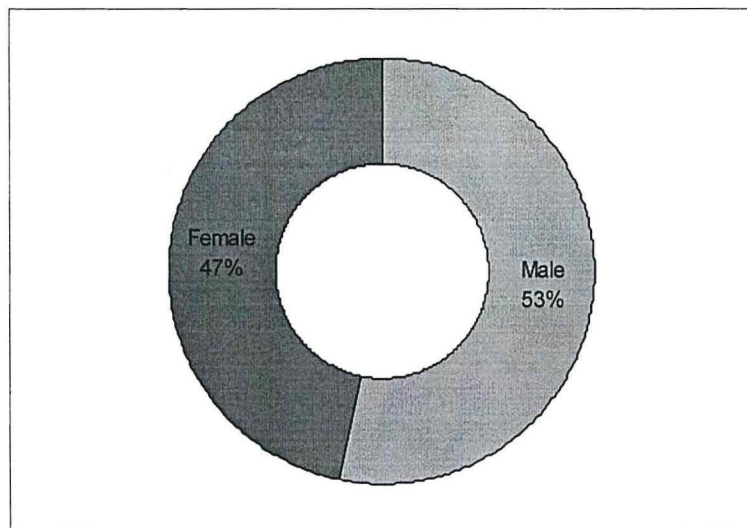


Figure 4.1: Gender distribution

4.3.2 Level of Education

Frequency tabulation was used by the researcher to present the level of education distribution categories of the respondents. Table 4.2 below presents the results:

Table 4.2: Level of Education

| | | Frequency | Percent |
|--|------------------|------------------|----------------|
| | Certificate | 12 | 6.2 |
| | Diploma | 31 | 15.9 |
| | Bachelors degree | 78 | 40.0 |
| | Masters | 46 | 23.6 |
| | Professional | 27 | 13.8 |
| | PhD | 1 | .5 |
| | Total | 195 | 100.0 |

Source: Primary data

From the results in table 4.2, the respondents with bachelor's degree were the majority 40%, followed by masters 24%, diploma 16%, professional 14%, certificate 6% and PhD 1% as indicated in table 4.2 above. From the results, all the respondents were learned and therefore were able to provide responses to the questionnaire. A summary of the results is presented in figure 4.2 below.

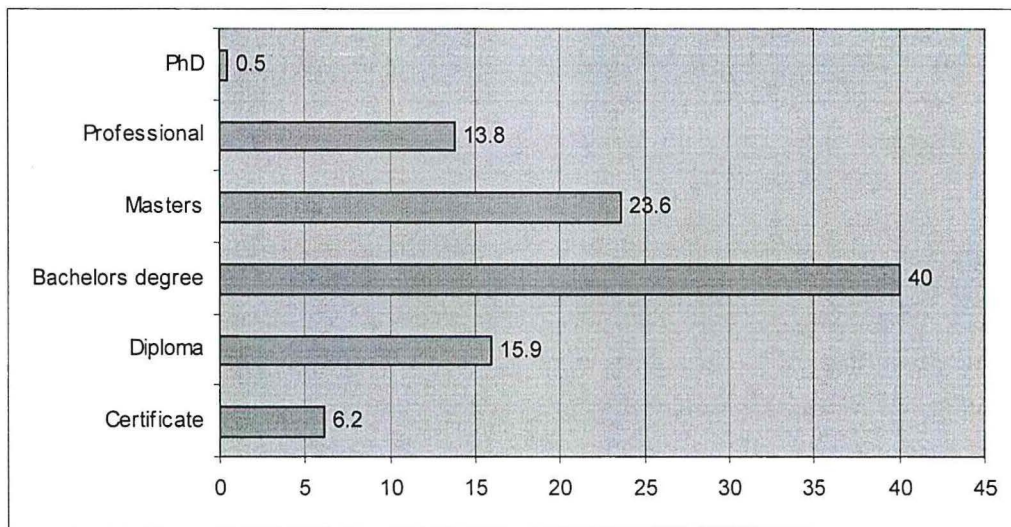


Figure 4.2: Level of education distribution

4.3.3 Working duration

Frequency tabulation was used by the researcher to present the working duration of the respondents distribution categories of the respondents. Table 4.3 below presents the results:

