

**TEACHERS' ATTITUDES AND IMPLEMENTATION OF E-LEARNING IN  
CYBER-SECONDARY SCHOOLS IN JINJA DISTRICT, UGANDA**

**TAMALE JULIUS**

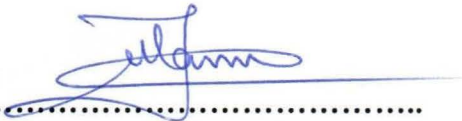
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**A RESEARCH REPORT SUBMITTED TO THE GRADUATE SCHOOL IN  
PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD  
OF A MASTER OF EDUCATION IN POLICY, PLANNING AND  
MANAGEMENT OF KYAMBOGO UNIVERSITY**

**NOVEMBER, 2017**

### Declaration

This is to declare that this research report entitled “Teachers’ Attitudes and Implementation of E-learning in Cyber-Secondary Schools in Jinja District” is my original work and to the best of my knowledge has never been submitted to any University or Institution of Higher Learning for any award or presented for publication anywhere.

Signature.....

Date: <sup>th</sup>4 Dec 2017.....

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### Approval

This is to certify that this research report entitled, “Teachers’ Attitudes and Implementation of E-learning in Cyber-Secondary Schools in Jinja District” is now ready for submission to the Graduate School of Kyambogo University with our approval as the supervisors.

Signature.....

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Date.....05<sup>th</sup>/12/2017

Signature.....

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Date.....5/12/2017

## **Dedication**

This research report is dedicated to my mother Juliet Namuganza, my father Silvester Lukwago, Uncle Kibwika Isaac, Auntie Sekabira Getrude (Mrs), Auntie Sanyu Nalongo, my sisters Namusoke Cissy, Namuddu Violet, Teleka Nubu, Namususwa Samalie and my brothers Kyobe Joseph and Ssali Allan. Most importantly to Elsa Kourtney Nanyunja and Mary Irunva for their love, patience and moral support.

## Acknowledgement

I take the honour to acknowledge the effort of my supervisors; Dr. Ndawula Stephen and Sr. Dr. Kaahwa Maria Goretti (DST), specifically their professional, technical and moral support that has enabled me to pursue a correct path and completion of the thesis. I recognize that they have sacrificed their time and foregone many tasks in order to guide me. I pray to God to bless all their work.

I also appreciate all my lecturers especially Dr. Owino P, Dr. Okello P, Dr. Naluwemba F, Dr. Kugonza, Mr. Ssemenda E, Dr. Rev. Fr Ssetumba J.B, & Mr. Okongo W. for the knowledge and skills I acquired from them. Contributions of Dr. Kasule G, Dr. Lubega M, Dr. Ejuu G and Dr. Okello B have also been instrumental in providing additional technical support.

I also appreciate my former classmates especially of Mr. Mawanda Edwin and Mr. Kabambwe Benard who have also supported me morally and financially.

Thanks to all teachers and administrators in respective selected secondary schools for being corporative during data collection. I am very grateful to my workmates Mr. Isaac Balimusangayo, Mr. Balyaino Lastone, Ms. Kitimbo Alisat and all teachers for being available for me when I wasn't at school. This gratitude is extended to my father Mr. Lukwago Silver and my uncle Mr. Kibwika who motivated me to undertake the programme.

I also thank all the authors whose ideas were used to enrich my study.

Lastly, I thank God for my success.

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### **List of Acronyms**

IDPT	Innovation Decision Process Theory
ICT	Information and Communications Technology (ICT)
LMS	Learning Management System
MOES	Ministry of Education and Sports
ODeL	Open, Distance and e-Learning
PEOU	Perceived Ease Of Use
PU	Perceived Usefulness
TAM	Technology Acceptance Model
TRA	Theory Of Reasoned Action

## Abstract

The study sought to establish the relationship between teachers' attitudes and implementation of e-learning in selected Cyber Secondary Schools in Jinja District specifically between teachers' attitudes and (1) online information searching; (2) e-discussions; and (3) e-assessments. A cross-sectional descriptive design was employed where a population of 60 teachers and 10 administrators from 4 selected secondary schools in Jinja District participated. The teachers and administrators were selected using stratified random sampling and purposive sampling techniques respectively. Structured questionnaires and semi-structured interview guides were used to collect data. A trial test on 5 respondents using test-retest reliability was carried out which yielded reliability coefficient of 0.87 and internal consistency of Cronbach  $\alpha = 0.89$  for the questionnaire while a content validity index of 0.83 was obtained after subjecting the instruments to 3 competent raters. Descriptive statistics and Pearson Product Moment Correlation Coefficients were used to analyse quantitative data while qualitative data was analysed according to themes and similarity of responses. The findings revealed there is a very strong positive association ( $r = 0.95$ ) between teachers' attitudes and online information searching, a strong positive relationship ( $r = 0.87$ ) with electronic discussions and also a strong positive relationship ( $r = 0.85$ ) with electronic assessments. The results also found that teachers have moderately positive attitudes towards online information searching and e-discussions consisting higher confidence, enjoyment, enthusiasm and perceived usefulness but negative attitudes towards e-assessment specifically with perceived insecurity. Furthermore, the study recommended that more computer training and administrator support should be given to teachers to elicit strong positive attitudes.

## CHAPTER ONE

### INTRODUCTION

#### 1.0 Introduction

This chapter presents the background to the study, problem statement, research purpose, objectives, hypotheses, study scope, significance, theoretical framework, conceptual framework and definitions of operational terms.

#### 1.1 Background to the study

##### *1.1.1 Historical background*

Integration of Information Technologies (IT) into education has been an important concern in many countries overtime since 1924 when the first testing machine was invented which allowed students to test themselves and was followed by the invention of a teaching machine in 1954 by Professor BF Skinner at Harvard University (Audrey, 2015). This e-learning tool enabled schools to administer programmed instruction to their students. It wasn't until 1960 however that the first computer based training program was introduced at Illinois University which ended up being used in other schools (Roberta, 2013 cited in Audrey, 2015).

In Uganda, the e-learning started slowly in Higher Education Institutions to support distance learning through several initiatives. Connect-ED (Connectivity for Educator Development) with support from USAID integrated digital media in the Primary Teacher Colleges to enable learning and teaching for primary educators (Luwangula, 2013). The African Virtual University initiated in 1997 and funded by World Bank and African Development Bank ran a number of online courses to help the beleaguered universities in Africa to improve the quality of their learning. African Virtual University started by franchising existing courses. development of new

courses and availing computer based facilities to existing universities in Africa. This enticed Ugandan universities to open doors to Open, Distance and e-Learning (ODEL) as a way of providing access to flexible higher education (Muyinda, Mayende and Kizito, 2011).

Since the passing of the ICT policy in 2003, several initiatives like Uganda Connect (Uconnect), SchoolNet-Uganda, Digital Science and others, have been integrated into secondary education, enabling the supply of at low cost computer facilities, internet, learning management systems and training.

### *1.1.2 Conceptual background*

#### *1.1.2.1 Attitudes*

A review of the psychological literature reveals diverse definitions of attitudes. According to Nabeel, Shahrir and Chin (2013), attitudes are beliefs, feelings, and behavioural tendencies towards socially significant objects, groups, events or symbols while Ajzen & Fishbein (2010) defined attitudes as perceptions, beliefs or feelings in which a person shows his/her satisfaction or dissatisfaction with an object. These feelings can be negative or positive and involve three components; cognitive, affective and behavioral components. (1) The affective component represents an individual's emotional response such as enjoyment, anxiety, hate and fear; (2) the cognitive component consists of a person's factual knowledge about the object such as confidence, perceived usefulness, and perceived ease of use while (3) the behavioral component involves a person's overt behavior directed towards the object (curiosity, eager/desire and avoidance (Ajzen & Fishbien, 2010; Nabeel et al, 2013; Ronnie, Christopher and Eugenia, 2011; Ali, Kok, and Chun, 2014). If an individual's viewpoint is positive. then attitude is also positive. Attitudes. in turn lead to certain

behavior patterns towards an object such as a challenge to pursue or something to avoid (Ajzen & Fishbein, 2010).

#### *1.1.2.2 Implementation of E-learning*

*Implementation* refers to a specific set of activities designed to put into practice a programme, plan, idea or policy of known dimensions (Wikitionary, 2016).

Casey (2015) defined Information technology as innovations that facilitate electronic acquisition, storage, processing, transmission, and disseminating of information in all forms including voice, text, data, graphics and video.

*E-learning* was defined as the use of computers to support and transcend the traditional teacher-centered pedagogies (Laudon & Laudon, 2010; Shabnam, Jamsandekar and Nalavade, 2012). Implementing E-learning in education, consists of four main elements; i) as an object, ii) an assisting tool, iii) a medium for teaching or learning and iv) a tool for organisation and management in schools. Implementing e-learning as a medium of teaching and learning process is the main focus of the study and the common methods of implementation in schools are; (1) online information searching (2) online discussions/instruction, and (3) e-assessments.

*Electronic assessment* (online assessment or computer assisted assessment) is the electronic delivery of tests, assignments project activity and results between the teacher and learner. It also refers to the use of electronic processes to evaluate the learners' academic performance (Wikipedia dictionary, 2015). Mubashrah, Topping and Tariq (2012), explained e-assessment in the context of pedagogical applications, noting that it enabled teachers to test their students covering a wide range of content,



reduced teacher workload especially in the case of double marking, saved time and resources, and helped identify students' learning problems by adapting to match their abilities. Administratively, e-assessment saves time in supervision, invigilation, marking and double marking, generating reports and communication with students.

*Electronic-discussion* is the sharing of educational information/resources between two parties such as teacher-teacher, teacher-learner and learner-learner in collaborative environment using e-learning tools. These can involve use of synchronous or asynchronous digital media. On-line discussions can be structured with defined topics and procedures or unstructured allowing users to make free expressions of ideas.

*Online Information Searching* is where computer users download educational material from the digital media. Users browse computer systems and sites or electronic libraries to access educational material.

