

**FACTORS INFLUENCING THE ADOPTION OF E-LEARNING IN PUBLIC  
INSTITUTIONS OF HIGHER LEARNING IN KENYA: A CASE STUDY OF  
MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY**

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**A Thesis Submitted in Partial Fulfillment of the Requirements for the Award of  
the Degree of Master of Education in Educational Management and Policy Studies  
of Masinde Muliro University of Science and Technology**

**November, 2025**

**DECLARATION**

I hereby declare that this research thesis is my original work, and has not been presented elsewhere for the award of a University degree or any other academic purposes

Signature..... Date

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EPM/G/01-54151/2019

**CERTIFICATE**

This research thesis is submitted with our knowledge, as the student supervisors, we have read, recommended and approved the research thesis entitled “*Factors Influencing the Adoption of E-learning in Higher Learning Institutions in Kenya. A Case of study Masinde Muliro University of Science and Technology.*”

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## **DEDICATION**

I dedicate this work foremost to God for His providence throughout my study journey. I also extend my heartfelt gratitude to my husband, Denis Bruce Otwani, and to my dear parents, Stephen and Beatrice Chikamai, for their immense support and inspiration during this period.

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## ABSTRACT

Although eLearning has many advantages, students have different opinion towards this modern process of learning; this to some extent has influenced its adoption. This study examined factors influencing the adoption of eLearning in public higher learning institutions in Kenya: A Case Study of Masinde Muliro University of Science and Technology. The study was guided by three objectives; to examine the influence of students' perceptual factors on the adoption of E-learning at Masinde Muliro University of Science Technology, establish the influence of institutional factors on the adoption of E-learning at Masinde Muliro University of Science and Technology, assess how student`s levels of computer literacy influence their adoption of E-learning at Masinde Muliro University of Science and Technology. The study adopted a correlational research design framed on Unified Theory of Technology Adoption. The target population comprised of 7,500 fourth year students. A sample size of 366 fourth year students was arrived at through multi-stage sampling. The structured questionnaire was used to gather data, with the contents of the questionnaires being validated by expert consideration to ascertain that all the aims of the study were covered. The instrument was checked in terms of reliability through the Alpha Cronbach analysis as the factors of institutional (above 0.8), student perceptual (above 0.7), and computer literacy constructs (above 0.6) defined the satisfactory internal consistency. Logistic regression analysis was used to analyze data collected from fourth years' students from 10 schools. The logistic analysis showed that students aged between (31-35years) and above were 56% ( $\text{Exp}(\beta) = .561, p = 0.05$ ), and 12% ( $\text{Exp}(\beta) = 0.120, p = 0.043$ ) more likely to accept and adopt eLearning, respectively, than those whose age ranged below 20years, 21-25, and 26-30 years. Male students were 2 times more likely to accept and adopt to eLearning ( $\text{Exp}(\beta) = 2.129, p = 0.026$ ) than female students. The analysis also showed that students belonging to the school of computing and informatics were 2 times more likely to accept and adopt eLearning ( $\text{Exp}(\beta) = 2.102, p = 0.049$ ) than those belonging to school of education. Institutional support, including the provision of training ( $\text{Exp}(\beta) = 0.926, p = 0.025$ ), robust infrastructure ( $\text{Exp}(\beta) = 1.137, p = 0.028$ ), and clear eLearning policies ( $\text{Exp}(\beta) = 1.187, p = 0.018$ ), plays a critical role in facilitating eLearning adoption. This research has practical implications on; students need to be more innovative/enthusiastic on eLearning, institution needs to establish integrated support systems that will not only offer technical support but also create a learning environment that is motivating and empowering students, they need to forge a holistic approach that takes into account the interdependence of these factors that will most likely result in increased adoption rates of eLearning and improved learning outcomes among the students. There is need for the institutions to develop comprehensive policies that address technological infrastructure, institutional support, and computer literacy training to foster a conducive environment for eLearning adoption, lecturers to be more innovative and engage students in blended eLearning.

## TABLE OF CONTENTS

<b>DECLARATION</b> .....	<b>i</b>
<b>COPYRIGHT</b> .....	<b>ii</b>
<b>DEDICATION</b> .....	<b>iii</b>
<b>ACKNOWLEDGEMENT</b> .....	<b>iv</b>
<b>ABSTRACT</b> .....	<b>v</b>
<b>TABLE OF CONTENTS</b> .....	<b>vi</b>
<b>LIST OF TABLES</b> .....	<b>ix</b>
<b>LIST OF FIGURES</b> .....	<b>x</b>
<b>LIST OF APPENDICES</b> .....	<b>xi</b>
<b>LIST OF ABBREVIATIONS AND ACRONYMS</b> .....	<b>xii</b>
<b>CHAPTER ONE: INTRODUCTION</b> .....	<b>1</b>
1.1 Overview .....	1
1.2 Background of the Study.....	1
1.3 Statement of the Problem .....	8
1.4 Purpose of the Study .....	8
1.5 Objectives.....	10
1.6 Research Hypotheses.....	10
1.7 Significance of the study .....	11
1.8 Assumptions of the study .....	12
1.9 Scope of the study .....	13
1.10 Limitation of the study .....	14
1.11 Theoretical Framework .....	15
1.12 Conceptual Framework .....	17

1.13 Operational definition of terms .....	21
<b>CHAPTER TWO: LITERATURE REVIEW .....</b>	<b>23</b>
2.0 Introduction .....	23
2.1 Concept of E-learning .....	23
2.2 E-learning adoption .....	24
2.3 Student Perceptual factors towards E-learning adoption .....	27
2.4 Organizational/Institutional factors influencing implementation of eLearning .....	31
2.5 Level of computer literacy .....	34
2.6 Summary and Research Gap .....	38
<b>CHAPTER THREE: RESEARCH METHODOLOGY.....</b>	<b>41</b>
3.1 Introduction .....	41
3.2 Research Design .....	41
3.3 Study Variables .....	41
3.4 Study Location .....	42
3.5 Target population .....	43
3.6 Sampling size and procedure.....	43
3.7 Research Instrument .....	44
3.8 Pilot Study .....	44
3.8.1 Validity of Research Instruments .....	45
3.8.2 Reliability of Research Instruments .....	46
3.9 Data Collection Procedure .....	47
3.10 Ethical Consideration .....	47
3.11 Data Analysis .....	47
<b>CHAPTER 4: DATA PRESENTATION, INTERPRETATION AND DISCUSSION .....</b>	<b>51</b>