Table 4.3: Working duration

| | Frequency | Percent |
|--------------|------------------|----------------|
| 0-3 years | 41 | 21.0 |
| 4-6 years | 51 | 26.2 |
| 7-9 years | 60 | 30.8 |
| Over 9 years | 43 | 22.1 |
| Total | 195 | 100.0 |

Source: Primary data

According to the results in table 4.3 above, the majority of the respondents (30.8%) had accumulated a working duration of 7-9 years, 26.2% had worked for 4-6 years, 22.1% had worked for over 9 years and 21% had worked for 3 years and below. From the results it is clear that a greater majority of the respondents had acquired enough experience since they had spent several years while performing their jobs. A summary of the results is presented in figure 4.3 below.

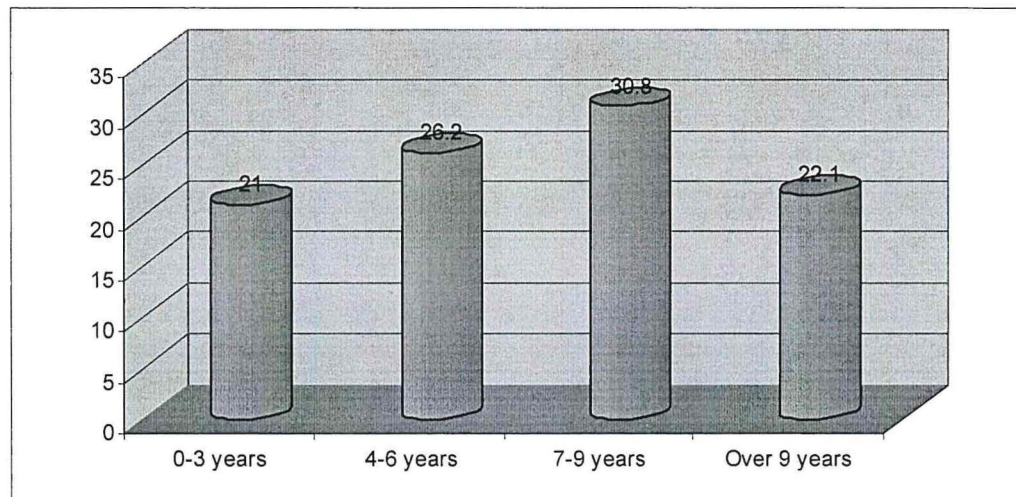


Figure 4.3: Work duration

4.3.4 Age group

Frequency tabulation was used by the researcher to present the age group distribution categories of the respondents. Table 4.4 below presented the results:

Table 4.4: Age Group

| | Frequency | Percent |
|--------------------|------------------|----------------|
| 15-24 years | 36 | 18.6 |
| 25-29 years | 38 | 19.6 |
| 30-34 years | 48 | 24.7 |
| 35-39 years | 45 | 23.2 |
| 40 years and above | 27 | 13.9 |
| Total | 194 | 100.0 |

Source: Primary data

According to the results in table 4.4 above, the majority of the respondents (24.7%) were in the 30-34 years age group, followed by those in the 35-39 years age group (23.2%), followed by those in the 25-29 years age group (19.6%) whereas, those in the 18-24 years and 40 years and above contributed 18.6% and 13.9% respectively. This shows that most of the respondents were in the most productive age groups. A summary of the results is presented in figure 4.4 below.

