Information and Communication Technology Adoption Readiness and Policy Implementation in Secondary Schools in Mayuge District, Uganda
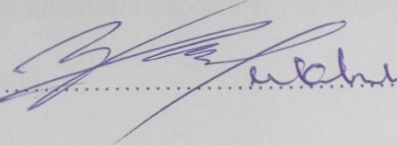
Gideon James Mukhula

BU/GS17/EDM07

A Dissertation Submitted to the Directorate of Graduate Studies, Innovation and Research in Partial Fulfillment of the Requirements of the Award of the Degree of Masters' of Educational Leadership and Management of Busitema University.
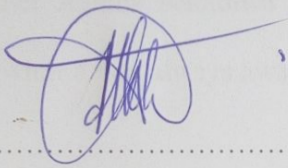
February 2020

Declaration

I, Gideon James (BU/GS17/EDM07), hereby declare that to the best of my knowledge, this work has n

been presented in any other university or institution of higher learning for any academic award.

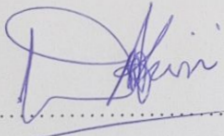Sign................................Date....1st February 2021

Approval

This dissertation titled "Information and Communication Technology Adoption Readiness and Policy Implementation in secondary schools in Mayuge District" has been written and submitted with our approval.

Signature...Date....01/02/2021

Dr.   Dennis Zami Atibuni

Supervisor

Signature...Date....02/02/2021

Associate Professor David Kani Olema

Supervisor

Dedication

I dedicate this work to my three sons Mangeni Justus Naman'gale, Wanyama Mark Ochimi an

Wandera Jordan On'genge, to whom this milestone must always be the guiding star; my Uncl

Mukhula, M. Ochimi and my late father Mikaya Naman'gale, for having given me the opportunity

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understanding, while I was always away for the pursuit of this achievement.

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Abstract

Information and Communication Technology adoption readiness (ICTAR) in the teaching and learning process is the phenomenon for the 21st century. The purpose of the study was to investigate how the level of ICTAR influences the level of Information and Communication Technology policy implementation (ICTPI) in Secondary Schools in Mayuge District. The objectives included to determine the level of ICT adoption readiness, establish the level of ICT policy implementation and to find out the relationship between ICT adoption readiness and ICT policy implementation in Secondary Schools in Mayuge district. Using a Cross-Sectional Survey research design employing both quantitative and qualitative approaches, a study population of 594 teachers, a proportionate sample of 232 teachers from both privately and government owned Secondary Schools, and 3 District Inspectors of Schools (DIS) purposively selected, participated in the study. A structured questionnaire having 56 items and interviews were the instruments use to collect data. A Content validity index (CVI) was computed as 0.883 /0.855. For reliability, a test to retest method was used and a Cronbach Alpha computed. A minimum Cronbach Alpha of 0.70 was used after pretesting and 0.896 after the whole data was collected. The results revealed a moderate overall level of ICTAR ($M = 42.19$, $SD = 10.10$), a moderate overall level of ICTPI ($M = 85.11$, $SD = 9.88$) and a moderate positive significant relationship (r = 0.5, at 99% confidence interval) between ICTAR and ICTPI. In conclusion, these results implied that Secondary Schools are still at the early two stages of the domestication of ICT and ICT policy implementation. It was recommended that concerted effort be directed towards improving schools' ICTAR in order to improve ICTPI, by way of offering higher in-service and pre-service training of teachers for ICT, allocation of more budgets, allocation of support offices, designing appropriate instructional programs among key enablers.

Chapter One

Introduction

Background to the Study

Teaching is one of the most challenging of human endeavors historically and even currently in the 21ˢᵗ century. This is because knowledge is ever expanding and rapidly changing so much so that, modern day teaching demands the use of modern technologies such as, the Information and Communication Technology (ICT). Growing attention to adoption readiness and implementing Information and Communication Technologies (ICTs) is noted to come from all directions such as the public sector, business, and the education world. Therefore, the adoption of Information and Communication Technologies for teaching and learning has become inevitable. Academic faculties and teaching departments must deploy newer, Innovative and future-oriented methods for effective teaching and learning in schools and higher education institutions (Onovughakpa, Yusuf, Adgdija, & Oputa, 2011).

Historical perspective.

The evolution of technology dates back when stone age man started to use his intellect and applied it for a better living (Fischer, 2017). Thus technology has evolved from simple rudimentary tools in a relatively short time to advances, related to computer technology, as noted by Shuhua (2015). Gutierrez (2018) claims that, Information Communication Technology has evolved from the 1960s invention of a simple mouse to ARPANET, smart phones and instant text massaging of the 2000s. According to Garanga and Raju (2019), information technology started from Western countries like the United Kingdom, the United States of America, France

and spread to the East in countries like USSR, Australia, United Arab Emirates, Japan and China.