4.1 Introduction .....	51
4.2 Demographic Information of Students' Respondents .....	51
4.3 Reliability Test for predictor variables.....	53
4.3.1 The influence of student perceptual factors on adoption of E-learning .....	55
4.3.2 The influence of institutional factors on adoption of E-learning .....	58
4.3.3 The influence of the level of computer literacy among students on adoption of eLearning.....	62
<b>CHAPTER 5: SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS .....</b>	<b>65</b>
5.1 Introduction .....	65
5.2 Overview of the study .....	65
5.3 Summary of the findings and implications .....	66
5.4 Conclusion.....	68
5.5 Recommendations .....	69
5.6 Suggestions for Further Researches .....	70
<b>REFERENCES .....</b>	<b>71</b>
<b>APPENDICES .....</b>	<b>84</b>
Appendix I .....	76
Appendix II .....	83
Appendix III .....	84

## LIST OF TABLES

Table 4. 1: Summary of Characteristics of the sample .....	52
Table 4. 2: Summary of factors and variables associated with adoption of eLearning in Higher education institutions .....	54
Table 4. 3: Summary of logistic regression for students' perceptual factor variables associated with adoption of eLearning in higher education .....	55
Table 4. 4: Logistic regression for institutional factor variables associated with adoption of eLearning .....	59
Table 4. 5: Summary of logistic regression for student's computer literacy variables associated with adoption of eLearning in higher education .....	62

## LIST OF FIGURES

Figure 1. 1: Conceptual Framework.....	20
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## LIST OF APPENDICES

Appendix	1:	Questionnaire	
.....			75
Appendix	2:	Proposal Approval	Letter
.....			82
Appendix	3:	Research	Permit
.....			83

## **LIST OF ABBREVIATIONS AND ACRONYMS**

<b>UTAUT</b>	-	Unified Theory of Acceptance and Use of Technology
<b>HEIs</b>	-	Higher Education Institutions
<b>TAM</b>	-	Technology Acceptance Model
<b>IS</b>	-	Information System
<b>LAN</b>	-	Local Area Network
<b>IREC</b>	-	Institution Research and Ethics committee
<b>NACOSTI</b>	-	National Commission for Science and Technology and Innovation
<b>ICT</b>	-	Information and Communication Technology
<b>MMUST</b>	-	Masinde Muliro University of Science and Technology
<b>SCI</b>	-	School of Computing and Informatics
<b>SEDU</b>	-	School of Education
<b>SASS</b>	-	School of Arts and Social Sciences
<b>SONMPAS</b>	-	School of Nursing, Midwifery and Paramedical Science

<b>SOBE</b>	-	School of Business and Economics
<b>SAVET</b>	-	School of Agriculture and Veterinary Sciences
<b>SEBE</b>	-	School of Engineering and the Built Environment
<b>SOM</b>	-	School of Medicine
<b>SONAS</b>	-	School of Natural Sciences
<b>SPHBST</b>	-	School of Public Health, Biomedical Sciences & Technology
<b>SPSS</b>	-	Statistical Package for Social Sciences
<b>CI</b>	-	Confidence Interval
<b>JKUAT</b>	-	Jomo Kenyatta University of Agriculture and Technology
<b>IT</b>	-	Information Technology
<b>COVID-19</b>	-	Coronavirus Disease 2019
<b>ODEL</b>	-	Open Distance e-Learning
<b>VLE</b>	-	Virtual Learning Environments

# CHAPTER ONE

## INTRODUCTION

### 1.1 Overview

This introductory chapter establishes the research foundation by addressing the background of the study, statement of the problem, purpose of the study, objectives, research hypotheses, significance of the study, assumptions of the study, scope of the study, limitation of the study, theoretical framework, conceptual framework, operational definition of terms.

### 1.2 Background of the Study

The use of Internet technology has been rising rapidly all over the world. The fast progress of internet technology has pushed universities to purchase and work with E-learning systems to support their classroom teaching and boost their students' performance. E-learning can work successfully only if certain important factors influencing students to adopt and use these systems are well understood (Kattoua et al., 2016).

Approximately 80% of top universities and Higher Education Institutions (HEIs) in developed countries have actively integrated e-learning tools into their academic systems, enhancing teaching and learning through digital platforms. According to Al-Rawashdeh et al. (2021), almost all of these institutions (97 percent) utilize types of online learning management systems to disseminate the course materials and allow students to engage. Moodle, Blackboard, and Canvas are all platforms that are capable of facilitating both real-time and self-paced learning, which allows students the ability to access course material, academic activities, and virtual classroom-like environments

remotely. The widespread adoption is due to the strong digital infrastructure, organizational commitment to the adoption of technology, and the educational cultures that promote pedagogical innovation, and continuous professional growth of academic personnel and the widespread technical support have played a significant role in ensuring the maximum effectiveness of online learning systems. The innovations have made virtual learning platforms a critical aspect of modern higher education that has led to flexibility in education, provision of accessibility as well as enhanced academic performance in various subjects of study.

The access to the advanced technology infrastructure, the popularity of computers, stable electricity, and consistent internet connection enable Higher Education Institutions (HEIs) in developed countries to seize several opportunities. E-learning can be soundly implemented in case of good management, sufficient funding, qualified faculty, technical skills and robust institutional backing is offered (Almaiah et al., 2020). E-learning has been embraced by all education sectors, consequently, the developed nations have prepared to the fullest potential of e-learning. Government-led information economies have assisted institutions in countries like Australia to use ICT innovation and research to elevate the standard of education and enhance competitiveness in the world (Al-Rawashdeh et al., 2021).