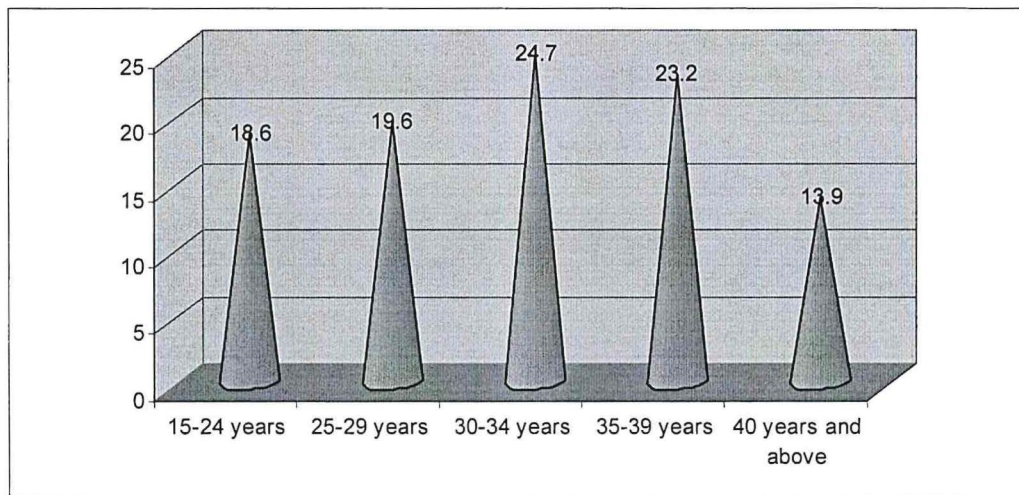


Figure 4.4: Age group distribution

4.4 Objective One: Perceived Usefulness and Performance

The first objective for the study was to assess the effect of perceived usefulness on performance. Item mean analysis was used in order to assess the level at which the respondents perceived the ICTs as useful. The responses were rated on the 5 point likert scale ranging between strongly disagree, disagree, not sure, agree and strongly agree. The findings are shown in table 4.5 below:

Table 4.5: Perceived Usefulness

| Items | Min | Max | Mean | Std. Dev |
|---|-----|-----|------|----------|
| ICTs have improved the quality of the work I do | 1 | 5 | 3.77 | 0.83 |
| I have greater control over my work schedules through the use of ICTs | 1 | 5 | 3.17 | 0.79 |
| I accomplish my tasks more quickly with ICTs | 1 | 5 | 3.87 | 0.70 |
| The MIS supports critical aspects of my job | 1 | 5 | 3.94 | 0.62 |
| My productivity has increase through use of ICTs | 1 | 5 | 3.93 | 0.82 |
| My job performance has improved due to ICTs | 1 | 5 | 3.12 | 0.75 |
| I accomplish more work than would otherwise be possible | 1 | 5 | 3.75 | 0.93 |
| The MIS enhances my overall effectiveness. | 1 | 5 | 3.34 | 0.84 |
| The MIS makes it easier for staff & students carryout school activities | 1 | 5 | 3.09 | 0.85 |
| I feel that ICTs are useful when doing my job | 1 | 5 | 3.02 | 0.96 |

Source: field data

From the results in table 4.5 above, the respondents revealed that the ICTS improved their quality of the work (Mean=3.77), helped them accomplish their tasks more quickly (Mean=3.87), supported critical aspects of their jobs (Mean=3.94), increased their productivity (Mean=3.93) and helped them accomplish a great deal of work than they would otherwise do manually (Mean=3.75). This position was supported by the interview results provided by some of the Director of Studies of the different schools who revealed that “*ICTS improved their quality of the work especially when conducting lessons, time tabling classes and compiling students’ results*”. This same view was shared by the Deputy Head Teacher of St. Mbuga Vocational secondary school when he affirmed that “*with the introduction of ICT as a subsidiary subject at A-level, it was important that all students learn how to use computers early in the academic carriers*”.

4.4.1 Pearson Correlation between Perceived Usefulness and Performance

To study the relationship between perceived usefulness and performance, Pearson's correlation test was used and the results are presented in table 4.6 below.