Theoretical perspective.

This study was guided by the domestication of Information and Communication Technologies' theory (Silverstone& Hirsch, 1994) which is used to explain the Information and Communication Technology adoption readiness and the process secondary schools go through in implementing Information and Communication Technology policy, in the teaching and learning process. The theory assumes both practical and symbolic aspects of the adoption and use of technology in the everyday life of users. It also assumes a rich descriptive approach which enables the interplay of processes such as cultural values. However, this theory is discredited on the grounds that it over relies on detailed case studies and that its detailed descriptive nature makes it difficult to turn it into lessons for policy makers

Conceptual perspective.

Information and Communication Technology are instruments that facilitate the creation, processing, retrieving and transmutation of information by electronic means. According to Ochwo, Atibuni and Sekiwu (1018), and this study, these instruments embody a full range of old and new technologies such as the radio, television, computers and, telephones both fixed and mobile, fax, scanners, printers and the print media.

Adoption, in the words of Wael, Alandenjani and Almandani (2017) and as used in this study, is a gradual shift over to automation of educational processes and administrative activities such as students' admission, e-registration and evaluation, delivering customized learning management systems (LMS) and transferring all courses and the related data onto it.

Readiness, as noted by Chanyagorn and Kungwanna (2011) and this study, means having access, and ability to utilize Information and Communication Technology to the benefit of organizations such as secondary schools or individuals.

Policy, as observed by Anderson (2010), is the guide to an action or a purposive course of action, followed by a set of actions in dealing with the matter of concern. While implementation, in the light of this study, is to start using or putting into use the policy or plan to achieve the intended goals. Alimaghian et al. (2011) opines that policy implementation involves translation of the goals and objectives of a policy into an action.

Contextual perspective.

The rapid and unprecedented evolution of technology in such a relatively short period of time, has called upon world governments to develop suiting policies and frameworks, not only to deal with new challenges created by technology, but also set firm ground for the fast-growing technology industry, as noted by Osorio, Baller, Dutta, Thiery and Lanvin (2016). Information and Communication Technology readiness continues to improve almost everywhere in the world with clear upward trends across all regions (Osorio et al., 2016). Osorio and colleagues further observe that there are noted high positive staggering trends of Information and Communication Technology readiness in the USA, Europe, and Australia depending on, say the cost of accessibility. While the United Arab Emirates, leads the Arab world in terms of Network readiness with greater connectivity (Weber, & Kauffman, 2011).

Information and Communication Technology readiness and internet penetration remains comparatively low in Africa due to limited exposure and prohibiting costs, according to Ewing, Chavrollier, Leenderste, Quigless, and Verghese (2014). However, the authors observe that, never before in the history of Africa has Information and Communication Technology adoption

readiness been as concentrated as it is today, though it has made a slower progress. A view emphasized by Lam (2019), that the past few years have seen tremendous growth and development in the use of ICT in education in Africa, notably Sub-Saharan Africa, even if there is still more room for improvement. The above scenario largely accounts for the low level of implementation of Information and Communication Technology policies since the continent is still in its early stages of Information and Communication Technology advent.

In recognition of this, the government of Uganda initiated several efforts to enhance the development and utilization of Information and Communication Technologies in the country. The Ministry of Education and Sports (MoES) approved a curriculum for Information and Communication Technology integration into the teaching and learning in secondary schools. However, it is noted that very few schools are implementing the Information and Communication Technology policy in teaching and learning by way of failure to integrate ICT into all teaching subject content and administrative activities, failure to fully embrace independent and active e-learning or have competent, qualified ICT skilled teachers, as provided for by the education Information and Communication Technology policy in totality. This may disadvantage Mayuge district in terms of social-economic benefits and failure to compete at national and global levels. This has prompted the MoES to formulate a sector policy that addresses education with the hope of driving Information and Communication Technology in primary and secondary schools and the other education institutions under its docket (Luyombya, 2010).

Problem Statement

The harnessing of emerging (ICT) technologies in education, helps developing and making existing education processes and activities more efficient and effective with its attendant

benefits to learners, teachers and schools. Thus, the availability of a robust ICT adoption readiness underpins and is catalytic to sustainable and full-scale ICT policy implementation, by way of full automation of education processes and activities (Ministry of Information and Communication Technology [MoICT], 2014). Unfortunately, despite the enormous advocacy for ICT based e-teaching and e-learning, investment in ICT, retooling of teachers, and provision of Virtual Content to schools, since 2004 to date, there is little integration of the subject content and subjects or administrative activities into ICTs and disappointing progress in ICT policy implementation, as provided for by the Ministry of Education and Sport (Landon et al., 2013). Consequently, the number of schools and teachers still using traditional methods for pedagogical and administrative service delivery, is big.