#### *1.1.2.3 Cyber Secondary Schools in Uganda*

Uganda Secondary Education consists of public and privately owned schools which implement same curriculum and international schools that also implement related curriculum approved by National Curriculum Development Center. ICT was formally introduced in the secondary education under the ICT policy of 2003 e-learning is open to all schools with facilities, to teachers and to students.

Secondary schools with cyber facilities utilize online learning systems or computer based learning systems to support the teaching and learning alongside the traditional learning technologies like black board. This has been possible with the help of digital media that allow teachers and students to access and share information. E-learning since 2005 has been adopted by some secondary schools in Uganda through use of

learning management systems that are locally hosted like digital science programme and other software with support from the Uganda government, telecommunications companies, world bank and non-government organisations (E-learning Africa, 2014). Gayaza High School as the first cyber secondary school in Uganda developed an e-learning system to help the teachers, students, parents and public to interact online, download content, assignments and share past papers. Integrated digital science software, was installed in most secondary schools to enable demonstration of abstract concepts, assessment, acquire information and interaction amongst science teachers, students and outside world (E-learning Africa, 2014).

In Jinja District, e-learning in secondary education is still low and relatively new to most teachers, students and administrators. Exploring the implementation level of E-learning in schools and the issues of teachers' is important to understand why some information technology projects are successful and some fail although great literature is available on several factors influencing e-learning implementation in higher education institutions (Ramon and Tomas, 2010; Buabeng, 2012; Conrad et al, 2013; Nafsaniath et al, 2015).

### *1.1.3 Theoretical background*

The theory of planned behaviour (TPB), the Innovation Decision Process Theory (IDPT) and Technology Acceptance Model (TAM) explain the how user perceptions and attitudes are linked to new innovation adoption, acceptance and actual usage.

Theory of Planned Behaviour (TPB) as initially designed by Ajzen & Fishbein (1980) explains persons' intention to engage in a particular activity. The application of the theory of planned behavior deals with the relationship between antecedents of attitudes, subjective norms, and perceived behavioral control. The more positive the

attitude towards performing the behavior accompanied by social pressure to do so, the more likely the individual is to carry out the behavior. TPB suggests that the intention to engage and interact with a particular computer activity is influenced by user attitudes towards e-learning (Ajzen & Fishbein, 2010; Ajzen & Fishbein, 1980).

According to the Innovation Decision Process Theory (IDPT), a new technology will be increasingly diffused if potential adopters perceive that the innovation: (1) has an advantage over previous innovations; (2) is compatible with existing practices, (3) is not complex to understand and use, (4) shows observable results, and (5) can be experimented with on a limited basis before adoption (Rogers, 1995).

The Technology Acceptance Model (TAM) of Davis F. D (1989) was built to explain the relationship between user perceptions, attitudes and actual usage of technology. The model explains that user acceptance and actual usage of technology is a function of perceived usefulness (PU) and perceived ease of use (PEOU). Therefore, the success of an IT system can be determined by users' acceptance of the system, measured by their perceptions/beliefs (Venkatesh. and Davis, 2000; Samira, 2011; Renny, 2012).

#### *1.1.4 Contextual background*

Utilizing well proven implementation methodology can help to achieve organizational goals but often, it is the number of tasks, poor planning and inadequate resourcing that causes problems with implementation of e-learning. System implementation generally benefit from high levels of user participation and management support. User participation in design and operation of e-learning has positive results. If users are heavily involved in system design, they move opportunities to mold the system

according to their priorities and institutional requirements. In this regard, e-learning system users are most likely to react positively to the change process in the institution. The pre-pilot teacher survey on usage of ICT in Europe showed that a significant majority of teachers agreed that e-learning impacted positively on their skills (Korte & Husing, 2007).

E-learning is a fundamental path towards achievement of the fourth sustainable developmental goal of “improvement of quality education for all by year 2030” (United Nations, 2016). Several researchers later found out that the e-learning saves the time for teachers and students as well as making the learning content easier to be accessed, and presented, which enhance self-regulated learning and increasing chances of finding reliable information (Qing, 2007; Fuad and Sharifah, 2013). Other studies found that e-learning significantly reduces costs and is able to deliver vast education resources to students and teachers over large audiences over wide distances and has the potential to change the nature of learning environments (Voogt, 2010; Adkins, 2013). In addition, Adkin (2013) noted that Africa's compound annual growth rate for e-learning was 15.4%, and their revenues were expected to reach \$512.8 million in the next three years.

The global adoption of e-learning has often been premised on the potential of the new technological tools to revolutionize an old-fashioned educational system, better prepare teachers and students for the information age, and accelerate national development efforts (Torff & Tirota, 2010). However in developing countries, the above premises have generated a whole set of wild speculations about the necessity of educational reforms that will accommodate the new tools (Kasse and Balunywa, 2013; Hilary, 2005).

Earlier researchers showed that e-learning is increasing in post primary education, but many teachers use only the parts or functions that replace older techniques for reproducing and distributing documents (Ramon and Tomas, 2010). Several studies found that, not all the functions and tools of e-learning were equally used by the users, some functions were used more frequently than the other functions (Nafsaniath, David and Margaret, 2015). Document uploading; grade posting and assignments were the familiar features of e-learning in secondary schools (Angondi, 2013).

Findings in selected secondary schools in Northern Uganda showed a low level of e-learning by the entrusted officers (Conrad, Bugaba & Achola, 2013).

In the study of harnessing technology in schools, BECTA (2008) found that a small amount of time was saved by using some technologies, particularly online resources and interactive whiteboards. The survey of adoption and integration of ICT in teaching in Ghana schools by Buabeng (2012) also showed that most schools were characterized by small adoption percentage, abandonment, and failure of most e-learning projects and at the same time, technology availability is mistaken for technology adoption and use.

## **1.2 Statement of the problem**

The Uganda government has been making tremendous efforts to integrate e-learning in education system but the implementation is still low in secondary schools and seems to have little consideration of teachers' input. This has been characterized by abandonment, irregular and selective usage of the information technologies for pedagogical purposes by teachers in cyber secondary schools in Jinja District thereby denying enough opportunities for students to practice e-learning. Many teachers fail to fully integrate ICT skills in schools in sub-Saharan Africa especially when preparing

assessment for students, choosing the dynamic instructional techniques, and preparing updated teaching resources (Angondi, 2013) while it's also argued that many teachers often react with ambivalence to new technologies as they feel increasing pressure to experiment them (Kasse & Balunywa, 2013). Hence, there was need to establish whether e-learning implementation in cyber secondary schools is associated with teachers' attitudes.

### **1.3 Purpose of the study**

The purpose of this study was to establish if there is relationship between Teachers' Attitudes and implementation rate of E-learning in selected cyber Secondary Schools in Jinja District.

### **1.4 Objectives of the study**

The study was guided by the following objectives:

- i. To determine the relationship between Teachers Attitudes and Online Information Searching in selected Cyber Secondary Schools in Jinja District.
- ii. To establish relationship between Teachers' Attitudes and e-discussions in selected Cyber Secondary Schools in Jinja District.
- iii. To establish relationship between Teachers' Attitudes and e-assessment in selected Cyber Secondary Schools in Jinja District.

### **1.5 Hypotheses of the study**

The study aimed to test and verify the null hypotheses below;

- i. There is no relationship between Teachers Attitudes and Online Information Searching in selected Secondary Schools in Jinja District.
- ii. There is no relationship between Teachers' Attitudes and e-discussions in selected Secondary Schools in Jinja District.

- iii. There is no relationship between Teachers' Attitudes and e-assessment in selected Secondary Schools in Jinja District.

## **1.6 Significance of the study**

The study results will benefit Educational administrators, teachers, students, authorities, Education partners and government in the following ways.

The results will also justify why the implementers of e-learning in education like teachers should be consulted and get involved in planning for e-learning projects in schools and also inform teachers' readiness to use ICT. Secondly, teachers' attitudes towards e-learning will shade light on proper integration of ICT in teaching and learning, and, in turn, will help to determine their professional development needs for proper e-learning integration in the classrooms.

The study will also uncover the great inherent risks to investing in E-learning by the Ministry of Education and Sports (MOES) when end-users like the teachers are unwilling to respond positively in effective implementation of e-learning in schools.

Provide useful information to school administrators, local authorities, central government and donors in supporting strategies that will enhance the implementation of e-learning in all education institutions.

It will also inform educational technology experts and curriculum developers on the actual implementation of e-learning in schools so that sustainable curriculum is developed.

Lastly, scholars and researchers will use this study results to carry out future research to close the gaps left and act as a future reference to similar problems.

## **1.7 Scope of the study**

### *1.7.1 Geographical scope*

The study was carried out in Jinja District which is located in Eastern Uganda because the e-learning cyber secondary schools, is still low just like elsewhere in the country.

### *1.7.2 Content scope*

The study focused on the teachers' attitudes as the independent variable while Online Information Searching, e-discussions, e-assessments as the dependent variables.