Conversely, e-learning is being embraced gradually in many African universities in comparison with the west (McDonald et al., 2022). However, there is an upward trend in the adoption of digital platforms in higher education management in Africa to match worldwide standards and fulfill the needs of the students. Recent reports emphasize that even though Sub-Saharan African universities are making positive steps toward the adoption of e-learning in teaching, research, and student support, a lack of digital literacy,

insufficient funding, and infrastructure are major obstacles to its adoption (Chibuwe and Munariyarwa, 2024; IMARC Group, 2024). The COVID-19 pandemic further accelerated the urgency of digital transformation, exposing both opportunities and persistent challenges in the region (Discover Education, 2025). Even with massive investments in E-learning technology, universities in developing countries tend to use the traditional model for teaching and learning (Bdalmenem et al., 2019). The "traditional model" is about students and teachers meeting face to face. When talking about E-learning, it is clear that success is far from being achieved in these universities because learning is mainly done using the traditional model and E-learning access is limited.

Even though studies suggest that higher education institutions use e-learning and teaching, their use is less than expected. Studies carried out previously in Africa and about African E-learning teachers show that E-learning has yet to develop fully (Layali et al., 2020). In addition, the studies showed that not many lecturers are highly skilled in using technology. Besides, most learning institutions could not afford the expenses of bandwidth and IT tools for E-learning.

No other East African country has seen such a substantial increase in the number of people wanting to attend university as Kenya has (Kibuku et al., 2020). A larger percentage of people seek a university education than ever before (Tarus et al., 2015). Therefore, interest in university education goes above the number of available places. Public universities are changing how information is delivered, from face-to-face lessons to e-learning, to deal with the rising demand for education and the number of students wanting to study. E-learning is popular because it fits well into people's busy schedules and supports learning far from a school.

Institutions focus on E-learning development and spend much money on information technology because they believe it will bring outstanding results. Still, even with their training, the instructors do not always rely on technology as expected, and most of the time, E-learning systems remain unused (Vershitskaya et al.,2020). With the help of networking and internet connection, E-learning policies are now being applied in Kenyan universities to help their students. According to Kariuki (2016), what was found during the analysis implies that E-learning benefits are not within reach of institutions in Kenya. However, despite the roadblocks, efforts are being made in Kenya to introduce electronic tools for learning in higher education institutions. According to Taurus (2016), the lack of advanced technology for learning and Internet connection affected the uptake of E-learning among Kenyan public universities.

Developed countries' HEIs can enjoy various opportunities thanks to having the technology infrastructure, computers, electricity, and internet. Sound implementation of e-learning is possible if good management, proper funds, faculty, technical skills, and technology support are all provided (Almaiah et al., 2020). Since e-learning is used at every level of education, developed countries benefit from diverse opportunities for its integration. Institutions in Europe, North America, and Australia have adopted comprehensive national policies and support frameworks that promote ICT innovations, research, and teacher training, thereby enabling sustainable digital learning ecosystems (OECD, 2021). Indicatively, in the United Kingdom, the higher education institutions will remain enjoying national digital learning strategies that will facilitate infrastructure upgrades and research-based innovations (Jisc, 2022). The developments have improved teaching and learning besides fostering social and economic growth at large.

Africans have created adoption much behind schedule. The number of students switching to e-learning is increasing, although the development is still unequal in comparison with Western nations (Nwagwu, 2020). Current research indicates that although African universities have been expanding their use of digital platforms, adoption has been limited by a lack of institutional preparedness, institutional barriers, and low student digital literacy (Kibuku et al., 2023). In Sub-Saharan Africa, e-learning technologies are slowly being introduced in teaching, research, and student services across universities, but issues of connectivity rates, electricity and cost continue to be the primary obstacles (Owidi et al., 2023).

The adoption of e-learning in teaching, learning, and research in the universities of the developing countries has been facing recurring challenges and institutional investment in the ICT infrastructure is quite small. Recent investigation revealed that technical capacity and instructional design, as well as the availability of pedagogical tools, continue to be gaps of public universities in Kenya, which restrict the efficacy of online programs (Wanjara and Ogembo, 2024). In the same vein, Tenya et al. (2024) pointed out that digital literacy in academic and library personnel is uneven, which negatively affects the broader use of digital technology. These results affirm that although universities in the developing worlds are improving, e-learning is not yet extensively and effectively applied as in developed situations.

Nyerere et al. (2017) researched the existing scenario and the obstacles that do not allow full utilization of ODeL in Kenya. According to the case of the Kenyatta University and the University of Nairobi, the researchers established that the adoption of ODeL led to numerous challenges. Part of the identified problems included ineffective use of program facilities, delays in preparation of study materials, lack of sufficient funds, and the

number of teachers being too limited. Another concern was that ODeL in Kenya was not founded on national policies, and therefore providers could not find resources and maintain their effectiveness.

According to Falola et al. (2022), learning material preparation does not end at going digital to design the current e-learning programs. They indicated that writing on the computer is the last important step to be taken in developing e-learning though the first step is to write with the person (lecturer and student) first. The creation of learning culture is a social operation that requires individuals to act in a new manner and improve on their competencies. The learners are less motivated to study and the number of learners opting to use e-learning is low. Alqahtani and Rajkhan (2020) and Fawaz and Samaha (2021) state that online learning successfully implementation requires three important factors: individual, technological, and organizational/institutional problems. This indicates that Kenyan university adoption is dependent on student preparedness, technology infrastructure and institutional support.

Online education requires the quality of learning, and we must also look at whether remote classes can be accepted by the student population (Kazemzadeh, 2022). Although in Kenya, e-learning was introduced in higher learning institutions in the time of COVID-19, the majority of the most prestigious universities did not elevate it to their leading platform of teaching undergraduate students. Most institutions such as Masinde Muliro University of Science and Technology found it difficult to cope with the e-learning programs. Therefore, this problem and the corresponding dilemma is entirely new in Kenya.