Poor performance in the implementation of ICT policy has been reflected in Secondary schools' failure to fully embrace independent and active e-learning, low education standards service delivery, lack of competent qualified ICT skilled teachers, inadequate ICT resources (Makelele, 2018). Such failure by the Secondary schools in Mayuge District may continue disadvantaging the district in terms of attaining faster Socio- Economic transformation and its attendant benefits of national and global competitiveness (MoICT, 2014).

Kimutai and Chepwogen (2013) and Makelele (2013) report that the reasons for the failure by Secondary Schools to implement the policy include; lack of stable electricity, limited or no cheap internet connectivity, need for ICT teacher training, limited access to adequate computers, inadequate funding, lukewarm attitude by teachers towards the use of ICT in teaching and, limited access to technical support. For the case of Mayuge District, these reasons reflect a gap in the leadership, management and implementation of the ICT policy in education generally and, in schools. This gap may result into poor pedagogical and administrative service delivery

and poor implementation of the ICT policy strategies. Therefore, a methodical approach in investigating the persistence of underperformance in the implementation of the ICT policy, despite all the government and other stakeholders' effort, is the mission of this study.

Purpose of the Study

The purpose of this study was to establish the relationship between Information and Communication Technology adoption readiness and Information and Communication Technology policy implementation in secondary schools in Mayuge District,

Objectives of the Study

The study was guided by the following objectives;

1. To investigate the level of Information and Communication Technology adoption readiness in secondary schools in Mayuge District.
2. To find out the level of Information and Communication Technology policy implementation in secondary schools in Mayuge District.
3. To assess the relationship between Information Communication Technology adoption readiness and Information and Communication Technology policy implementation in secondary schools in Mayuge District.

Research Questions

The following research questions were answered to achieve the respective objectives:

1. What is the level of Information and Communication Technology adoption readiness in secondary schools in Mayuge District?
2. What is the level of Information and Communication Technology policy implementation in the secondary schools in Mayuge District?

3. What is the relationship between the level of Information and Communication Technology adoption readiness and the level of Information and Communication Technology policy implementation in the secondary schools in Mayuge District?

Hypothesis of the Study

H_0: There is no significant relationship between Information and Communication Technology adoption readiness and Information and Communication Technology policy implementation among teachers in secondary schools in Mayuge District.

Scope of the Study

Geographical Scope; This study was conducted in secondary schools in the 12 Sub-Counties of the 3 Counties of Mayuge District, in Eastern Uganda.

Content Scope; The study generally targeted teachers in both government aided and private secondary schools and the District Inspectors of schools (DIS). This was expected to help in giving results which were used for analysis. The study focus was to find out the level of Information and Communication Technology adoption readiness and the level of implementation of the Information and Communication Technology policy in the teaching and learning processes and activities in secondary schools.

Time Scope; The study was conducted between May and September 2019, covering a period from 2010 to 2019.

Significance of the Study

The findings of the study may inform the Ministry of Education and Sports, on the level of Information and Communication Technology adoption readiness in secondary schools and how far the education ICT policy is being implemented by the teachers, so that they could find

ways of evaluating and improving ICT Adoption readiness and ICT policy implementation in the secondary schools.

The study may help school managers to monitor ICT adoption readiness and ICT policy implementation as well as, designing school- based ICT policies in order to improve the adoption readiness and the ICT policy implementation in their schools.

The study may help Teachers to consider the urgent need to adopt and integrate ICTs in their classroom practices to overcome the challenges they face during the teaching and learning processes.

Conceptual Framework

Below is a conceptual framework showing the relationship between the independent and the dependent variables. The independent variable is Information and Communication Technology Adoption Readiness while the dependent variable is Information and Communication Technology policy implementation.