### *1.7.3 Time scope*

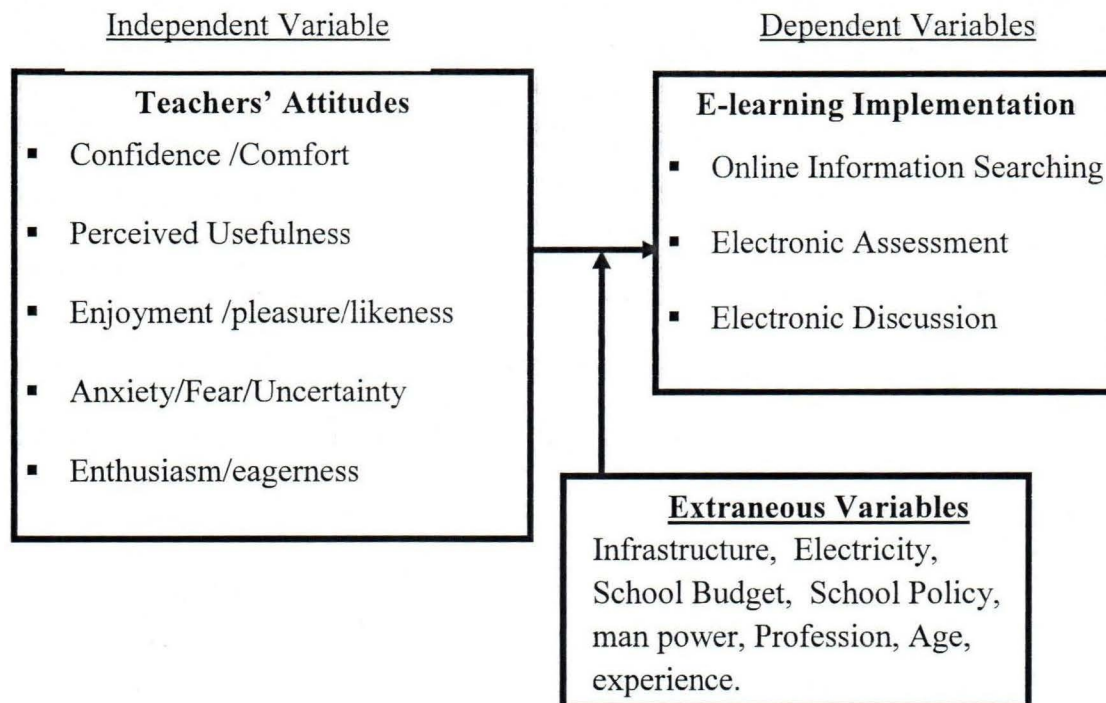
The study period was between 2015 to 2016, covering a period of two years when reliable data could be captured with up to date IT systems.

## **1.8 Theoretical framework**

The study was tied on the Theory of Planned Behaviour, Innovation Decision Process Theory, and Technology Acceptance Model, which explain how user perceptions and attitudes are linked to new innovation adoption, acceptance or actual usage. These attitudes are Affective (Enjoyment, Anxiety, Hate), Cognitive (Confidence, perceived usefulness, perceived ease of use) and Behavioural intention (Laziness, curiosity) (Venkatesh & Davis, 2000; Davis, 1989; Ajzen & Fishbein, 2010; Rogers, 2003).



## 1.9 Conceptual Framework



**Figure 1: Attitudes and E-learning Implementation, Source: Juniwati (2014)**

Figure 1.0 shows the relationship between teacher's attitudes (independent variable) and implementation of e-learning (Independent variable). Implementation of IT involves the frequency of engaging in online information searching, electronic discussions and electronic assessments. The extraneous variables in the study include teacher's age, school policy, government policy, school budget, teachers professional subject, and experience. These were controlled by randomization and elimination.

## 1.10 Definitions of Operational terms

*E-learning implementation:* In the study context, this refers to acquisition and application of computer skills to support teaching and learning processes. This is indicated by the frequency of engaging in; online information searching, e-discussions and e-assessments.

*E-assessment* is the electronic process of evaluating learners through delivering project activity, assignments or tests and grading results.

*Online Information Searching* refers to the acquiring or downloading teaching-learning material using online applications.

*Online Discussion* refers to interacting, instructing, or communicating educational knowledge between the teacher-learners or teacher-teachers or groups with the help of e-learning tools. These tools can be asynchronous or synchronous.

*Attitude* refers to an expression of favor or disfavor towards an object or tool. Positive attitudes are those that favor while negative attitudes are those that disfavor.

*Perceived usefulness* is the belief that using a system would add value to work.

*Enjoyment* is the feeling of pleasure or liking when dealing with ICT.

*Anxiety* is the hesitation, fear or uncertainty felt by an individual when considering using the tool or when actually using it.

*Enthusiasm* is the willingness/eagerness or desire to engage in an activity.

*Confidence* is a feeling of comfort, simplicity or ability in using an ICT to produce the desired effect.

## CHAPTER TWO

### LITERATURE REVIEW

#### 2.0 Introduction

This chapter explains a review of existing literature related to the objectives of the study and the summary of the literature.

#### 2.1 Teachers' Attitudes and Online Information Searching

The user perceptions and attitudes are considered distinct factors influencing the internet use (Khalid, 2010; Fuad and Sharifah, 2013). An extensive research reviewed by Balanskat, Blamire and Kefala (2006) found that teachers' practice 'is not changing much when they use internet to search information', but it also reported that teachers with highly positive perceptions will use internet in a more 'project-oriented, collaborative and experimental way' than other teachers.

According to Reddy (2013) cited in Juniwati (2014), great percentages of students perceive that Internet is a universal digital library, provides easy life, and is a fastest way to reach knowledge. The study to analyze students' attitude towards the uses of internet by Kashif Ahmed, Nadeem and Abrar (2010), found that most students who use internet primarily for educational and research purposes were also comfortable with online searching. Otaibi (2012) revealed that a large number of the internet users agreed that online searching is a rapid means of getting information, a good source of information and a good means of continuous self-learning.

Teachers have varying perceptions about their effectiveness when searching online which can subsequently impact on how much they use technologies in the classroom. For example, teachers in the UK reported high levels of self-rated effectiveness, but teachers in a Turkish study felt much less confident about their online searching skills and therefore usage in the classroom (BECTA, 2008). On a related note, Bingimlas (2009) reported that teachers who are confident in using ICT agree that new technologies help them teach and would like to use them more in the future.

Balanskat et al (2006) identified lesson planning as an area where online searching helped teachers work more efficiently, particularly through its ability to support collaboration and resource sharing. In an European Union Schoolnet (2010) pre-pilot teacher survey on usage of Internet involving 6 countries, a significant majority of teachers agreed that netbook use impacted positively on learning, allowed for personalized learning and helped to extend learning beyond the school day. However, other research suggests that a significant minority of teachers do not see considerable learning benefits for students from ICT, regardless of the sophistication of their e-learning systems. The empirical survey found that a fifth of European teachers felt that using ICT in class did not have 'significant learning benefits for pupils' (Korte & Husing, 2007). A survey of UK teachers also showed that teachers' positivity about the possible contributions of ICT was moderated as they became 'rather more ambivalent and sometimes doubtful' about 'specific, current advantages' (BECTA, 2008). Positive attitudes often encourage less capable users to learn the skills necessary for the integrating ICT classroom activities (Azjen & Fishbien, 2005).

However, teachers differ on whether they feel online searching makes their jobs easier or adds to their workloads. Nearly half of teachers who participated in the online

searching survey agreed that online searching would increase their workload (EU Schoolnet, 2010).

A non-usable ICT application leads to a frustrating and unpleasant experience for users who may spend more time trying to navigate than actual computer usage (Zaharias, 2009; Juniwati, 2014; Nadim, 2008; Renny, Suryo, and Hotniar, 2012). Baule (2007) noted that in order for teachers to effectively search knowledge online, “the technology must be easy to use; it must be engaging and flexible; and it must provide results” since teachers have the inherent ability to shape future generations.

In a survey conducted by the Association for Information Communications Technology Professionals in Higher Education, researchers found that 84 percent of respondents believed their campus networks were more secure than five years ago (Worldwide Videotex, 2009). Yet, despite those findings, 47 percent of respondents had experienced a significant security breach at their institution of employment. Researchers also found that 35 percent of respondents saw that e-learning was vulnerable to malware, cyber-hackers, data loss. In addition, the literature in consumer behavior by Jen et al (2011), suggests that when engaging in an online transaction process, concerns of inherent risk have surfaced as outstanding to many potential adopters. However, actual risk is difficult to measure objectively, but the user’s perception of the uncertainty and adverse consequence of a desired outcome and taxpayers may hesitate to file their tax return electronically.

## **2.2 Teachers’ Attitudes and e-Discussions**

Eke (2011) cited in Buabeng (2012) puts it forward that online collaboration in education institutions is determined by users’ readiness for it especially if they

are satisfied with the quality of service offered by e-learning which will in turn determine the extent of ICT utilization. However, Madeleine & Thomas (2009) stated that despite the advancement of online discussion forums, many teachers were anxious about using them and such behavior lead to avoidance of ICT and inhibited the ability to develop competent computer skills.

Several previous researchers found that the rate of teachers who often use computers for discussions and demonstrations in classes in Japan was equivalent to the rate of teachers who have confidence in using computers in classes (Shimizu, Yamamoto, Horita, Koizumi & Yoshii, 2007; Teo, 2012). Online interaction users feel happy and comfortable when they use the Internet and preferred to use the Internet to improve their communicative abilities and skills (Otaibi, 2012). Online interactions encouraged more open discussion amongst participants and provided a more active and collaborative teaching-learning experience, particularly for those users who felt uncomfortable asking questions in a large tutorial group (Lily, 2012). A similar finding was reported by Albirini (2006) on teachers' attitudes toward information and communication technologies among the Syrian English Fluent Language teachers. Results of their research indicate that there is a significant relationship between users' attitudes towards computers and the actual level of online interaction. This indicated that teachers holds negative attitudes towards the ICT, as a result they are less likely to contribute effectively to the utilization of ICT for online interactions.

During the head teachers' conference on unlocking the scientific potential in East Africa, Odhiambo (2015) stated that using digital Science software has made learners to develop interest in the science subjects, and the use of graphics helps students grasp abstract scientific concepts.

In their study of online discussions, and students' attitudes in universities, Despotakis, Palaigeorgiou, & Tsoukalas (2007) found that online discussions required low meta-cognitive efforts and could even be considered as a form of entertainment. However, students suggested that online discussions in their current form have significant shortcomings. For example, students noted their inflexible content structure, their browsing inefficiencies and the possibility to lead to delusions of skills (Despotakis et al, 2007). In addition, some researchers noted that a number of students claimed that the online discussions were too fast and sometimes the pace exceeded their ability to assimilate the presented content. In addition, the researchers noted that most narrators were verbose, since they described many operations of no interest to learners (Haas, Brown, Cao & Wilbur, 2012).

Research recognizes that the quality of online discussions is heavily dependent on learners' attitudes towards e-learning. The literature related to unsuccessful cases of online discussion implementation attributes the lack of success to low levels of participation, insufficient peer referencing, superficial interaction, and unwillingness to build joint efforts (Fouzieh & Abbas, 2013; Fuad and Sharifah, 2013).