Table 4.6: Perceived Usefulness and Performance

| | | perceived usefulness | performance |
|---|---------------------|----------------------|-------------|
| perceived usefulness | Pearson Correlation | 1 | .124(**) |
| | Sig. (2-tailed) | | .000 |
| performance | Pearson Correlation | .124(**) | 1 |
| | Sig. (2-tailed) | .000 | |
| <i>**.</i> Correlation is significant at the 0.01 level (2-tailed). | | | |

Source: primary data

According to the correlation results, there was a significant relationship between perceived usefulness and performance ($r=0.124^{**}$, $p\text{-value}<0.01$). This is implication that a unit change in perceived usefulness would cause a corresponding 12.4% change in performance. Therefore, the perceived usefulness of the ICTs influenced the performance of the schools. This is evidence that for the schools to perform better, they needed to perceive ICTs to be useful in regard to customer experiences, expertise and accessibility of the ICTs. This could be done through administrators identifying the required ICT that could promote performance at the schools.

4.5 Objective Two: Perceived ease of use and Performance

The second objective for the study was to assess the effect of Perceived ease of use on performance. Item mean analysis was used in order to assess the level at which the respondents perceived the ICTs as easy to use. The responses were rated on the 5 point likert

scale ranging between strongly disagree, disagree, not sure, agree and strongly agree. The findings are shown in table 4.7 below:

Table 4.7: Perceived Ease of Use

| | Min | Max | Mean | Std. Dev |
|---|-----|-----|------|----------|
| I find the ICTs appropriate for use | 1 | 5 | 4.00 | .500 |
| I Learnt to use ICT functions and services easily | 1 | 5 | 3.98 | .407 |
| Interaction with and use of ICTs is difficult. | 1 | 5 | 2.10 | .431 |
| I find it easy to use ICTs to do what I want it to do | 1 | 5 | 3.97 | .531 |
| The MIS is rigid and inflexible to be operated by users | 1 | 5 | 2.09 | .486 |
| It is easy for me to remember how to perform and access what service I want using ICTs | 1 | 5 | 4.00 | .500 |
| Interacting with the MIS requires a lot of mental effort | 1 | 5 | 4.00 | .510 |
| My interaction with ICTs is clear and understandable | 1 | 5 | 2.61 | .527 |
| I feel that it will take a lot of effort to become skillful at using the MIS technologies | 1 | 5 | 2.62 | .437 |

Source: field data

The results in table 4.7 above show that the respondents found ICTs appropriate for use (Mean=4.00), learnt to use the functions and services easily (Mean=3.98), found easy to use ICTs to accomplish their tasks (Mean=3.97), found it easy to remember how to perform and access what services they wanted when using the MIS (Mean=4.00) and that when interacting with ICTS required a lot of mental effort (Mean=4.00). On the other hand, they did not find interaction with and use of the ICTs difficult (Mean=2.10), the MIS was not rigid and inflexible to be operated by users (Mean=2.09) and that it did not take a lot of effort to become skillful at using technologies (Mean=2.62). The qualitative results provided by the majority of the administrators revealed that *“the schools encourage use of ICTs during work processes which had tremendously made work processes effective and efficient”*. The top

managers further revealed that “they assessed staff performance according ICT usage when performing their duties”.

4.5.1 Pearson Correlation between Perceived ease of use and Performance

To study the relationship between perceived ease of use and performance, Pearson’s correlation test was used and the results are presented in table 4.8 below.

Table 4.8: Perceived ease of use and Performance

| | | Perceived ease of use | Performance |
|-----------------------|---------------------|-----------------------|---|
| Perceived ease of use | Pearson Correlation | 1 | 0.191(**) |
| | Sig. (2-tailed) | | .000 |
| Performance | Pearson Correlation | 0.191(**) | 1 |
| | Sig. (2-tailed) | .000 | |
| **. | | | <i>Correlation is significant at the 0.01 level (2-tailed).</i> |

Source: primary data

The results in the above table indicate that there was a moderate and statistically significant positive correlation between perceived ease of use and performance at 0.191** with a significance of 0.000 at the level of 0.01. This is confirmation that school perceived ease of use in regard to acceptance, understandability, convenience and experimentation was paramount in enhancing their performance. The results imply that if the Schools accepted, took keen interest in understanding the use of ICTs and realized how they would make their work easy to be processed, this would have a positive effect on their performance.