Independent Variable   **Dependent Variable**

ICT ADOPTION
READINESS

1. Infrastructure

2. Teacher skills

3. Funding/ School
budget

ICT POLICY
IMPLEMENTATION

1. Integration of ICT
into curriculum

2. Coordination and
management

3. Administrative
Activities.

MODERATING VARIABLES

1. Teacher
Attitudes/perception

2. Technical Support

3. Environmental Factors

Moderating variables
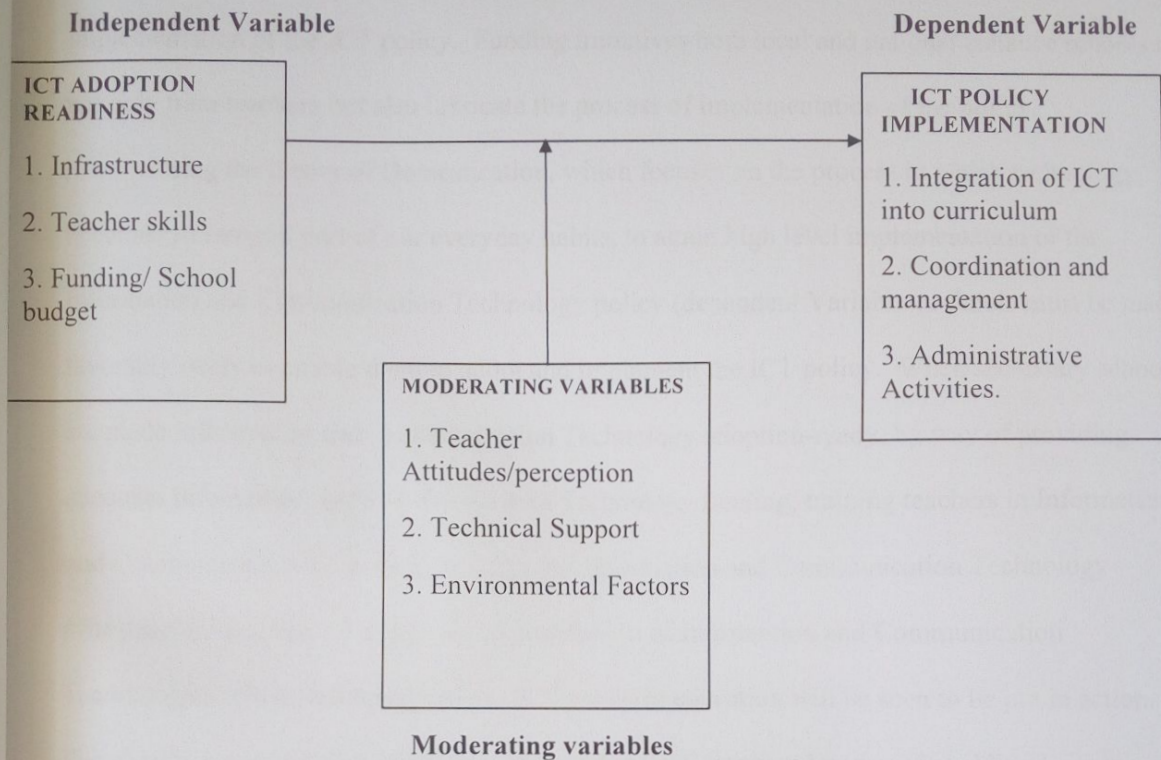
Figure 1:   Conceptual Framework

Source: Developed from the Literature Review (Hennessy et al, 2010; Wael et al, 2017; Masango, 2014)

The conceptual framework in Figure 1 shows the relationship between Information

Communication Technology (ICT) adoption readiness in terms of infrastructure, teacher skills

and funding as an independent variable and Information and Communication Technology policy

implementation which includes integration of ICT into the curriculum, Coordination and

management, and Administrative activities. In terms of domestication of ICT, adequate adoption

readiness at school level is very important if the ICT policy implementation is to be realized.

Therefore, for schools to automate education processes and administrative activities there should

be a high level of readiness to gradually shift over. Infrastructure is aimed at enhancing accessibility, Teacher skills to improve classroom delivery which may translate into effective implementation of the ICT policy. Funding initiatives both local and national enhance schools to not only train teachers but also lubricate the process of implementation of the policy.

Using the theory of Domestication, which focuses on the process in which technology becomes an integral part of our everyday habits, to attain high level implementation of the Information and Communication Technology policy (dependent Variable), schools must be made favorably ready to enable them to adopt and implement the ICT policy. When secondary schools are made Information and Communication Technology adoption-ready, by way of providing adequate Information and Communication Technology funding, training teachers in Information and Communication Technologies skills and Information and Communication Technology infrastructure and other e-materials, domestication of Information and Communication Technologies will be achieved and the ICT policy in education will be seen to be put in action. The cognitive engagement of learners and teachers will improve by way of enabling learner-centered interactive learning.

Apart from the Independent variables, there is the dependent variable describing some of the sub-variables that are prudent in the automation of education processes such as; integration of the curriculum in ICT and vice versa, coordination and management and administrative activities like students' admission and e-registration. There are also certain moderating variables which influence Information and Communication Technology policy implementation in secondary schools. These may include; teachers' perception/attitude, environmental factors and technical support among others. However, these other moderating factors which affect the implementation of the ICT policy, are beyond the scope of this study. The above variables will be measured using the three levels of low, moderate and high.

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