Bates & Poole (2003) stated that most theories of learning suggest that for learning to be efficient, it needs to be active such that the learner must respond in some way to the learning material. Students learn better when they are actively engaged with their learning rather than being passive receptacles of information.

### **2.3 Teachers' Attitudes and e-Assessment**

In order to use technology in the classroom and examinations effectively, teachers' attitude toward technology should be positive since attitude of the teacher toward

using technologies in the classrooms is a major factor in the successful implementation of technology (Samak, 2006; Tabata & Johnsrud, 2008, Bulent, Pinar, Bahar and Tarik, 2009).

The survey of ICT acceptance in Kenya schools found that the negative teacher attitude towards technology stands out as one of the main reasons for the laziness in the uptake of IT in teaching and assessment (Keengwe, 2007 cited in Angondi, 2013). In contrast, the study also revealed that teachers who have positive attitudes toward technology feel more comfortable with using it. Voogt (2010) found that teachers who use technology extensively in assessing their learners tend to have a high level of confidence in pedagogical technology skills and focus on a learner-centered approach. They are more engaged in professional development activities and collaboration with colleagues than teachers who don't use technology very often.

Students perceive the e-portfolio system as one that is easy to use and nearly free of mental effort, they may have a favorable attitude towards the usefulness of the system and are willing to adopt the e-portfolio system, and this may suggest that students tend to focus on the usefulness of the technology itself (Aytekin et al, 2007). However, user friendliness of electronic systems is one of the most problematic requirements to satisfy as "users are known to quickly become frustrated and simply abandon a confusing application (Kodai, Frederiksen, Le, and Kobayashi, 2013). The study of teacher technology change in schools shows that unless teachers see the connection between digital media and the subject content they teach, they are unlikely to develop a technology-supported pedagogy (Ertmer & Ottenbreit, 2012).



Muwanga and Zake (2006) evaluated the diagnostic value of e-assessment in the process of teaching and learning. They concluded that learners realized the usefulness of e-assessment and criterion-referencing as impacting successive learning performance. Results showed that learners improved due to self-assessment and descriptive feedback which enabled them to diagnose and remedy mistakes themselves, through dialogue with or without assistance from the teachers. The free test atmosphere, instantaneous marking, and the diagnostic nature of test items supported self-diagnosis and led learners to request more testing, which ultimately increased competitiveness and excitement, especially when learners were aware of improvement. In case of teachers, they reflected that e-assessment could show learners' problems and styles of thinking and also can test large number of students in short time.

Debusse, Lawley and Shibl (2008) evaluated educators' perceptions of automated assessment in terms of workload and quality of feedback. They used an automated feedback generator across multiple tutors on assessment items within the course. They concluded that while the workload impact was generally positive with saving in both cost and time, improvements and modifications to the system could further reduce workloads. Specifically, improvements related to initial installation and training would significantly reduce the time required to be able to start using the system. The results indicated that automated feedback generator improved timeliness, consistency between markers, and recycling of useful comments.

Similarly, other studies related to e-assessment were based on strategies for planning and implementation, models for designing e-assessment, and the role of e-assessment in formative, summative and diagnostic assessment. But very few studies were found

on the topic of perceptions about e-assessment of students. One example was Sheader, Gouldsborough and Grady (2006), who analyzed the perceptions of staff and students by comparing e-assessment with traditional methods of assessment in practical Physiology classes. In an experiment, they utilized computer-based short-answer assessments for nearly 300 students and compared it to paper-based assessment of the same students. They concluded that students were generally well-disposed toward e-assessment (75% of the students responded that they had no preference in assessment methods in the future). Remote access to questions and ease of submission were positive aspects, but lack of internet access was a perceived disadvantage. On the other hand, the most common advantages cited by staff were reduction in marking time and paperwork, the improved quality of feedback to students, as well as the potential for the software to detect plagiarism and administer anonymous marking. The need to tailor questions to the technology and having to adapt answers for marking onscreen were the main disadvantages found by staff. The main difference between the Sheader et. al. (2006) and Debuse et. al. (2008) research studies and the present study is that e-assessment is not really applied in Pakistan. The above mentioned researches were conducted in situations where e-assessment was applied. Therefore this study is significant to all of those teachers, students and administrators who are interested in e-assessment in Pakistan.

A study about the empirical evidence on the relative efficiency of worked examples versus problem-solving exercises in accounting principles instruction by Halabi, Tuovinen, and Farley (2005) revealed that teachers had higher attitudes towards traditional face to face teaching than tele-teaching approach.

The findings of the study entitled Teachers' Attitudes and Levels of Technology Use in Classrooms in Jordan Schools by Naser, Leong and Fong (2010) indicated that the teachers' attitudes levels towards the use of ICT had a direct relation with the e-assessments. In other words, the correlation findings revealed that there was significant positive correlation between teachers' level of ICT use for assessments and their attitudes levels.

#### **2.4 Summary of Literature Review**

The above literature review provides a background of the literature related to the teachers' attitudes and implementation of e-learning in schools. Most studies emphasize that teachers, play an important role in the implementation of e-learning into schools and their attitudes towards ICT is one key factor for the success of e-learning. This literature suggests that secondary school teachers may effectively implement technologies if they have positive attitudes. However, most studies related on user attitudes and e-learning on were done in Europe, U.S and Asian countries while some in Africa concentrated on higher educational institutions. This implies that very little (if any) or no literature is available on teachers' attitudes and implementation of e-learning secondary schools in Uganda.

## CHAPTER THREE

### METHODOLOGY

#### **3.0 Introduction**

This chapter presents the research design, population, samples and sampling techniques, target population, Instruments of data collection, data quality control, data collection procedures, methods of data analysis and limitations.

#### **3.1 Research design**

The study adopted a cross section descriptive design to collect and analyze both qualitative and quantitative data (Polit et. al, 2001) from the selected Secondary Schools. The design consisted of obtaining, studying of data in each school and a correlation of data from all the schools particularly on teachers' attitudes and frequency of electronic learning. The research design was chosen because it gives the researcher more understanding of the problem on the ground within a short time frame (Burns & Grove, 2003). A cross section is where by a researcher examines and compares findings from different population groups at one point in time.

#### **3.2 Target Population and Sampling Techniques**

A target population is the entire group of respondents about which a researcher wishes to draw conclusions while a sample is a subset drawn from the population to represent the population in a statistical analysis (Burns & Grove, 2003). Sampling is a method of selecting objects in such a way that every possible object has a predetermined chance of being selected and represent a population (Amin, 2005). The target population of the study included teachers and administrators; Head teachers, Deputy Head teachers, directors of studies, computer supervisor, and computer laboratory attendants.

Four schools were selected using purposive sampling techniques because these schools have hybrid learning systems; have traditional and e-learning media. The researcher also employed purposive sampling to select school administrators while teachers were selected using stratified random sampling to come up with the study sample. The purposive sampling technique is beneficial when only specific population or places have the information which the researcher desires (Tashakkori & Teddie, 2003). Stratified sampling techniques is opted to enable the researcher attain fair representation of teachers in numbers (Colline, Onwuegbuzie & Jiao, 2006).

The schools included Jinja College (A), Wanyange Girls School (B), Kiira College (C) and Lords Mead Vocational School (D). For purposes of confidentiality, pseudonyms were used to represent the above schools using letters in brackets.

### **3.3 Sample Size**

A sample size is the number of participants in a sample (Kemper, Stringfield. and Teddlie, 2003). The study selected 80 participants from a population of 102 from the 4 selected secondary schools. These included 64 teachers and 12 school administrators from each selected school. This number 80 was determined using a table of random numbers by Krejcie and Morgan (1970) *see appendix C* and according to Despotakis et. al. (2007) is representative of the small population since it reduces the error.

**Table 1: Sampling Frame**

School	A	B	C	D	No
Teachers	16	16	18	14	64
Administrators	4	4	4	4	16
Total	20	20	22	18	80

### **3.4 Instruments of Data Collection**

The study used questionnaires and interviews to collect data.

#### *3.4.1 Questionnaires*

The study used printed structured questionnaires to collect both quantitative and qualitative data. A questionnaire is a pre-formulated written set of questions to which a respondent records his/her answers, usually within rather closely defined alternatives (Zohrabi, 2013). The questionnaires were used because the respondents have ability to complete them.

The questionnaire adopted from Reddy (2013) was used after modifying the items to suite the objectives of the study. This included positively-worded closed-ended items on attitude using a 3-point Likert's scale, where 1=Disagree, 2=Unsure and 3=Agree. Zohrabi (2013) is of the opinion that closed-ended questionnaires are more efficient because of their ease of analysis. The criterion mean is 2, where a positive attitude is indicated by a score greater than 2 while a negative attitude is indicated by a score less than 2. In addition, the items on e-learning are rated according to Likert's scale where 1=Never Used, 2=Rarely Use, and 3=Regularly Use.

The questionnaire was made up of three sections. Section A consisted of items on respondents' background information such as age, gender, experience and level of education, section B consists of attitudes items and section C consists of Implementing e-learning.

#### *3.4.2 Interview Guide*

An interview is a personal session of asking questions and getting answers from a respondent (Zohrabi, 2013). Interviews are good for measuring attitudes and can provide in-depth information (Johnson and Turner, 2003). Interviews from each school selected were conducted with 4 teachers and 4 administrators with help of interview guides and a sound recorder (phone) was utilized as a reminder during editing. The interview consisted of mostly open ended items where qualitative data was collected to close the gaps left in the questionnaires and support statistical inferences.

### **3.5 Data Collection Procedures**

After obtaining an introductory letter from the head of department of Educational Planning at Kyambogo University, the researcher sought permission from authorities in the selected schools. Then hard copies of the questionnaires were administered to the respondents by the researcher with the help of research assistants who underwent training and orientation in the study. The completed questionnaires were picked immediately after completion while others picked after a week. Face to face interviews were conducted during the same period. This data was coded and summarized for presentation and analysis.