Given the problems linked with e-learning during the pandemic such as inadequate infrastructure, poor e-learning design, lack of support from IT departments, students' inability to follow online lessons, difficulties managing learners, and insufficient emotional support, Kenya's educational systems should continue with online education and develop new and appealing approaches to improve higher education (Gachanja et al., 2021).

It is important to understand the role of individual attitudes, acceptance, and adoption toward technology since e-learning usage depends on it. As new generations of e-learning technology, such as podcasts, wikis, and blogs, enter higher education, students' willingness to adopt and use them quickly becomes a valuable skill because it allows greater control over their learning environment and the ability to select tools that fit their preferences. Learners that show high levels of technology affinity and good self-regulation will be more likely to customize and gain more out of the modern e-learning facilities and those who are less prepared risk using less elastic systems and not having the same satisfaction with e-learning. According to the recent research, perceived usefulness, perceived ease of use, and digital self-efficacy are considered major determinants of e-learning acceptance (Granić, 2022; Barz et al., 2024; Ahmad et al., 2023).

The transformation from conventional teaching methods to online learning at Masinde Muliro University of Science and Technology has created a research gap regarding student engagement with digital educational systems. This research was designed to examine the students' perceptual factors towards the adoption of e-learning, establish how institutional factors influence adoption of e-learning, and assess how the level of computer literacy among students influences their adoption of e-learning.

People's cultural backgrounds and socioeconomic factors are significant in adopting e-learning technologies. There is a vast difference in the amount of digital knowledge students from Africa have. Being unfamiliar with digital equipment may make it difficult for students from rural areas to adjust to learning through the internet. In addition, cultural beliefs and customs involving technology and teaching in schools can affect students' willingness to participate in e-learning. In places where teachers mainly control the classroom, using e-learning by students could be difficult for them and may lead to unexpected behaviour. Many students find it hard to manage their time, stay driven, and study alone, which are important skills for online learning. For this reason, the change requires using programs, mentorship, and specialized support for people studying online.

Furthermore, insufficient finances are yet another issue for institutions and students. Even though universities upgrade their IT, it is usually up to students to afford the technology needed to access information online for class. When this happens, digital inequality affects people financially and worsens the lack of education among some groups.

### **1.3 Statement of the Problem**

The use of Information and Communication Technologies (ICT) in teaching and learning processes in higher education institutions has continued to gain momentum globally where eLearning has become a very important way of delivering learning. eLearning has seriously changed the face of higher education and brought flexibility, accessibility, and better learning results in developed nations. Nevertheless, in most of the developing nations, such as Kenya, the use of eLearning is still not uniform and of low quality (Wambugu et al., 2020; Barasa and Omulando, 2021).

In Kenyan case, despite the efforts of the public universities in the provision of ICT infrastructure and policies to facilitate digital learning, the actual use of the eLearning platforms by students remains minimal. Low digital competence, weak institutional support, and differences between the degree of readiness among learners are some of the challenges reported in studies (Murage & Onyango, 2022). Available studies have mostly focused on the role of infrastructural and policy impediments (Oloo, 2019), but little has been done on the role of student perceptual variables, institutional support systems, and computer literacy in influencing eLearning adoption.

These issues can be observed at Masinde Muliro University of Science and Technology (MMUST), where there are differences in the use of eLearning in terms of disciplines, gender, and age (Kipkemboi & Keiyoro, 2021). However, there is scarcity of empirical data that can be used to explain the existence of such disparities and how these variables interact to affect the adoption of eLearning. The majority of the studies analyze these determinants independently of each other and without considering the synergistic effects, which, as mentioned by Venkatesh et al. (2003), are crucial in the consideration of technology acceptance and use.

In case these loopholes are not addressed, the universities are at risk of not leveraging expensive digital infrastructure, increasing disparities between students, and enduring fragile education systems that can be easily disrupted by a pandemic or an institutional strike. This may compromise the process of enhancing inclusive, flexible, and technology-oriented education by the governments and institutions as stipulated in the Vision 2030 and the digital transformation agenda across the globe.

The purpose of this study was therefore to fill these gaps by exploring the personal and collective role of the student perceptual factors, institutional factors, and computer literacy on adoption of eLearning at MMUST. Through the holistic interpretation of these determinants, the study attempted to produce actionable information to inform the policy formulation, institutional decision making and strategic interventions to transform inclusive and effective eLearning in the higher education system in Kenya.

#### **1.4 Purpose of the Study**

The purpose of this study was to examine factors influencing adoption of eLearning in public higher learning institutions in Kenya. A Case Study of Masinde Muliro University of Science and Technology (Mmust).

#### **1.5 Objectives**

This study was guided by the following objectives:

- i. Examine the influence of student-perceptual factors on the adoption of eLearning at MMUST.
- ii. Establish the influence of institutional factors on the adoption of eLearning at MMUST.
- iii. Assess how student`s levels of computer literacy influence their adoption of eLearning at MMUST.

#### **1.6 Research Hypotheses**

Based on the study objectives and guided by the UTAUT model, the following null hypotheses were formulated to test the relationships between the independent variables;

student perceptual factors, institutional factors, and computer literacy and the dependent variable; adoption of eLearning.

- i. *H<sub>01</sub>: There`s no statistically significant relationship between student`s perceptual factors and their influence on the adoption of eLearning.*
- ii. *H<sub>02</sub>: There`s no statistically significant relationship between institutional factors and their influence on the adoption of eLearning.*
- iii. *H<sub>03</sub>: There`s no statistically significant relationship between sstudent`s level of computer literacy and their influence on the adoption of eLearning.*

### **1.7 Significance of the study**

Despite the available mass of research on eLearning adoption, especially in developing countries, little empirical research has been conducted on the phenomenon with reference to the Kenyan public university setting, specifically the overall impact of the perceptual variables of the student, institutional, and computer literacy variables. This research paper thus assists in amplifying such a gap in contextual knowledge by providing evidence based information in the context of the Kenyan higher learning institutions.

