THE PRESBYTERIAN UNIVERSITY OF EAST AFRICA

A RESEARCH PROPOSAL.

DETERMINE THE RELATIONSHIP BETWEEN COMPUTER TECHNOLOGY AND STUDENTS PERFORMANCE IN UNIVERSITIES.

BY

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REG. NO; X37/GV/37395/2017

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A RESEARCH PROPOSAL.

SUBMITTED IN FULFILLMENT OF THE REQUIREMENTS

FOR THE DEGREE OF BACHELORS OF EDUCATION IN SCIENCE

SCHOOL OF EDUCATION

NOVEMBER, 2019.

CHAPTER ONE
INTRODUCTION

1.1 Introduction

This research intends to assess the effect of computer technology on students performance in varsity schools. This chapter includes background of the problem, statement of the problem, objectives of the study, research questions, significance of the study, scope of the study and definitions of terms.

1.2 Background of the problem.

This study builds its arguments on two variables which are computer technology and students performance According to Yourdictionary.com (2019) The definition of computer technology is the design and construction of computers to better help people at work, school, home, etc.According to Oxford Advanced Learners' Dictionary (2010), A computer is a programmable device that can store, retrieve, and process data. The term "computer" was originally given to humans (human computers) who performed numerical calculations using mechanical calculators, such as the abacus and slide rule. According to the Longman Dictionary of Contemporary English (2008) A computer is a programmable machine. The two principal characteristics of a computer are: It responds to a specific set of instructions in a well-defined manner and it can execute a prerecorded list of instructions (a program). Technology refers to methods, systems, and devices which are the result of scientific knowledge being used for practical purposes. In general computer technology is the programmed methods, systems, and devices which are the result of scientific knowledge being used for practical purposes of learning.On the other hand performance according to Erlenkamp (2004),is something accomplished. From Longman Dictionary of Contemporary English performance is how well or badly a person, company etc does a particular job or activity hence The students' academic performance refers to the enhancement of the students' current state of knowledge and skills reflected in their GPA and also in the formulation of their personality and academic growth from lower levels of study to higher levels. The rationale of studying academic performance in the context of computers adoption is to present a significant relationship that exists between the two variables This study will collect data from four universities of kenya, two of which, namely, University of Nairobi (UON) and Presbyterian University of East Africa (PUEA), had fully adopted computers in the educational processes while the other two, namely, Kenya methodist university (KeMU) and Taita Taveta University (TTU), are in the process of adopting the computers in their system. The rationale behind choosing these universities, which differ in size, geographical locations, number of students, number of courses, and also in terms of information technology adoption is to frame a comprehensive research model with the possibility to generalize its findings. Numerous studies

have been undertaken to investigate the relationship between computer technology and students' performance; however, these studies have not been able to establish precisely the impact of computers on students' performance. The study will pose two core challenges: first, it is difficult to determine the performance of students since the common approach used by many researchers accredits the curriculum responsible for the performance achievement in terms of grade and second challenge lies in technological changes that are rampant where it is difficult to treat their impact different from their environment

1.3 Theoretical Framework

According to Bush (2003) a theory is a system or a group of ideas intended to explain something, especially one based on general principles independent of the thing to be explained. A theory has information or collected knowledge that can be applied to explain and/or tell what and how something works. Information and communication technology (ICT) has become an important source of innovation and improvement of efficiency for many sectors across the globe. In the education sector, particularly, the application of ICT has become a critical part of the learning process for university students both outside and inside the classroom setting. The government and other stakeholders in the education sector such as university management and researchers have invested millions of dollars to adopt ICT in the education system during the last two decades [1]. Most universities that have fully adopted ICT have recorded immense advancement in the application of ICT for the improvement of learning methods, teaching, research, and development. It is, however, not clear what impact the ICT applications have on the performance and achievement of students.

ICT adoption in the current study is understood as a gradual switching over to automation of the educational process not only in administrative activities like students admission, registration, and evaluation but also developing a customized learning management system (LMS) and transferring all the courses and the related data onto it. In the sampled universities for this study, Blackboard is the LMS that has been adopted. The faculty members as well as the students are allowed access to the LMS along with its all services and the specialized online learning tools. The adoption of LMS across Saudi Arabia has facilitated the educational processes to a great extent.

1.4 Conceptual framework

Bryman (2004), Kumar (1999) and Miller (1991) argue, the conceptual framework is the basis for your study and it must reflect what you want to study.