4.6 Objective Three: User Acceptance and Performance

The third objective for the study was to assess the effect of user acceptance on performance. Item means were used by the researcher in order to evaluate the level of user acceptance of the MIS. The responses were rated on the 5 point likert scale ranging between strongly disagree, disagree, not sure, agree and strongly agree. The findings are shown in table 4.9 below:

Table 4.9: User Acceptance

| | Min | Max | Mean | Std. Dev |
|---|-----|-----|------|----------|
| The technical personnel keep time schedules in maintaining ICTs infrastructure. | 1 | 5 | 2.60 | 0.87 |
| The technical personnel are highly skilled to manage ICTs technology | 1 | 5 | 2.56 | 0.86 |
| the school's skillfulness to implement MIS is good | 1 | 5 | 2.58 | 0.91 |
| I have ability to fully understand and use ICT technologies. | 1 | 5 | 2.59 | 0.84 |
| I find the MIS functions user friendly | 1 | 5 | 2.59 | 0.76 |
| ICT technology is fully implemented | 1 | 5 | 2.18 | 0.93 |
| I generate reports easily and faster with ICTs | 1 | 5 | 2.52 | 0.83 |
| I generate reports much more quickly. | 1 | 5 | 2.57 | 0.60 |
| Overall, ICT functions are very useful. | 1 | 5 | 2.59 | 0.72 |

Source: field data

According to table 4.9 above, the technical personnel did not keep time schedules in maintaining ICT infrastructure (Mean=2.60) and were not skilled to manage ICT technology (Mean=2.56). Likewise, the schools' skillfulness to implement MIS was not good (Mean=2.58), staff did not have the ability to fully understand and use ICT technologies (Mean=2.59), did not find ICT functions user friendly (Mean=2.59), ICT technology was not fully implemented (Mean=2.18) and they did not generate reports easily and faster with them (Mean=2.52). This position was supported by the students who revealed that "training opportunities in ICTs were not fairly allocated to students". They further revealed that

“cases of favoritism during staff training in ICTs were existent at their schools”. Similarly, the DOS Molly and Paul High school–Kibuye disclosed that “the school was facing challenges in regard to availability of enough ICTs so as to enable proper facilitation of lectures which had affected the performance of students”.

4.6.1 Pearson Correlation between User Acceptance and Performance

To study the relationship between user acceptance and performance, Pearson’s correlation test was used and the results are presented in table 4.10 below.

Table 4.10: User Acceptance and Performance

| | | User acceptance | Performance |
|-----------------|---------------------|-----------------|--|
| User acceptance | Pearson Correlation | 1 | .362** |
| | Sig. (2-tailed) | | .000 |
| Performance | Pearson Correlation | .362** | 1 |
| | Sig. (2-tailed) | .000 | |
| **. | | | Correlation is significant at the 0.01 level (2-tailed). |

Source: primary data

There was a significant positive relationship between user acceptance and performance ($r=.362^{**}$, $p\text{-value}<0.01$) which is confirmation that schools having positive perceptions about the security and privacy of the ICTs had positive influence on performance of the schools. The results indicate that there is a strong and highly significant positive correlation between user acceptance and performance. The user acceptance of the ICTs will result into improved performance for the Schools. This implies that a positive change in user acceptance of the ICTs enhances the performance of schools.

4.7 Regression Analysis

Regression analysis was carried out to examine the extent to which the study variables ICT adoption (perceived usefulness, perceived ease of use and perceived acceptance) predict performance of secondary schools.

Table 4.11: Prediction Model for Factor Components

| Model | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|--|-----------------------------|--------------------------|---------------------------|------------|------|
| | B | Std. Error | Beta | | |
| (Constant) | 1.786 | .408 | | 4.373 | .000 |
| Perceived usefulness | .010 | .070 | .010 | .148 | .003 |
| Perceived ease of use | .133 | .062 | .144 | 2.161 | .002 |
| User acceptance | .126 | .053 | .172 | 2.350 | .020 |
| Dependent variable: Performance | | | | | |
| R ² =.416 | | Adj R ² =.391 | | Sig= 0.000 | |

Source: Primary data

According to the results, there was a linear relationship between ICT adoption and performance. The model revealed that 39.1% of the increment or decrease in performance of schools can be explained by perceived usefulness, perceived ease of use and user acceptance since the Adjusted R Square value is .391. User acceptance had the greatest capacity to influence school performance (Beta = .172), followed by perceived ease of use (Beta = .144), followed by perceived usefulness (Beta = .010). Change in User acceptance led to 0.10 increase in performance, a change in perceived ease of use led to .133 enhancement in performance and a change in perceived usefulness led to .126 increase in performance. These results were in line with correlation results implying that performance significantly depends on perceived usefulness, perceived ease of use and user acceptance.