### **3.6 Methods of Data Analysis**

Quantitative techniques were used to analyze quantitative data and these included percentages, simple descriptive statistics and Pearson product-moment correlation. The respondents' background data was checked using frequency counts and percentages while the data gathered for research objectives was first presented using frequency counts and mean values followed by testing and verification of the null hypotheses (Ho) by Pearson product moment correlation (r) at  $\alpha = 0.05$  level of significance. Pearson moment correlation coefficient was calculated to determine the nature and strength of the relationship between independent variable and dependent variables in study. Qualitative data from open-ended interviews item was analysed according to the themes, similarity and strength of responses. The opinions of the female respondents were also catered for.

### **3.7 Data Quality Control**

#### *3.7.1 Validity*

Validity refers to the degree to which a test or instrument measures what it's supposed to measure and consequently permit appropriate interpretation of scores (Zohrabi, 2013). The researcher sought expert knowledge from experienced researcher and an IT expert who provided necessary corrections and modifications. Then content validity index of 0.83 was calculated after being rated by two judges/experts in the study field (see appendix D) using the formula shown below.

$$\text{Content Validity Index} = \frac{\text{Number of common items rated as good}}{\text{Total number of items in the instrument}}$$

$$\text{CVI} = \frac{19}{23} = 0.83$$



### *3.7.2 Reliability*

This refers to the degree to which a test consistently measures whatever it's supposed to measure. An instrument is said to be reliable if it gives the same results every time it is administered to the same group of individuals (Zohrabi, 2013). Test-retest reliability of  $r = 0.87$  was determined using Pearson product-moment correlation formula after subjecting the instruments to an independent group of 5 respondents in two separate occasions in two weeks interval while internal consistency was computed by Cronbach Alpha formula as  $\alpha = 0.89$  which made the instrument highly reliable.

### **3.8 Ethical Consideration**

The study was inclined on, confidentiality, honesty, voluntary and informed consent. This is because the researcher seeks to obtain genuine, valid and reliable data from the respondents.

### **3.9 Limitations and Delimitations**

Limitations are events or hindrances that the researcher has got no control and can affect the study. Limitations of the study are anticipated to be teacher absenteeism, and delays in returning all completed questionnaires. To overcome the shortage of participants, the researcher administered a larger number of questionnaires compared to the sample.

The study was also limited by financial constraints especially the travel costs to the respective schools, training and facilitating research assistants found in the selected schools.

Delimitations assist in establishing boundaries for conducting a study. Delimitations include choices made by the researcher about what is and is not included in the study.

This study only focused on the link between attitudes and implementation rate of three dependent variables; online searching, e-discussions and e-assessments in cyber secondary schools but other gaps were catered for in the interview guide to explain how and why.

The selected cyber schools in the region were typically hybrid where both traditional educational technologies and modern ICTs were available. Therefore the study results may not be generalized to institutions that operate solely on virtual learning.

The study population size was too small to represent the respective schools in the whole country or other education levels. For that reason, purposive sampling was used to select the schools.

In addition, the study was limited to use of printed questionnaires thereby limiting chance of other eligible population that would respond online.

## CHAPTER FOUR

### DATA PRESENTATION, ANALYSIS AND INTERPRETATION

#### 4.0 Introduction

This chapter presents of the findings, analysis and interpretation of data collected from the questionnaires and interviews from the four selected secondary schools. The background information of the respondents is analysed by simple statistics and percentages while the hypotheses have been analysed by Pearson moment correlation.

##### *Return rate*

Out of the 76 questionnaires administered, 60 teachers' questionnaires and 2 administrators' questionnaires were fully completed and returned while interviews meetings were held on 4 teachers and on 4 administrators, thus making a total of 70 participants.

#### 4.1 Background information

It has been acknowledged that age, sex, and socio-economic background contribute to and shape people's expectations of the institution, their adjustment to membership, and ultimately their opinions and experiences (McInnes, James, & McNaught, 1995).

##### *Gender distribution of respondents*

Findings on the distribution of respondents by their gender/sex are summarized in table 2 as indicated.

**Table 2: Sex Distribution of all respondents**

		Number	%
Sex	Male	48	68.6%
	Female	22	31.4%
	<b>Total</b>	<b>70</b>	<b>100%</b>

Table 2 shows the distribution of all the 70 respondents concerning their sex. It was found that 68.8% were male while 31.4% were females. The number of male participants is greater than females in every school. Colline et. al. (2006) argued that gender sensitivity allows inclusion of ideas of male and female respondents thus avoiding bias in the findings. Thus, women's feelings were considered in the study.

#### *Age distribution of respondents*

**Table 3: Distribution of respondents by their age**

Age	20-29 years	20	28.6%
	30-39 years	38	54.3%
	40-49 years	08	11.4%
	50+ years	04	5.7%
	<b>Total</b>	<b>70</b>	<b>100%</b>

In addition, table 3 shows the age distribution of the respondents who completed the questionnaires and those who were interviewed. The largest (54.3%) age group was between 30-40 years followed by 28.6% in the age group of 20-29 years. Also 11.4%

of the respondents were between 40-49 years and only 5.7% of the respondents were 50 years and above.

*Distribution of respondents by their working experience*

**Table 4: Distribution of respondents by their working experience**

		Number	%
Working Experience	1-3 years	10	14.3%
	4-6 years	28	40.0%
	7+ years	32	45.7%
	<b>Total</b>	<b>70</b>	<b>100%</b>

When the 70 respondents were asked about their working experience, their responses were 7 and above years (45.7%) followed by 4-6 years (40.0% and 1-3 years (14.3%). This means that the large number of respondents had enough working experience as teachers or administrators to give the required information as shown in table 4.

*Distribution of respondents by their highest Educational level*

**Table 5: Distribution of respondents by their highest Educational level**

Education Level	Diploma	22	31.4%
	Degree	40	57.2%
	Masters	08	11.4%
	Other	0	0.0%
	<b>Total</b>	<b>70</b>	<b>100%</b>

Table 5 shows that a large number (57.2%) of respondents possessed a university first degree as their minimum qualification followed by 31.4% with a diploma and only 11.4% possessed master's degree. While exploring the Impact of Formal Education on the Moral Reasoning Abilities of College Students, Nather (2013) found that the level of formal education increased their fluency and reasoning abilities.

#### 4.2 Findings on the Level of Implementing E-Learning

The opinions from questionnaires of 60 teachers and 2 administrators on how frequent they implement e-learning (online searching, e-discussions and e-assessments) in their schools are presented in table 6 as shown.

**Table 6: The frequency of use of ICT (e-learning) in the four secondary schools**

	School A (n=15)				School B (n=16)				School C (n=18)				School D (n=13)			
	Nev	Rar	Reg	M	Nev	Rar	Reg	M	Nev	Rar	Reg	M	Nev	Rar	Reg	M
Online Searching	0	8	7	2.47	1	9	6	2.31	0	12	6	2.33	0	4	9	2.69
E-discussions	1	8	6	2.33	0	9	7	2.44	2	6	10	2.44	1	5	7	2.46
E-assessment	4	7	4	2.00	5	8	3	1.88	4	14	0	1.78	4	8	1	1.77

Nev=never used, Rar=rarely use, Reg=regularly use, M=average use

From table 6, the respondents' opinions regarding how frequent the use online information searching from the four schools were; in school A (8 said rarely, 7 said regularly and none said never) and the average usage frequency was 2.41. This shows that online searching was used often ( $2.41 > 2.0$ ). In school B (9 said rarely, 6 said regularly and 1 said never) and the average was  $2.31 > 2.0$  meaning that they often used

online searching in the school. The respondents in school C said that 12 used rarely, 6 used regularly and none never used and the average becoming  $2.33 > 2$  meaning that inline searching was used more often while in school D, 9 used regularly, 4 used rarely and none never resulting in average of 2.69 implying they often used online searching.

Concerning e-discussions usage frequency, table 6 shows that in school A, 8 said rarely, 6 said regularly and only 1 said never and the average frequency usage resulting to 2.33 while in school B, 9 said rarely use, 7 said regularly use and none said never resulting into average usage frequency 2.44. Also in school C, 10 said they regularly use, 6 said they rarely use while 2 said they never used and the average was 2.44 while in school D, 7 said regularly use, 5 said relay use, only 1 said never used and the average was 2.46. Since all averages in the four schools were greater than 2.0, this implies that e-discussion was often used.

Table 6 further shows the frequency of using e-assessment in the four schools selected. In school A, 7 said they rarely use, 4 said they regularly use and 4 also said they never used e-assessment while in school B, 8 said they rarely use, followed by 5 who never used and 3 said they regularly use. In addition, the table indicates that in school C, 14 said they rarely use, 4 said they never used and none used regularly whereas in school D, 8 said they rarely use, 4 said they never used and only 1 said regularly use. The average use for the school A, B, C and D was 2.00, 1.88, 1.78 and 1.77 respectively implying that there was low use of e-assessment among the teachers.

### 4.3 Findings on Teachers' Attitudes towards Online Information Searching

The data on teachers' attitudes towards online searching was collected from the questionnaires of 60 teachers and 2 administrators in the four selected secondary schools and mean value (M) computed for each school as shown in table 7.

**Table 7: The responses and mean value on Attitudes towards online searching**

	School A (n=15)				School B (n=16)				School C (n=18)				School D (n=13)			
	D	N	A	M	D	N	A	M	D	N	A	M	D	N	A	M
Q1	3	2	10	2.47	6	3	7	2.06	4	6	8	2.22	1	0	12	2.85
Q2	2	1	12	2.67	2	5	9	2.44	0	3	15	2.83	0	3	10	2.77
Q3	4	4	7	2.20	5	1	10	2.31	8	1	9	2.06	2	1	8	2.15
Q4	5	0	10	2.33	7	2	7	2.00	6	4	8	2.11	3	4	6	2.23
Q5	1	5	9	2.53	1	3	12	2.69	10	2	6	1.78	0	0	13	3.00
<b>Grand Mean</b>				<b>2.44</b>				<b>2.30</b>				<b>2.20</b>				<b>2.60</b>

*D=disagree, N=neutral, A=agree, M=mean, Criterion mean=2.0, n=No of respondents*

Q1: Comfort (Browsing internet is simple and flexible), Q2: Perceived Usefulness (Our e-learning system provides the information I need), Q3: Enjoyment (I find it pleasant to search information using e-learning system), Q4: No fear (I do not fear to download information online) and Q5: Eagerness (I have the willingness to search information from the e-learning system)

Table 7 shows the responses of teachers and administrators on attitudes towards online searching in each of the four selected schools. When they were asked whether online searching is simple and flexible, it was found that in school A, 3 disagreed, 2 were



neutral and 10 agreed whereas in school B, 6 disagreed, 3 were neutral and 7 agreed. In school C, 4 disagreed, 6 were neutral and 8 agreed while in school D, 1 disagreed, and 12 agreed. The mean values from the four schools are greater than 2.00 that is; 2.47, 2.06, 2.22 and 2.85 implying that teachers were comfortable to information searching in the four selected schools.