The results will assist the universities identify the primary agents that affect the uptake of eLearning and give institutional decisions on how the university can best facilitate the student to take the online courses. Precisely, the research offers institutional leaders with valuable information on what students require to succeed in digital learning. The findings will also inform educational policymakers and university leaders to make sound decisions regarding eLearning as well as benefit the academic staff and curriculum developers.

The insights into the role of student perceptions, exposure to digital tools, and anticipations of organizational support will allow designing instructions more effectively by integrating interactive activities and user-friendly tools and flexible models that would support the needs of disciplinary and demographic variation in terms of technology readiness.

Another gap in the study is infrastructure and usability gaps that apply to ICT departments. The results are useful to support the system with users, create custom digital literacy education, and improve the accessibility of the platform that would eventually promote the use of the system and better learning outcomes.

Besides the institutional implications, this research is in sync with Sustainable Development Goal 4 (SDG 4), which aims at supporting inclusive and equitable quality education. The study helps to understand how to minimize the differences associated with the geographical location, gender, and socioeconomic status through the analysis of the drivers of the digital learning adoption.

Lastly, the study provides a basis on which future academic research on the same would be conducted since it provides the trends across universities in Kenya and allows them to make comparisons. It therefore facilitates the creation of a national format of eLearning implementation so that institutions of higher learning can be sensitive to the changing needs of education.

### **1.8 Assumptions of the study**

The study was based on the following assumptions;

1. The participants provided honest and accurate responses to the research instruments.
2. The selected sample was representative of the wider student population at MMUST.
3. Respondents engaged with the research process sincerely, sharing views that reflected their true experiences and perceptions.
4. The constructs of the Unified Theory of Acceptance and Use of Technology (UTAUT) were applicable and relevant for examining eLearning adoption in the MMUST context.

### **1.9 Scope of the study**

This study focused on factors influencing the adoption of e-learning in public higher learning institutions in Kenya, with Masinde Muliro University of Science and Technology as the case study. The study examined student perceptual factors influencing the adoption of E-learning, Institutional factors that influence students' adoption of E-learning such as institutional support-training and support for content development, incentives, IT training, E-learning policies-learning strategy. The study also examined the availability of technological infrastructure and resources such as delivery module, software interoperability. The dependent variable was eLearning adoption, which was measured by the extent to which students engage with eLearning platforms, their frequency of use, and their readiness to use digital tools for learning.

The quantitative method was adopted to study and the analysis was done using logistic regression analysis to identify the effects of the independent variables on the adoption of eLearning. The structured questionnaires were used to gather data among the twenty-

four cohort of fourth years students in different schools within MMUST because they have been exposed to e-learning systems over a long period of time. According to the data provided by the Academic Office of the Registrar, MMUST had about 25,000 students as a result of which there was a sufficient population to analyze.

### **1.10 Limitation of the study**

This study had some limitations despite the importance of the findings. The study was restricted methodologically to one institution of higher learning in Kenya, MMUST, which limited the generalization and application of the research results to other institutions. Nevertheless, the findings can still be useful in similar institutions because of the fact that the organizational structures and cultures in the Kenya public universities are similar.

The research was carried out on the fourth-year undergraduate students only, thus ruling out the other important stakeholders of the institution, including postgraduate students, faculty, and administrative staff. This exclusion could have restricted the research capacity of this study to reveal the bigger institutional forces driving the uptake of eLearning. Nevertheless, the student population was purposely chosen, as the fourth year students are the group that has the longest and most regular exposure to both traditional and eLearning systems at MMUST. They were more mature and had a cumulative experience in various courses and institutional practices so that their view of adoption patterns was more holistic than the students of the earlier years. This suited them well in the creation of credible insights on the student related factors influencing the eLearning adoption.

The research incorporated a cross sectional design which takes data at one point in time. This design restricts the possibility of detecting a change of attitude or behavior of the students towards the adoption of eLearning, especially with the advancement of technologies or institutional interventions. A longitudinal design would have been more powerful in terms of baseline over time trends.

Moreover, the self-reported questionnaires were used to achieve the data collection which are necessarily prone to the bias of responses, such as social desirability bias and recall bias. The limitations could have compromised the accuracy and objectivity of the responses offered by the participants.

Finally, the study utilized a quantitative approach, and this design, though useful in the determination of patterns and relationship, might not be as detailed and in-depth as it is likely to be in the context of individual experiences and contextual situation. Inclusion of a qualitative approach would be able to give a more detailed picture of the motivations and challenges related to the adoption of eLearning.

### **1.11 Theoretical Framework**

This study is based on the Unified Theory of Acceptance and Use of Technology (UTAUT) as the dominant theory to be used in this study by Venkatesh (2003). The model aims at investigating the causes of the adoption of information systems, as well as the behaviour of users following the adoption. Since the learning opportunities are numerous in higher education, one must appropriately comprehend the user acceptability mechanisms to make the e-learning effective.

UTAUT framework is exceptional in that it incorporates concepts of eight preceding theories. This provides it with more capacity to explain why individuals embrace technology and advocate its application in organisations. This method demonstrates the way individuals will adopt an information system and act with it in future. According to the framework, performance expectancy, effort expectancy, social influence, and facilitating conditions are the key drivers that reinforce user intention and actions (Venkatesh et al., 2003). All these elements determine the way individuals embrace and utilize a technology system.

The concept encompasses (performance expectancy) - opinions of the users on how the system will enhance their capability of undertaking their duties. The positive perception of educational technology occurs because students believe that the use of e-learning platforms would assist them in their school work and skill development. Effort expectancy is the perceived degree of comfort in the way a person understands how the system is operated. Since Kenya is on the way towards digital learning, this aspect affects the potential way in which individuals could adopt it. The effort to use the system will be very significant to a positive result as students desire platforms to be simple and easy to use.