Model

$$Pr = 1.786 + 0.010PU + 0.133PEU + 0.126UA + e$$

Where Pr= performance, PU= perceived usefulness, PEU= perceived ease of use, UA= user acceptance, e-error

CHAPTER FIVE

DISCUSSION, SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the discussion, conclusions, and recommendations arising out of the research findings in chapter four and suggests areas for further study.

5.2 Summary

The study sought to investigate the effect of ICT adoption on performance of private secondary schools in Makindye division. This was carried out by way of unpacking the factor components of ICT adoption and thereafter related them to performance. Data was collected by way of a self administered questionnaire and interview guide which were both open and closed ended and the data was analyzed with use of the Statistical Package for Social Scientists which was used to present results in tabulations of frequencies, item means, correlations and regression analysis.

From the findings on the demographic characteristics, the majority of the respondents were male, with the results showing that the majority of the respondents were degree holders. According to the results, a sizeable number of respondents had worked for 7-9 years and the majority of the respondents belonged to the 30-34 years age group.

The findings on the effect of perceived usefulness and performance revealed a significant relationship. This is confirmation that the more Schools perceived the usefulness of ICTs, the more likely that they would adopt them and consequently improve their performance. The

correlation findings were also supported by regression analysis results which showed that perceived usefulness was a significant predictor of performance in secondary schools.

According to the correlational findings on the effect of perceived ease of use on performance, a significant relationship was observed. This is confirmation that through acceptance, understandability, convenience and experimentation, this had a positive effect on school performance. The correlational results are in line with the regression analysis which revealed that perceived ease of use predicted performance in schools.

Similarly, the association between user acceptance on performance revealed a significant relationship between the study variables. The findings posit that the more schools accepted the use of ICTs in their schools this would culminate into improved performance of school activities. The correlational results are in agreement with the regression analysis findings which revealed that user acceptance predicted performance of schools.

5.3 Discussion of the Findings

A discussion of the findings was carried out following the study objectives. Here the researcher assessed how the findings of the study were in agreement or disagreement with extant literature that was reviewed.

5.3.1 Perceived usefulness and Performance

The findings revealed a significant relationship between perceived usefulness and performance. In line with the findings, Pikkarainen et al. (2004) found perceived usefulness as a determinant of actual behavior which encouraged the user of the twenty-first century

banking to use more innovative and user-friendly self-service technologies that give them greater autonomy in performing banking transactions, in obtaining information on financial advices, and in purchasing other financial products.

According to Tan and Teo (2000), the perceived usefulness is an important factor in determining adoption of innovations. In line with the assertions of Pikkarainen et al. (2004), Gerrard and Cunningham (2003) noted that the perceived usefulness depends on the banking services offered such as checking bank balances, applying for a loan, paying utility bills, transferring money abroad, and obtaining information on mutual funds. Therefore, the greater the perceived usefulness of using electronic banking services, the more likely that electronic banking will be adopted.

5.3.2 Perceived Ease of Use and Performance

According to the findings on the relationship between perceived ease of use and performance a significant relationship was revealed. In agreement with the findings, Mathieson (1991) is of the view that the perceived ease of use is the consumer's perception that banking on the internet will involve a minimum of effort. Consult (2002) affirmed that the drivers of growth in electronic banking are determined by the perceived ease of use which is a combination of convenience provided to those with easy internet access, the availability of secure, high standard electronic banking functionality, and the necessity of banking services. This is confirmation that perceived ease of use was paramount in determining customer adoption.