When they were asked whether the digital e-learning system provide the information needed, their responses were as shown in table 7. In school A, 2 disagreed, 1 was neutral and 12 agreed while in school B, 2 disagreed, 5 were neutral and 9 agreed. the findings in school C show that 15 agreed but 3 were neutral while in school D, 3 were neutral and 10 agreed. The mean values 2.67, 2.44, 2.83 and 2.77 respectively indicate that their level of perceived usefulness was high.

Regarding question whether online searching was pleasant, it was found that in school A , (4 disagreed, 4 were neutral , 7 agreed), school B, (5 disagreed, 1 were neutral , 10 agreed), school C (8 disagreed, 1 were neutral , 9 agreed) and school D (2 disagreed, 1 were neutral , 8 agreed). Their respective means 2.20, 3.31, 2.06 and 2.15 indicate that their level of enjoyment was high since it's greater than 2.00 as shown in table 7. The grand mean of 2.385 imply that their attitudes are moderately positive.

#### **4.4 Testing and Verification of Hypothesis One:**

A correlation between teachers' attitudes and frequency of use of online searching was determined to test and verify the statement "There is no relationship between Teachers Attitudes and Online Information Searching in selected Secondary Schools in Jinja District?"

The mean values of teachers' attitudes were correlated with the average frequencies of use of online searching by Pearson correlation coefficient ( $r$ ) at a 0.05 level of significance as indicated in table 8.

**Table 8: Pearson correlation between teachers' attitudes and online searching**

Variables	School				$r - value$	$p - value$
	A	B	C	D		
Teachers' Attitudes (X)	2.44	2.30	2.20	2.60	0.95	0.03
Online Searching (Y)	2.47	2.31	2.33	2.69		

$X$ =attitudes mean,  $Y$ =average frequency of use,  $r$ =Pearson correlation coefficient

From table 8, the correlation coefficient ( $r=0.95$ ) implies that there is a strong positive relationship between teachers' attitudes and use of online searching in the secondary schools. Since the  $p$ -value (0.03) is less than 0.05, the correlation is significant and the null hypothesis is rejected. Therefore, an alternative hypothesis above is upheld.

#### **4.5 Findings on Teachers' Attitudes towards E-discussions**

The data from the questionnaires of 60 teachers and 2 administrators in the four selected secondary schools was coded and the mean values of teachers' attitudes towards e-discussions computed following the Likert's scale as shown in table 7.

**Table 9: Responses & mean value of Teachers' Attitudes towards e-discussion**

	School A (n=15)				School B (n=16)				School C (n=18)				School D (n=13)			
	D	N	A	M	D	N	A	M	D	N	A	M	D	N	A	M
Q6	3	5	7	2.27	3	2	11	2.50	4	6	8	2.22	1	6	6	2.38
Q7	3	4	8	2.33	6	3	7	2.06	1	0	17	2.89	0	1	12	2.92
Q8	7	1	7	2.00	4	6	6	2.13	6	2	10	2.22	5	2	6	2.08
Q9	2	0	13	2.73	0	6	10	2.63	4	7	7	2.17	3	2	8	2.38
Q10	5	3	7	2.13	2	5	9	2.44	2	1	15	2.72	2	2	9	2.54
<b>Grand Mean</b>				<b>2.29</b>				<b>2.35</b>				<b>2.44</b>				<b>2.46</b>

*D=disagree (1), N=neutral (2), A=agree (3), M=mean, Criterion mean=2.0*

From table 9, when the respondents were asked about their level of comfort (Q6) with e-discussions, the mean value for school A was 2.27 shows quite higher comfort, school B (M=2.5) shows high more comfort levels, school C (M=2.22) shows moderate comfort level and in school D (M=2.38) also shows moderately comfortable. In response to the teachers perceived usefulness (PU) of e-discussions (Q7), there was very high PU in school D (M=2.92) and in school C (M=2.89) followed by moderately high PU in school A and B; M=2.33 and M=2.06 as shown in table 9. When asked to determine their degree of enjoyment (Q8), results obtained show that the mean values were just above the criterion mean with highest mean of (m=2.2 in school D) followed by 2.13 in school B, 2.08 in school D and 2.00 in school A as

indicated in table 9 meaning that teachers enjoyment levels were high. When asked whether they did not fear to use e-discussions (Q9), the highest mean was 2.73 from school A followed by 2.63 in school B, 2.38 in school D and 2.17 in school C implying that they agreed that they do not fear to use e-discussions in the four schools. In addition, the findings on ascertaining their eagerness, the mean values were 2.72 for school C followed by 2.54 for school D, 2.44 for school B and 2.13 for school A showing agreement that they were eager to use e-discussions. This generated the grand means for school A, B, C and D as 2.29, 2.35, 2.44 and 2.46 respectively implying that the teachers' attitudes were high (>2.0) in the four schools. The general grand mean of 2.85 shows moderately positive attitudes towards e-discussions.

#### 4.6 Testing and Verification of Hypothesis Two

The statement "There is no relationship between Teachers' Attitudes and e-discussions in selected Secondary Schools in Jinja District?" was tested and verified using Pearson correlation coefficient ( $r$ ) at a 0.05 level of significance. The grand means of attitudes for the schools from table 9 and the average usage frequency were correlated using Pearson moment correlation as shown in table 10.

**Table 10: Pearson correlation between teachers' attitudes and e-discussions**

Variables	School				$r$	$p$
	A	B	C	D		
Teachers' Attitudes (X)	2.29	2.35	2.44	2.46	0.87	0.01
E-Discussion (Y)	2.33	2.44	2.44	2.46		

*X=attitudes mean, Y=average frequency of use, r=Pearson correlation coefficient*

Table 10 indicates a high positive Pearson correlation coefficient ( $r=0.87$ ) between the variables teachers attitudes (X) and use of e-discussions (Y). Since  $p < 0.05$ , the null hypothesis is rejected and the correlation is significant. Therefore, a significant relationship exists between teachers' attitudes and use of e-discussions in the cyber secondary schools.

#### 4.7 Findings on Teachers' Attitudes towards E-assessments

The table 11 shows the findings from the questionnaires gathered from the responses to calculate the mean values of teachers' attitudes.

**Table 11: Responses & mean value of Teachers' Attitudes towards assessments**

	School A (n=15)				School B (n=16)				School C (n=18)				School D (n=13)			
	D	N	A	M	D	N	A	M	D	N	A	M	D	N	A	M
Q11	7	4	4	1.80	7	4	5	1.88	7	6	5	1.89	6	3	4	1.85
Q12	2	3	10	2.53	5	3	8	2.19	6	4	8	2.11	4	4	5	2.08
Q13	10	1	4	1.60	8	2	6	1.88	9	4	5	1.78	8	0	5	1.77
Q14	3	7	5	2.13	3	7	6	2.19	6	5	7	2.06	3	5	5	2.15
Q15	6	5	5	2.07	4	10	2	1.88	5	7	6	2.06	6	4	3	1.77
<b>Grand Mean</b>				<b>2.03</b>				<b>2.00</b>				<b>1.98</b>				<b>1.92</b>

D=disagree, N=neutral, A=agree, M=mean, Criterion mean=2.0

The findings in table 11 show that the mean value for the responses concerning their comfort levels (Q11). These were 1.89 in school C, followed by 1.88 in school B, 1.85

in school D and 1.80 in school A. Since all means are less than 2.0, they all showed a disagreement that they were less comfortable to use e-assessments.

Concerning their degree of perceived usefulness (Q12), the findings in table 11 show the means for school A, B, C and D were 2.53, 2.19, 2.11 and 2.08 implying that they viewed e-assessment to be more useful ( $>2.0$ ).

Table 11 indicates that the mean values concerning their level of enjoyment (Q13), for school A, B, C and D were 1.60, 1.88, 1.78 and 1.77 respectively. This shows that the teachers did not enjoy using e-assessments.

When asked whether they do not fear to use e-assessment (Q14), table 11 indicates that the mean values for the four schools were 2.13, 2.19, 2.06 and 2.15 implying that they did not fear to use e-assessment (all means  $>2.00$ ).

The table 11 also indicates that the mean values of their level of eagerness (Q15) were 2.07 and 2.06 in school A and C respectively meaning that they were willing to use e-assessment unlike in school B and D (1.88 and 1.77 respectively) where they showed less willing. The computed grand means of the teachers' attitudes for the schools; A and B ( $M=2.03$  and  $M= 2.00$  respectively) showed low positive attitudes of teachers while for schools C and D ( $M=1.98$  and  $1.92$ ) showed negative attitudes.

The general grand mean of 1.983 imply negative attitudes towards e-assessments.

#### **4.8 Testing and Verification of Hypothesis Three**

Is there a significant relationship between Teachers' Attitudes and e-assessment in selected Secondary Schools in Jinja District? A Pearson correlation was employed at a 0.05 significance level.

The correlation between the variables teachers' attitudes (grand means X) and e-assessments (Y) were computed using Pearson correlation as shown in table 12.

**Table 12: Pearson correlation between teachers' attitudes and e-assessment**

Variables	School				<i>r</i>	<i>p</i>
	A	B	C	D		
Teachers' Attitudes (X)	2.03	2.00	1.98	1.92	0.85	0.01
E-assessments (Y)	2.00	1.88	1.78	1.77		

*X=attitudes mean, Y=average frequency of use, r=Pearson correlation coefficient*

Table 12 indicates that the correlation coefficient  $r=0.85$  between teachers attitudes and use of e-assessment is high and positive. Since  $p < 0.05$ , the correlation is significant and null hypothesis is rejected. This implies that there is a significant relationship between teachers' attitudes and e-assessments in the secondary schools.