DETERMINE THE RELATIONSHIP BETWEEN COMPUTER TECHNOLOGY AND STUDENTS PERFORMANCE IN UNIVERSITIES.

INDEPENDENT VARIABLES	**DEPENDENT VARIABLES**
COMPUTER TECHNOLOGY	***STUDENTS PERFORMANCE***
-Teleconferencing	-Grades
-Extranet	-Percentage marks
-Intranet	-Satisfaction

1.5 Statement of the problem

Kenya has a national policy for ICT which emphasizes introduction of computer lessons in the education, especially primary and secondary levels. In response to this, in five years ago, Government of kenya through Ministry of Education introduced Computer Studies as an optional subject at senior secondary level. Since introduction of Computer Studies in secondary schools, there has been no literature on how students perform in this subject with emphasis on 'type' of secondary school, gender and school location. computer technology has become an important source of innovation and improvement of efficiency for many sectors across the globe. In the education sector, particularly, the application of computers has become a critical part of the learning process for university students both outside and inside the classroom setting. The government and other stakeholders in the education sector such as university management and researchers have invested millions of dollars to adopt computers in the education system during the last two decades Most universities that have fully adopted computers have recorded immense advancement in the application of computers for the improvement of learning methods, teaching, research, and development. It is, however, not clear what impact the computer applications have on the performance and achievement of students. Computer adoption in the current study is understood as a gradual switching over to automation of the educational process not only in administrative activities like students admission, registration, and evaluation but also developing

a customized learning management system and transferring all the courses and the related data onto it.

1.6 Research objectives

(a)To evaluate the extent to which the universities have computers
(b)To determine the relationship between computer technology and the performance of the university students
(c)To find out the impact of computer technology on universities, in general, and on students' performance, in particular

1.7 Research questions

What extent does the universities have computers?
What is the relationship between computer technology and performance of university students?
State the impact of computer technology on universities?

1.8 Significance of the study

The findings of this study shall prove useful to the university administration and other parties involved in framing ICT policies for higher education.
This study can be used as a reference point to understand that students wishing to enroll for a course in a university finalizes his or her decision based on the level of ICT application present in that university.
this study will also act as a jump-start for other researchers who may like to conduct further research on this topic in future.

1.9 Scope of the study.

This study will be carried out in Kemu Hub, Koinange St, Nairobi and kikuyu town
it will focus on the numbers of computers in each school, results of students and perception of students, teachers and administration towards the use of computers in learning and their impacts towards the same.

1.10 Definition of terms.

A computer is an electronic device that takes in data and instructions (input), works with the data (processing), and produces information (output) that is useful for decision making.

Technology is a body of knowledge devoted to creating tools, processing actions and extracting of materials.

The students' academic performance refers to the enhancement of the students' current state of knowledge and skills reflected in their GPA and also in the formulation of their personality and academic growth from lower levels of study to higher levels.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This section presents a recap of the findings from earlier studies regarding computer technology in university education and its impact on the performance of university students. There have been various studies carried out to investigate the relationship between computer technology and quality of education. These studies have focused on various such factors that have been influenced by computer technology, but very few studies evaluate the impact of computer technology on the performance of university education. Similarly, these studies also will give mixed findings about the impact of computer technology on the university students' performance.

2.2 Computer technology and students performance

For instance, Ellis and Loveless(2000) indicate that higher education pedagogy can neither be isolated from academic achievement nor from the teaching process and innovation. The study affirms that the potential role of information and communication technology in higher education cannot be overlooked. Chan et al. [2006], in another study, make a similar observation and assign great significance to the critical function of ICT in democratizing the university education and meeting new and dynamic demands of graduate students.

In a similar study, Sari and Mahmutoglu [2007] observe that in order to bring a change in teaching methodology in a university, a paradigm shift is required that would recommend adoption of student-centered approaches. The new methodology, according to the authors, should aim at making the student an active element in the learning process, rather than passive through an adequate and effective guidance from the tutorial team. Likewise, Iniesta-Bonillo et al. [2008] find out that the use of information and communication technology is significant in placing students in an active position and in enhancing the effectiveness and efficiency of the tutorial support.

As a result, all relevant stakeholders involved in higher education have made tremendous efforts to ensure adoption of computers in their university education system. According to a report published by the United Nations Educational, Scientific and Cultural Organization (UNESCO) Institute of Statistics (2013), governments and university managements globally have heavily invested in adopting information technology in their education systems. Overall, numerous

attempts, both theoretical and empirical, have been made in a bid to evaluate the impact of computers in the education system.