5.3.3 User Acceptance and Performance

The findings revealed a significant positive relationship between user acceptance and performance. This is further supported by the findings which revealed that there was user acceptance of ICTs in regard to privacy, confidence in the use of school activities, ensuring that certain managerial and technical procedures exist to secure all the data on the system, good security system and consistency of information processing on the system. In agreement with the findings, Chen and Barnes (2007), the importance of security and privacy for the acceptance of online banking has been noted in many banking studies. To be more precise, lack of privacy and security were found to be significant obstacles to the adoption of online banking. Although consumers' confidence in their bank may be strong, their confidence in technology is in most cases weak (Howcroft et al., 2002). Therefore, as the amount of banking products and services offered via the internet grows rapidly, consumers are more and more concerned about security and privacy issues. Hernandez and Mazzon (2007) suggest that privacy issues have proven important barriers to the use of online services.

5.4 Conclusion

The conclusion of the study was made in accordance with the study objectives as follows:

The findings revealed a significant positive relationship between perceived usefulness and performance which implied that ICTS provided desirable customer experiences, expertise and accessibility, this would trigger school adoption and consequently having a positive influence on their performance. This is confirmation that the higher the level of ICT perceived usefulness, the likelihood that schools would favour their adoption.

From the findings on the relationship between perceived ease of use and performance, it is evident that in order for the schools to perceive ICTs as of value, benefit and at the same time remain certain, the acceptance, understandability and convenience were paramount in determining adoption. Therefore, the higher the level of ease of use of the ICTs, the likelihood that the ICTS would be taken up by the users and consequently having a positive influence on the schools' performance.

From the findings on the relationship between user acceptance and performance, it is clear that the acceptance of ICTs by schools determined the perceived value, benefit and certainty of the technologies. Therefore, administrators need to appreciate that for the ICTS to be embraced by the different stakeholders in schools, it should have proven experiences of staff and students that promote privacy and security when they use them.

5.5 Recommendations

In light of the research findings, the following recommendations are made:

- i) Considering that the study indicated a significant positive correlation between perceived usefulness and performance, greater attention must be given to the perceptions held by the school staff and students in relation to ICTs. Stakeholders in the education sector should undertake training of the teachers in the use of ICTs as this will help in developing students' perceptions of usefulness and ease of use. This in turn will greatly influence service delivery in schools.
- ii) Given the findings on the relationship between perceived usefulness and performance, a lot of focus should be put on staff's perceived usefulness if the ICTs is to be accepted. Staff need the assurance that by using the ICT option, they will

achieve greater job performance, save time, money and complete a given task better, than it would have otherwise been. Stakeholders must further focus more on incorporating a number of users in the system considering that users have alternative choices and there is opportunity cost. Additionally for the systems to be perceived as useful, they should be able to perform tasks that directly affect people's lives.

- iii) As a means of enhancing ICT adoption of ICTS, the management of schools should benchmark from other academic institutions currently using ICTs more effectively and efficiently and take lessons on how to use ICTs improve the delivery of services in their schools.
- iv) The findings revealed that perceived ease of use had a significant effect on performance. Therefore, the management of schools in order to promote ICT adoption in schools, they should ensure that there is customer service acceptance, understandability of the offered services and convenience of the respective stakeholders.
- v) The findings on the relationship between user acceptance and performance revealed that acceptance of the ICTs was paramount in determining the performance of schools. Therefore, in order to realize the desired performance in the delivery of academic services, there should be a move to ensure privacy and security risk of the adopted ICTs.
- vi) The school management should put a lot of emphasis on ensuring that the persons in leadership positions possess the ability to use ICTs, which will enable the schools to successfully overcome ICT mutual problems and achieve their group goals.

- vii) The study recommends a review of the curriculum for the training of teachers so that sufficient attention is given to ICT training. The need to review the training curriculum is precipitated by the existing gap between theory and practice.

5.6 Areas for further study

The results of the study point to a number of opportunities for further research into perceived usefulness, perceived ease of use, user acceptance and performance.

- i) Perceived usefulness, perceived ease of use and user acceptance predicted 39.1% of the variance in performance of schools. Further studies should establish what other factors explain the variance in the performance of schools.
- ii) To study the true nature and quality of perceived usefulness, perceived ease of use, user acceptance and performance, a longitudinal study is more appropriate.