#### **4.9 Presentation of Qualitative Data**

The qualitative data from open-ended items was collected from interview sessions conducted with 8 respondents who included 4 computer teachers and 4 administrators.

The administrators included 1 head teacher, 2 deputy head teachers, and 1 director of studies in the four selected schools. Through the open-answer questioning, respondents were allowed to explain or justify their responses to support the closed ended questions. This data was analysed according to their magnitude, frequency of related responses and emerging responses.

#### *4.9.1 Interview results on level of e-learning*

The interviewees were asked how often teachers use the digital e-learning system for searching information, discussions and assessments in their schools and these were the responses.

The interviews regarding online searching of teaching and learning material held show that 6 respondents concurred that this tool is used frequently during their free time with the handset smart phones and laptops as they searched content in form of text, images and animations. While 1 respondent added that some teachers have substituted textbook use with the use of the digital e-learning system for searching and updating teaching material.

When asked on the e-discussions, the interviews with 4 respondents showed that a teacher interaction was a common feature with the digital e-learning system. All interviewees from school C said that teachers also created a group social media group e-learning system where they discussed and shared learning information.

Regarding interviews on frequency of e-Assessment activities, 2 respondents said that the digital e-learning system is frequently used for tests, examinations and preparing results while 4 respondents said that it is not used regularly and only some teachers can use it for assessment activities.

#### *4.9.2 Interview results on teachers' attitudes and e-learning*

Some interviewed respondents the interview concurred that teachers' attitude towards online searching, e-discussions and e-assessments is positive but moderate. Three respondents justified this by their willingness to learn computer skills, commitment to



use of digital e-learning system for examinations, frequent teacher-teacher online interactions and use of laptops in during lessons.

Presented below is a sample of comments from head teachers, deputies, computer supervisors and some teachers who participated in the interviews. It provides an insight into how these e-learning options helped deepen the researcher's understanding of teachers' attitudes and to make inferences.

One male Head teacher said

*“some teachers have found e-learning is extremely advantageous to learners as it had been extremely helpful to teachers especially those who part time”.*

One female deputy head teacher who is also a teacher preferred physical library text books to electronic material said

*“Although I practice using electronic material and physical library, I find I am able to use the physical library books for better understanding of the subject. I have found them of great assistance”.*

Another deputy head teacher who is male commented that

*“Electronic interactions are clear and easy to listen to especially with the company of the physical notes since they are still very beneficial”*

E-assessment was still a problem in the schools and the interview with some respondents revealed negative attitudes. Their responses show that the low level of confidence in digital systems is related to the low level of implementation of digital systems for pedagogical purposes.

One female teacher was quoted saying:

*“The task of electronic assessments consumes time yet exams can easily be cheated, therefore hands delivered ones are still good”.*

This supports the alternative hypothesis two and is in agreement with Keengwe (2007) survey of ICT acceptance in Kenya schools which found that the negative teacher attitude towards technology stands out as one of the main reasons for the laziness in the uptake of ICT in teaching and assessment.

A male teacher also said:

*“I am not subscribed to the digital e-learning system, so how will I ask my students to do electronic assignments? It is also impossible to prepare digital materials in my class due to the big number of students attending my subject”*

Another female deputy teacher added that;

*“Sometimes the e-learning is very complex and very slow. It consumes time compared to our usual way of assessment (Head teacher)*

This implied that some teachers do not perceive the benefit of e-assessments in school while several are lazy and unenthusiastic to sign up with the digital e-learning system. In addition, there is high fear to utilize e-assessments as a result of perceived insecurity of examinations. This results into low implementation of e-assessments in secondary schools in Jinja District. It is also identified that the computer systems are slow and might have worsened the attitudes towards e-learning.

New emerging responses were also captured that need great attention which was a factor influencing attitudes towards e-learning in secondary school. Two respondents revealed.

A computer supervisor said that

*“Teachers attitudes are limited to their computer skills since committed teachers are very skilled compared to others and also carry their own laptops”.*

This was in agreement with another deputy head teacher who said that

*“50% of teachers are very comfortable to use the information technologies during examinations while others need support”.*

## CHAPTER FIVE

### DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

#### 5.0 Introduction

This chapter consists of the subsequent discussion of findings in line with the research questions, conclusions and recommendations.

#### 5.1 Discussions of findings

##### 5.1.1 *Discussion of Hypothesis One*

An alternative hypothesis was adopted basing on the findings presented in the table 8 after correlating the variables; teachers attitudes and online information searching, when the results ( $r=0.95$ ,  $p<0.05$ ) justify that a strong positive significant relationship exists between teachers' attitudes and use of online searching in the selected secondary schools in Jinja District. This is in agreement with some researchers who argued that user perceptions have a direct influence on how information technologies are used (Binglimas, 2009; BECTA, 2008). The 8 interviewed respondents justified that teachers' attitude towards online searching is positive as portrayed by their willingness and commitment to searching content online as well as their readiness to substitute the use of school textbooks with digital library. This is also in line with the findings of Reddy (2013), a great percentages of students perceived that Internet is a universal digital library, provides easy life, and is a fastest way to reach knowledge.

##### 5.1.2 *Discussion of Hypothesis Two*

The results of this study indicated table 10 shows there is a direct high positive correlation ( $r=0.87$ ,  $p<0.05$ ) between teachers' attitudes and use of e-discussions in the secondary schools in Jinja District. This is supported by previous findings that

show that online interactions encouraged more open discussion amongst participants and provided a more active and collaborative teaching-learning experience, particularly for those users who felt uncomfortable asking questions in a large tutorial group (Lily, 2012).

It can be said that, the higher averages in the four schools; 2.29, 2.35, 2.44 and 2.46 depict higher attitudes which increased the use of digital e-learning system for sharing content, questions, answers and also audio information since majority agreed that it is enjoyable and easy to use. Their attitudes were expressed in form of high enjoyment, high comfort, higher perceived usefulness and willingness. This is perhaps indicative of their preference for active involvement through student interaction rather than passive viewing of online recordings. Bates & Poole (2003), state that “most theories of learning suggest that for learning to be efficient, it needs to be active such that the learner must respond in some way to the learning material.” Students learn better when they are actively engaged with their learning rather than being passive receptacles of information. A similar finding was reported by Albirini (2006) on teachers’ attitudes toward information and communication technologies among the Syrian English Fluent Language teachers. Results of their research indicate that there is a significant relationship between users’ attitudes towards computers and the actual level of online interaction. This indicated that teachers holds negative attitudes towards the ICT, as a result they are less likely to contribute effectively to the utilization of ICT for online interactions.

Where the teachers responded that they enjoy using online interactions, some previous researchers support the results when they noted that internet users feel happy and comfortable when they use the internet and preferred to use the Internet to improve

their communicative abilities and skills (Otaibi, 2012; Fouzieh & Abbas, 2013). In addition, the interview findings are in agreement when they showed that there is moderately positive attitudes towards e-discussions since teacher-teacher online discussions exist. These results appear to be consistent with earlier research on user attitudes toward tele-teaching and traditional face-to-face contact where preference for face-to-face teaching was also revealed by Halabi et. al. (2005).

However, teacher-student e-discussions were not available because learners are still restricted since school policies limit them.

### *5.1.3 Discussion of Hypothesis Three*

The findings in table 11 show low attitudes towards e-assessment in all the four selected schools with low grand mean values (2.03, 2.00, 1.98 and 1.92) and low usage frequency means (2.00, 1.88, 1.78 and 1.77) in table 6 respectively which resulted in a high positive correlation ( $r=0.85$ ) between the variables (table 12.) The rejection of null hypothesis when  $p<0.05$  implied that a significant relationship exists between the variables. Therefore, the low attitudes of teachers are associated with low frequency in using e-assessment in the cyber secondary schools. The findings of the study entitled Teachers' Attitudes and Levels of Technology Use in Classrooms in Jordan Schools by Naser, Leong and Fong (2010) indicated that the teachers' attitudes levels towards the use of ICT had a direct relation with the e-assessments. In other words, the correlation findings revealed that there was significant positive correlation between teachers' level of ICT use for assessments and their attitudes levels.

The results from interviews express that a few teachers use e-assessment. One deputy head teacher also argued that 50% can use e-assessment while other need support. In addition, two teachers also perceived that it was not possible and expressed laziness to

use ICT for assessment activities. In addition, the interview comment by one head teacher was similar saying *“sometimes the e-learning is very complex and very slow. It consumes time compared to our usual way of assessment.* This justified the low uptake of e-assessment by teachers in secondary schools. Kodai et. al (2013) also found that user friendliness of electronic systems is one of the most problematic requirements to satisfy as “users are known to quickly become frustrated and simply abandon a confusing application. The findings are also in agreement with Keengwe (2007) survey of ICT acceptance in Kenya schools which found that the negative teacher attitude towards technology stands out as one of the main reasons for the laziness in the uptake of IT in teaching and assessment. In regard to the respondent who said that *“The task of electronic assessments consumes time yet exams can easily be cheated, therefore hands delivered ones are still good”* indicates that teachers have negative attitudes towards e-assessments and is supported by previous findings which revealed that the reason for teachers’ low attitudes towards e-assessment as expressed by some interviewed teacher who perceived it as complex and consumes time is related to low user friendliness of electronic systems since it is one of the most problematic requirements to satisfy as “users are known to quickly become frustrated and simply abandon a confusing application (Kodai et. al, 2013).

## **5.2 Conclusion**

As a result of the consequent discussions of the findings of the study together with support from the existing literature, the following conclusions have been generated in line with the objectives of the study.

It is evident that there was regular use of online information searching in schools by the teachers in cyber secondary schools in Jinja District. The teachers also expressed

high attitudes towards online searching in form of high confidence, high perceived usefulness, high enjoyment and enthusiasm. Therefore, there is a significant positive relationship between teachers' attitudes and online information searching.