Social influence is a major factor that determines technology adoption as a part of UTAUT model. It is a degree of perception on the part of students that the important other (peers, lecturers, institutional leaders or others) believes that they ought to utilize eLearning facilities. When it comes to higher education, the students tend to embrace eLearning more when they see their peers actively using this system, when lecturers encourage them to use it, or when they are aware of institutional norms that encourage online learning. Social influence therefore influences the intention and behavior of

students through reinforcing the positive attitude towards eLearning and is therefore a very important aspect of explaining differences in the adoption of eLearning in the various public university.

Facilitating conditions entail the perceptions of the users regarding the organizational and technical infrastructure of system usage. This predictor has a great influence on the readiness of students and educators to use e-learning platforms. The implementation must be successful and this is warranted by financial resources, training program, and institutional support. In the educational field, there is need to offer extensive workshops and professional development platforms, since the quality of the program relies on hardware, software and human resource.

These hypothetical issues shaped the choice of the variables in the framework of the study and the method of the analysis applied to examine variables that influence the adoption of e-learning.

### **1.12 Conceptual Framework**

The theoretical framework employed by this study and the other strands of literature used to generate the conceptual framework include:

Student attitudinal factors are the major determinants of effectiveness of online learning platforms in higher education. Recent researches show that there is a very strong connection between extent of preparation of students in digital learning technologies and levels of their satisfaction with university support systems. When academic institutions invest in comprehensive and quality training programs in e-learning, the student

impressions of institutional support are usually more positive in comparison with institutions providing little educational preparation (Getenet et al., 2024; Hu et al., 2025). When the educators underscore the student factors, they are able to revise and enhance the e-learning system to suit student needs and this is likely to facilitate more learning and e-learning adoption. The students who are knowledgeable about e-learning and have a positive attitude towards it usually claim that they have fewer challenges with using the software, they are more satisfied, and they accept the e-learning environment (Hu et al., 2025; Sultana, 2023).

Second, institutional support is also a major factor in successful adoption. Good leadership, clear strategies, and sufficient resourcing are still core in enhancing the e-learning adoption. Another critical issue when delivering e-learning is the lack of technology infrastructure and staff to handle the infrastructure, and the lack of skilled specialists is also one of the obstacles to the effective application of technology in educational processes (Suliman et al., 2024). Organizations, which integrate their plans, objectives, and strategies to adopt e-learning with sufficient training and resources, are likely to have a positive transition and high student adoption rates (Getenet et al., 2024).

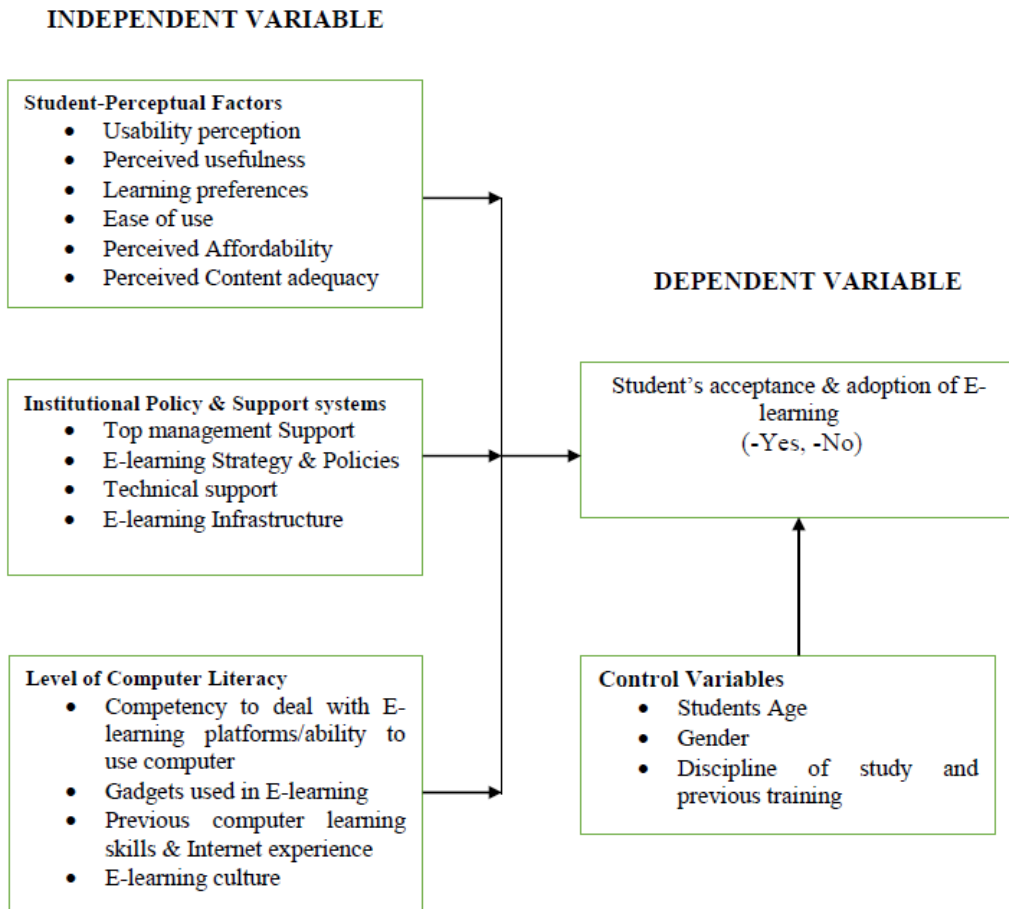
Thirdly, the term computer literacy is used to denote the capacity of an individual to utilize a computer, smartphone or a laptop independently. It is proven that the intention towards using e-learning technologies is also positively impacted by general computer literacy; the more a person is exposed to the system, the more they can probably obtain the benefits of the system (Sultana, 2023; Suliman et al., 2024).