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Please indicate by ticking in the appropriate box to what extent you agree/disagree to the following statements below. (Strongly Disagree (SD)-1, Disagree (D)-2, Not Sure (NS)-3, Agree (A)-4 and Strongly Agree (SA)-5

Section II: Perceived Usefulness

| | | SD | D | NS | A | SA |
|----|---|----|---|----|---|----|
| 1 | ICTs have improved the quality of the work I do | | | | | |
| 2 | I have greater control over my work schedules through the use of ICTs | | | | | |
| 3 | I accomplish my tasks more quickly with ICTs | | | | | |
| 4 | The MIS supports critical aspects of my job | | | | | |
| 5 | My productivity has increase through use of ICTs | | | | | |
| 6 | My job performance has improved due to ICTs | | | | | |
| 7 | I accomplish more work than would otherwise be possible | | | | | |
| 8 | The MIS enhances my overall effectiveness. | | | | | |
| 9 | The MIS makes it easier for staff & students carryout school activities | | | | | |
| 10 | I feel that ICTs are useful when doing my job | | | | | |

Section III: Perceived Ease of Use

| | | SD | D | NS | A | SA |
|---|---|----|---|----|---|----|
| 1 | I find the ICTs appropriate for use | | | | | |
| 2 | I Learnt to use ICT functions and services easily | | | | | |
| 3 | Interaction with and use of ICTs is difficult. | | | | | |
| 4 | I find it easy to use ICTs to do what I want it to do | | | | | |
| | The MIS is rigid and inflexible to be operated by users | | | | | |
| 5 | It is easy for me to remember how to perform and access what service I want using ICTs | | | | | |
| 6 | Interacting with the MIS requires a lot of mental effort | | | | | |
| 7 | My interaction with ICTs is clear and understandable | | | | | |
| 8 | I feel that it will take a lot of effort to become skillful at using the MIS technologies | | | | | |

Section IV: User Acceptance

| | | SD | D | NS | A | SA |
|---|---|----|---|----|---|----|
| 1 | The technical personnel keep time schedules in maintaining ICTs infrastructure. | | | | | |
| 2 | The technical personnel are highly skilled to manage ICTs technology | | | | | |
| 3 | the school's skillfulness to implement MIS is good | | | | | |
| 4 | I have ability to fully understand and use ICT technologies. | | | | | |
| 5 | I find the MIS functions user friendly | | | | | |
| | ICT technology is fully implemented | | | | | |

| | | | | | | |
|---|--|--|--|--|--|--|
| 6 | I generate reports easily and faster with ICTs | | | | | |
| 7 | I generate reports much more quickly. | | | | | |
| 8 | Overall, ICT functions are very useful. | | | | | |

SECTION IV: Performance

| | | SD | D | NS | A | SA |
|---|--|-----------|----------|-----------|----------|-----------|
| 1 | Students in our school pass their exams | | | | | |
| 2 | Students pass national exams highly | | | | | |
| | Our school attains high grades in national exams | | | | | |
| 3 | The quality of grades at our school improving | | | | | |
| 4 | Students with high grades are recognized | | | | | |
| 5 | The image of our school improving | | | | | |

APPENDIX II

Interview guide for managers

Dear respondents

I am a student undertaking a research study as an academic requirement in partial fulfillment for the award of Master of Business Administration of Kyambogo University. This questionnaire is intended to facilitate the study on **“ICT ADOPTION AND PERFORMANCE AMONG SECONDARY SCHOOLS IN UGANDA**. The information provided for this research will be purely for academic purposes and the recommendations made will be of great importance to your business. The information provided herein will be treated with utmost confidentiality.

1. Do you use ICTs in your school?
2. Mention the different ICT equipments used in secondary school to enhance student performance?
3. Elaborate on the level of ICT perception among your staff?
4. What kind of administrative support do you provide with regards ICT?
5. How do you measure the performance of your staff?
6. Which of the performance indicators do you directly associate with ICT?