It is therefore deduced that there is a high positive association between teachers' attitudes and e-discussions in secondary schools in Jinja District. The high usage frequency was attributed mainly to high enjoyment and comfort in using the digital e-learning systems for interactions.

There is low usage frequency of e-assessments in cyber secondary schools in Jinja District as teachers rarely use the digital e-learning systems but a positive association exists between teachers' attitudes and use of e-assessments. The teachers expressed high perceived insecurity with the tests and examinations which increased their fear.

### **5.3 Recommendations**

- a) Variable (Inequitable) access to resources, including hardware, broadband, updates and technical support should be improved. Access differs greatly across secondary schools, especially in areas like broadband, institutionalized technical support and teacher computer ownership. This would reduce anxiety in using the digital e-learning systems in very slow environments especially during online searching and interactions.
- b) The teachers need training support since a few skilled teachers expressed high attitudes towards e-assessments in the selected cyber secondary schools. Findings from interviews show that some teachers lack of clarity and understanding on the benefit to e-assessments and how to integrate it into their pedagogy.



- c) Measures should be put in place to reduce cyber insecurity in terms of using better equipment and anti-virus software and encryption methods in order to protect the examinations thereby reducing perceived insecurity.

#### **5.4 Recommendations for Future Research**

Teachers' positive attitudes towards ICT do not necessarily lead to its adoption in daily practice or the improvement of e-learning. Some factors identified from interviews are likely to hamper or facilitate the implementation of e-learning in cyber secondary schools. The factors identified below need to be investigated since they may apply in Uganda secondary schools such as;

- d) Appropriate resources for policy and curriculum priorities. Government interventions and specific programmes that lead to 'routine use' of technologies through fostering positive attitudes such as donation of laptops to every teacher in school or student teachers while in universities.
- e) School culture especially emphasizing values for quality education such as migration from traditional to hybrid learning, electronic student registers. scheduling the use of digital science software, building e-learning systems that are compatible on mobile phones among others.
- f) Rewards to the best teachers in implementing e-learning in schools such as offering free laptops, data bundles amongst others to teachers.

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## Appendix A: Teachers' Questionnaire

This questionnaire is designed to collect **your** opinion that will help in a research about, **“Teachers’ Attitudes and implementation of e-learning in selected Cyber Secondary Schools in Jinja District”**. You are therefore chosen to be part of this research and your responses will be kept confidential and used for academic purposes only. Please be honest in giving your responses. Thank you.

### Section A: Background Information (Please tick in the box of your choice)

1. Sex; Male  Female
2. Age bracket (years)  
20-29  30-39  40-49  50 and above
3. What is your hands-on experience in using computers?  
1- 3 years  4 - 6 years  7 years and above
4. Level of education;  
Diploma  Degree  Masters  Other

### Important Concepts

**Online Information searching** refers to browsing internet and online libraries to download teaching/learning resources.

**Online discussion** is the interaction, collaboration, chatting or instruction with colleagues or learners using internet media like; school web-e-learning system, social media e-learning systems, emails etc

**E-assessment** refers to delivering assignments, tests, quiz, project activity and computing results/grades using electronic means such as emails, school web-e-learning systems, digital science software etc.

**Key for Ticking**

Disagree	Tick when you have the knowledge to answer the question
Unsure	Tick when you don't have knowledge to answer the question
Agree	Tick when you have the knowledge to answer the question

**Section B: Teachers' Attitudes towards E-learning (Using of ICT/E-learning system)**

In this section, you need to choose by *ticking in the box that applies to you*".

		Disagree	Unsure	Agree
	<b>Attitudes towards Online Information Searching</b>			
5	Browsing internet is simple and flexible to me			
6	Our e-learning system provides the information I need			
7	I find it pleasant to search information using e-learning system			
8	I do not fear to download information online			
9	I have the willingness to search information from the e-learning system			
	<b>Attitudes Towards Online Discussions</b>	Disagree	Unsure	Agree
10	I am comfortable when I interact with students and teachers using the e-learning system			
11	Discussions and presentations on e-learning system improve teaching and learning.			
12	I enjoy collaborating with my fellow teachers using e-learning system			
13	I do not get tired of discussing my subject on e-learning system			
14	I am enthusiastic to discussions on e-learning system			
	<b>Attitudes Towards Electronic Assessments</b>	Disagree	Unsure	Agree

15	I find it easy to deliver assignments using e-learning system			
16	I believe electronic assessments reduce my workload			
17	I am motivated to send home-work using e-learning system			
18	I am not afraid to send tests & results using e-learning system			
19	I am eager to use assess students using computer			

**Section C: Implementing E-learning at School**

How often do you use the internet/e-learning system for? (Tick in box of your choice)

		Never	Rarely	Regularly
20	Searching and downloading teaching material			
21	Demonstrating and discussing with colleagues or learners			
22	Electronic assessments, quiz, tests or results			

**THANK YOU**





Explain the reason for your answer?

.....  
.....

4. Are teachers' attitudes towards online assessments positive or negative? .....

Explain why?

.....  
.....

Thank You

Appendix C: Table of Sample Random Numbers

Population Size = N and Sample Size = n

N - n	N - n	N - n	N - n	N - n
10 - 10	100 - 80	280 - 162	800 - 260	2800 - 338
15 - 14	110 - 88	290 - 165	850 - 265	3000 - 341
20 - 19	120 - 92	300 - 168	900 - 268	3500 - 346
25 - 24	130 - 97	320 - 175	950 - 274	4000 - 351
30 - 28	140 - 103	340 - 181	1000 - 278	4500 - 354
35 - 32	150 - 108	360 - 188	1100 - 285	5000 - 357
40 - 36	160 - 113	380 - 191	1200 - 291	6000 - 361
45 - 40	170 - 118	400 - 196	1300 - 297	7000 - 364
50 - 44	180 - 123	420 - 201	1400 - 302	8000 - 367
55 - 48	190 - 127	440 - 205	1500 - 306	9000 - 368
60 - 52	200 - 132	460 - 210	1600 - 310	10000 - 370
65 - 56	210 - 136	480 - 241	1700 - 313	15000 - 375
70 - 59	220 - 140	500 - 217	1800 - 317	20000 - 377
75 - 63	230 - 144	550 - 226	1900 - 320	30000 - 379
80 - 66	240 - 148	600 - 234	2000 - 322	40000 - 380
85 - 70	250 - 152	650 - 242	2200 - 327	50000 - 381
90 - 73	260 - 155	700 - 248	2400 - 331	75000 - 382
95 - 76	270 - 159	750 - 254	2600 - 335	100000 - 384

(Adapted from Krejcie & Morgan, 1970, p.608)

**Appendix D: Content Validity Index**

Item No	Number Of Items Agreed			Score
	Rater 1	Rater 2	Rater 3	
5	1	1	1	1
6	1	1	1	1
7	1	1	0	0
8	0	1	1	1
9	1	1	1	1
10	1	1	1	1
11	0	0	1	0
12	1	1	1	1
13	0	1	1	0
14	1	1	1	1
15	1	1	1	1
16	1	1	1	1
17	1	1	1	1
18	1	1	1	1
19	1	1	1	1
20	1	1	1	1
21	1	1	1	1
22	1	0	1	0
23	1	1	1	1
24	1	1	1	1
25	1	1	1	1
26	1	1	1	1
27	1	1	1	1
	Total			<b>19</b>

Ratings:      1=Agree/relevant              0=Disagree/irrelevant

$$Content\ Validity\ Index = \frac{19}{23} = 0.83$$

## Appendix E: Letter of Data Collection

Educational Planning Dept,  
Kyambogo University  
P.O. Box 1, Kyambogo  
E: [tamalejulius1@gmail.com](mailto:tamalejulius1@gmail.com)  
Telephone: +256-757958430  
Date: 10<sup>th</sup> April, 2017

The Head Teacher,

WANYANGE GIRLS  
SCHOOL, Jinja

You are welcome to interact with us.  
We shall be glad to share your final  
report.

Dear Sir/Madam,

DEPUTY HEADTEACHER  
WANYANGE GIRLS SCHOOL

13/04/2017

RE: ACADEMIC RESEARCH DATA COLLECTION

I am Tamale Julius (Reg No: 13/U/1981/GMED/PE), pursuing masters of educational policy, planning and management from Kyambogo University.

As part of the requirements to complete the programme, I am applying to carry out an academic research entitled "*Teachers' Attitudes and Implementation of E-learning in Cyber-Secondary Schools in Jinja District*" and your school has been selected for the study.

The study will seek responses from teachers and administrators (e.g head teacher, director of studies, head of departments, computer supervisor etc) using questionnaires and interviews (See attachment). The responses will be treated with confidentiality and will be used for academic purposes only.

Thank you in advance and May God bless you.

Yours faithfully



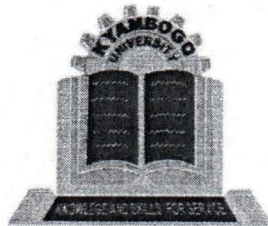
Tamale Julius (13/U/1981/GMED/PE)

Student, Dept-Educational Planning

Cc Research supervisors

Appendix F: Kyambogo University Introductory Letter

**KYAMBOGO**



**UNIVERSITY**

P. O. BOX 1 KYAMBOGO, KAMPALA - UGANDA  
Tel: 041 - 285211 Fax: 220464  
www.kyambogo.ac.ug

*Department of Educational Planning Management*

Date: 23<sup>rd</sup> August 2016

TO WHOM IT MAY CONCERN

Dear Sir

**RE: TAMALE JULIUS, REG. No. 13/U/1981/GMED/PE**

This is to certify that **Tamale Julius, Reg. No. 13/U/1981/GMED/PE** is a student in our department pursuing a Master of Education in Policy Planning and Management. He is carrying out research as one of the requirements of the course. He requires data and any other information on this topic entitled:

*Teachers' Attitudes and Implementation of E-learning in selected  
Cyber Secondary Schools*

Any assistance accorded to him is highly welcome. He is strictly under instructions to use the data and any other information gathered for research purposes only.