Out of theoretical framework, UTAUT model provides a description of intention of the individual user to use the information system and the further usage behavior of the system. For example, the model posits:

a) Facilitating conditions -to make e-learning acceptable, one needs to have enough financial resources, good e-learning facilities and workshops and training by the institution.

b) Expectancy of effort- satisfaction of learners and their perceived ease of use of e-learning system.

c) Social influence Peer, instructor, and institutional support can help boost the intentions of learners to use e-learning platforms, and subsequently increase computer literacy and digital engagement (Sultana, 2023; Suliman et al., 2024).



**Figure 1. 1: Conceptual Framework**

Figure 1 presents the model, which shows the relationship between key variables in the study.

**The independent variables** include Students perceptual factors, Institutional factors, Level of computer literacy. Students perceptual factor is a construct variable measured by, usability perception, learning preferences, ease of use, perceived affordability, perceived content adequacy, perceived usefulness. The measures for institutional factors included top management support, e-learning strategy & policies, technical support, e-learning infrastructure. The level of computer literacy was measured by

students' competency to deal with e-learning platforms, gadgets used in e-learning, ability to use a computer, previous computer learning skills and internet experience.

**The dependent variable** is adoption of eLearning which is a binary variable. **The control variables** include gender, student's age, discipline of study and previous training. They were included as they had the potential to influence the adoption of eLearning. The direction of the arrow shows the relationship between the independent variable and dependent variable.

### **1.13 Operational definition of terms**

**E-learning:** In this study, e-learning refers to teaching and learning conducted through digital technologies such as computers, laptops, and online platforms (e.g., Moodle, Google Classroom, Zoom) without face-to-face interaction between lecturers and students.

**Student Perceptual Factors:** Refers to learners' beliefs, attitudes, and evaluations regarding e-learning platforms, specifically focusing on usability perception, perceived usefulness, learning preferences, ease of use, perceived affordability, and adequacy of e-learning content.

**Institutional Policy and Support Systems:** These include the strategies, structures, and resources provided by universities to facilitate e-learning adoption, such as top management support, e-learning policies, technical support, and availability of e-learning infrastructure.

**Computer Literacy:** In this study, computer literacy refers to students' ability to effectively use computers and related digital devices for academic purposes,

including competency in navigating e-learning platforms, prior computer skills, internet experience, and engagement in digital learning culture.

**Acceptance of E-learning:** Refers to students' willingness and intention to engage with e-learning systems provided by the university. It captures the attitudinal readiness to use online platforms for academic work.

**Adoption of E-learning:** Refers to the actual use of e-learning platforms and tools by students for academic purposes. In this study, adoption is measured as a binary outcome (Yes/No), indicating whether a student actively participates in e-learning activities.

**Control Variables:** These are background characteristics that may influence e-learning adoption, including students' age, gender, academic discipline, and previous training in digital tools or online learning.

**UTAUT Model:** The Unified Theory of Acceptance and Use of Technology (UTAUT) is the guiding theoretical framework in this study. It explains technology adoption using four constructs: performance expectancy, effort expectancy, social influence, and facilitating conditions.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.0 Introduction**

This chapter presents a review of literature related to factors influencing the adoption of eLearning in public institutions of higher learning. The study adopted a scoping type of literature review guided by the objectives of the study; The review of the literature is presented under the following sub-topics; concept of eLearning, eLearning adoption, student perceptual factors towards eLearning adoption, organizational/institutional factors influencing implementation of eLearning, level of computer literacy, summary and research Gap.

#### **2.1 Concept of E-learning**

E-learning uses electronic media and devices in teaching and learning to help students better access information, improve communication and learning methods, and welcome modern ways of understanding study (Krishnan & Hussin,2017). If technology is added to education, learning is better, education can be accessed more easily and costs less. For these reasons, E-learning has become very important in recent times. Although people have started to recognize how useful e-learning is, many still reject using these applications (Bates, 1997).

E-learning is the proper method to learn anytime and anywhere at a low price in developing countries. The way courses are taught in E-learning, and the traditional way are not the same. It is not limited to the everyday routine and may happen at homes, schools, libraries, internet cafes, or open fields. Today's classrooms are viewed as virtual learning platforms where students can learn without being restricted by time or location

(Sarikhani et al., 2016). Integrating the latest ICT technology heralds a significant change in teaching, and it is also valid that using technology can serve as a stimulus, yet properly using it depends on shifting the focus from teaching to learning. Being in this field involves thorough training in technology and dependable technical assistance (Fernando et al., 2019).

## **2.2 E-learning adoption**

Naveed et al. (2017) defined e-learning acceptance as the “mental or physical preparedness of an organization for some e-learning experience or action.” Similarly, Shahmoradi et al. (2018) described it as “a nation’s ability to generate, disseminate and use digital information among its citizens to the betterment of the country’s economic activity.” Conceptualizing e-learning acceptance is essential since definitions vary, yet the choice of a guiding model provides the foundation for technology integration in education. Negative attitudes, poor preparation, lack of funds, and lack of training remain some of the challenges that cut the pace of adoption. As it was highlighted by Ibrahim et al. (2021), it is the administrative support, adequate funding, appropriate time, and proper training that can be instrumental in initiating meaningful technological change in education.

Information and Communication Technologies (ICTs) are regarded as vital in generation of skilled and competent labor force in Kenya. It is important to support educational technology in schools and universities to equip the students with the new job market. Empirical evidences have shown that the use of technology in learning helps institutions to reduce their expenses, increase learning flexibility, maximize productivity, and become more competitive (Tawafak et al., 2019; Ameen and Willis, 2017). Lecturers are

however central in ensuring that e-learning is effective. Their ICT competence, the digital tool usage abilities and pedagogical strategies highly influence the learning experiences of students. As Kim et al. (2019) allege, bad teaching in the online environment could hurt thousands of students. There must hence be continuous lecturer training and development with the current technological changes. Almaiah et al. (2020) also add that pedagogical training in ICT integration is not only indispensable in e-learning but also influenced by the experience and previous teaching practices.