2.3 Related literature review

The recent research frameworks for investigating the computer technology in higher education have focused only on aspects related to performance in education. Such performance indicators have been utilized in these frameworks to establish how variables such as infrastructure and availability of other resources contribute to the impact. A few studies have also taken into account the institutional culture and implementation process at both initial and advanced levels. The advanced levels, national and international levels, have recorded a remarkable progress evidenced in the form of the establishment of policies and regulations that support the integration of computers in the education system. The university administrators and faculty too look for the most appropriate approaches to harness the application of computers in improving their teaching methods culminating into improvement of the students' performance. Nonetheless, tangible achievement of all such efforts that should be demonstrated as results fuelled by the computer technology or as impact of its adoption is not easily identifiable. Additionally, there also exist numerous and significant studies that evaluate and track the efficiency of the computer technology application and its impact on education. For instance, the Second Information Technology in Educational Study (SITES) is a study supported by the International Association for the Evaluation of Education Achievement (IEA) which has evaluated and described how computers have successfully been applied across 26 countries globally. This study seeks to ascertain how school administrations, faculty, and ICT teams deploy computers or ICT devices on various platforms. Although the study does not focus on the impact of ICT on the achievement of students, it approaches the subject under study from the perspective of teachers and their perception about the impact of ICT on students' performance. Similarly, Cruz-Jesus et al. [1993] analyze several studies related to the impact that computer has made on educational institutions in Europe. Their findings indicate that there is a limited and incomparable evidence of impact of computer on students' performance. Irrespectively, none of these studies have been able to provide substantive findings to indicate that computer technology has a positive impact on students' performance. Further, each study has used a unique methodology and approach making the comparison of the results between the countries under study more complicated.

2.4 Research Gap.

There are several other research studies carried out to assess the impact of computer technology in the domain of education. References [14–17] Solar et al. [1998] have argued that adoption of computers enhances the quality of learning and improves the quality of education. This is consistent with the study by Gallego et al. [1999] who argue that, for a successful improvement

of the quality of education, a country needs implementation of ICT policies and regulations that must be effective and vigorous at all levels. Babaheidari and Svensson [2000] in another study make a different conclusion that the impact of computers on learning outcomes is not clear. Lin et al. [2001] point out that there is no evidence of any strong impact of the application of ICT in education. Likewise, Wastiau et al. [2000] indicate that application of ICT in education achievement has positive effects while Venkatesh et al. [2003] find out that there exists no actual effects of computers in education since all research is based on the socioeconomic background of students and embedded characteristics of the school. Such mixed results from previous studies therefore confirm that there is inadequate empirical evidence of computer technology impact on education, and also, there is an absence of well-developed and reliable theoretical studies to support the benefits resulting from computer technology implementation.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1
Introduction.

This chapter will show the whole process on how the study will be done systematically. It will include: research design, description of the study area, the population of the study, sample size, sampling procedures, data collection method, data analysis and presentation.

3.2 Research design.

This study will use both qualitative and quantitative research design. Qualitative approaches will be used whereby a case design will be used in the selected sample schools and higher learning institutions. Descriptions based on the study will be obtained from the respondents within the selected institutions. The study will also use interview and questionnaire to get descriptions from the respondents. Quantitative research will be used in data presentation like the use of tables.

3.3. Selection of the study area.

The research will be carried out in kikuyu, starehe and mwatate constituencies of which are found in Kiambu county, nairobi county and taita taveta county involving six varsity schools. From kikuyu the sample institution will include University of Nairobi (UON) and Presbyterian University of East Africa (PUEA), whereby in starehe the sample institutions will include kenya methodist university(KeMU) The reason for selecting only four institutions despite the fact that there are many institutions in these counties is because teachers' views in these sample institutions will represent other institutions found in these counties in general on the effect of computer technology on students performance in varsity schools.

3.4 Description of the study area.

The study will be carried out in Kikuyu Constituency, an electoral Constituency in Kiambu County, Kenya. From 1988 elections to 2002 elections it was known as Kabete Constituency but after the demarcation by the Independent Electoral and Boundaries Commission (IEBC), it was split into Kikuyu Constituency and Kabete Constituency. It has a Constituency Population: 125,402 and Constituency Area in Sq. Km (Approx.): 175.70 Starehe Constituency is an electoral constituency in Kenya. It is one of the constituencies in Nairobi County. Constituency Population: 166,041 Constituency Area In Sq. Km (Approx.): 20.00 Mwatate Constituency has Population of 73,168 and its Area In Sq. Km (Approx.): 9,611.90 in Taita taveta county.

3.5 Sample and sample size.

3.5.1 Sample

David Waugh (2009) define sample as the selected items, units or elements which the researcher conclusion will be made. In this study the sample will include, students leaders from the selected varsity schools, computer teacher trainee from the sample varsities, academic masters/mistress, heads of departments and county education coordinators.

3.5.2 Sample size

Kothari (2008) defines sample size as “the number of items to be selected from the universe to constitute a sample.” The sample size will be derived from the total population, in this study the sample size will be 63 respondents from the selected sample institutions. The sample size in this study will be chosen as follows Respondents Number Percentage computer Teacher trainee 20 (5) from each school 32.25% students leaders 32 (8) from each university 51.61% Academic masters/mistress 4 (1) from each school 6.45% Heads of departments 4 (1) from each university 6.45% county education coordinators 3(1) from each ward 3.23% Total 63 100%

3.6. Sampling techniques

Kombo and Delno (2006) defined sampling as a procedure the researcher uses to gather people, places or things to study. It is a process of selecting a number of individuals or objects from a population such that the selected group contains elements representative characteristics found in the entire group. The study will use both probability and non-probability sampling techniques.

3.6.1 Simple random sampling.

According to Waugh (2009) simple random sampling is the type of sampling under normal circumstances is the ideal type of sample because it shows no bias. Every member of the total population has an equal chance of being selected and selection of one member does not affect the probability of selection of another member**.** The researcher will use this technique to get 4 schools to represent the rest schools, under this procedure the researcher will write the names of all varsity schools in the selected counties on pieces of paper, fold them, mix them and pick four pieces of paper with names of schools written on them, these will be used as sample schools, the same procedures were used to get the study area also will be used to get sample teachers.

3.6.2 Purposive sampling

Kombo and Tromp (2006) defined the purposive sampling techniques as the sampling technique where the researcher purposively targets a group of people reliable for the study and in this case the respondents are from different areas. The purposive sampling will be used to get two institutions because these are the only institutions that train teachers in the selected counties. The purposive sampling will also be used to get key informants like academic masters/mistress, heads of departments, and county Educational Coordinators from the selected study institutions. This is because these are people who are believed to be relevant and knowledgeable to ensure relevant information concerning the effect of computer technology on students performance in varsity schools in their area.

3.7. Data typology

Data to be collected will include both primary and secondary data where necessary. Primary data, these will be collected from the sample population in the field whereby questionnaires and unstructured interview will be employed to gather data in the study, and secondary data will be obtained from magazines, newspapers, and the internet.

3.8. Data Collection Tools

3.8.1 Questionnaire

The Oxford Advanced Learners' Dictionary (2010) defined questionnaire as a written or printed list of questions to be answered by a number of people especially as part of survey. This technique will involve written questions to which the respondents will be required to write answers individually with no researcher's guide. The questionnaires will be in two forms, the open-ended questionnaire that requires the respondents to answer the way they wish. This method will be used to get information from academic masters/mistress, heads of department and county educational coordinators

3.8.2 Interview

Seale, et al (2004) define an interview as the social encounter where speakers collaborate in producing retrospective and prospective accounts or version of their parts or future actions, experiences, feelings and thoughts. In this study the researcher will also use unstructured form of interview due to its flexibility to questioning. The researcher will use this kind of interview because it gives chances for both researcher and respondents to discuss, also it serve time with full information and can be changed or adapted to meet the respondents' intelligence, understand or beliefs.

3.9 Data analysis and presentation

3.9.1 Data analysis

Data analysis refers to the process of examining data which have been collected. In this study both qualitative and quantitative methods will be used to analyze the data that will be collected from the field.
By qualitative approach, the effect of computer technology on students performance in varsity schools.and the proposed ways to improve education in the country
By quantitative approach, the researcher will examine the data which will be in numerical manner this will include the number or percentage of respondents.

3.9.2 Data presentation

Data presentation refers to the ways and means of presenting data after data have been analyzed. In this study the research the researcher will present the data by using qualitative approach which will present the data related to description form. The researcher also will present the data by quantitative approach by using graphs and tables. This method will enable the researcher to summarize the results on the effect of computer technology on students performance in varsity schools.