The evaluation of e-learning acceptance is essential to the institutions that introduce new systems and those who aim to enhance the existing systems. Acceptance is highly affected by institutional support of management, ICT infrastructure, the relevance of the content, and skilled human resource (Shahzad et al., 2021). However, as the organizations are unique in terms of cultural and structural environment, the models that are established in a particular part of the world, might not necessarily be equally applicable in the other part. Despite the progress of higher education institutions in developing nations towards embracing ICT, numerous approaches that have gained popularity in Western settings are yet to get the deployment in these institutions.

There are different theoretical approaches that have influenced the way technology adoption is approached. The Diffusion of Innovation Theory of Rogers (1983) suggested five attributes of the innovations which include relative advantage, compatibility, complexity, trialability and observability. Moore and Benbasat (1991) later extended this framework by introducing two more constructs of voluntariness and image to affect adoption. The other model used is the Technology Acceptance Model (TAM) by Davis (1989), which brings about the perception of usefulness and perception of ease of use as predictors of attitude, intention and actual use. An example is Park (2009) who used

TAM in a Korean university and established these constructs as strong predictors of the intention of students to use e-learning.

Elaborating on these frameworks, Venkatesh et al. (2003) proposed the Unified Theory of Acceptance and Use of Technology (UTAUT) that brings together eight theoretical perspectives and claims four important constructs performance expectancy, effort expectancy, social influence, and facilitating conditions upon predicting technology adoption. UTAUT has been used in other studies. Im et al. (2011) made comparative studies on the adoption of MP3 players and internet banking in the U.S. and Korea, which revealed that cultural norms influenced the adoption behaviours. Effort expectancy and social influence were found to be very important in blogging technology adoption (Pardamean and Susanto, 2012), and the expectations of usefulness and social pressures were found to influence the use of health information systems in Thailand (Kijisanayotina et al., 2009). These researches show that social and cultural settings mediate the reaction of users to technology, and social influence is a rather complicated and at times inconclusive metric.

Even though these frameworks have been widely used in various parts of the world, there are significant loopholes. Most prior studies have relied on descriptive statistics or structural equation modeling approaches to analyze e-learning adoption, with fewer employing logistic regression models that capture adoption as a binary decision. Moreover, much of the evidence comes from developed and Asian countries, with limited attention to Sub-Saharan Africa. In Kenya, available studies mainly highlight infrastructural barriers but rarely integrate student-related, institutional, and computer literacy factors within a single analytical framework (Gachanja et al., 2021; Wambugu *et al.*, 2020). Furthermore, while TAM and UTAUT emphasize the role of performance

expectancy, effort expectancy, social influence, and facilitating conditions, their combined effects in the Kenyan higher education context remain underexplored. This study therefore contributes by testing these constructs in the context of Masinde Muliro University of Science and Technology, applying logistic regression to model e-learning adoption decisions more comprehensively.

### **2.3 Student Perceptual factors towards E-learning adoption**

Students' perceptual factors towards E-learning are influenced by its perceived advantages and disadvantages. Schedule flexibility is, without doubt, an important advantage, as students have the opportunity to learn from any location and at any time, provided they have access to the internet. Reducing costs and saving time are also significant benefits, especially for commuting students. E-learning provides a feasible way in which learners can balance their workload with their education since they can alter their education timetable in accordance with work requirements as they study. This autonomy enables students to have the complete responsibility of planning their academic pursuits and career. Nevertheless, there are still drawbacks like a lack of access to quality technologies by both institutions and students themselves and some difficulties in the connection to the efficiency of using technologies by students. Online learning requires basic digital skills including; using word processing program, internet surfing and communicating using email.

Such skills deprivation can result in low learning effectiveness, stress, frustration, and insecurity which impact poor student attitudes towards E-learning. Also, face-to-face communication with peers and instructors might be less motivational and disciplinary, particularly among lowly-motivated students. These are the issues, which have been

identified in the recent research and the importance of self-regulation and the digital competence to maintain the motivation in the online learning is crucial (Mseleku, 2020; Martin et al., 2023).

Students have been shown to be very much dependent on the degree of institutional support and training that they receive which, in turn, is a hard determinant on their attitudes towards E-learning. Kumar Basak et al. (2018) pointed out that student who experienced more organized training in E-learning facilities is more likely to say that they have positive perceptions of institutional support than students who have fewer training opportunities. Equally, Al-Fraihat et al. (2020) discovered that training and technical support sufficiency have a strong relationship with satisfaction and willingness of students to use digital platforms.

Positive attitudes towards a technology also make it more likely that people would use it. Al-Samarraie et al. (2018) highlighted the fact that, not only are the beliefs concerning the usefulness of E-learning forming the acceptance of this educational feature in the minds of the students, but also the social norms, including the attitudes of peers and lecturers to technology. It is consistent with previous findings and corroborated using current findings and information; therefore, it can be stated that perceived encouragement of significant others increases the willingness of students to use digital platforms.

The COVID-19 pandemic enhanced the shift to online education worldwide, providing novel information about students perception. In one example, Adedoyin and Soykan (2020) analyzed the experience of students using digital and distance learning during the pandemic and found that the high internet prices, low internet connectivity, and lack of training on digital platforms were some of the challenges. Their results reflect larger

issues in developing nations, where the infrastructure constraints are an impediment to the equality of access to E-learning. Likewise, Naciri et al. (2021) discovered that, despite students being aware of the advantages of flexibility and continuity of E-learning during the COVID-19, they encountered considerable challenges connected to the applicability of the system, the lack of interaction, and the insufficient training in the Learning Management Systems (LMS).

The institutional and contextual realities tend to influence the perceptual factors in developing nations. Mtebe and Raisamo (2014) had previously suggested awareness and lack of ICT knowledge as being critical, yet more recent studies by Hussain et al. (2021) and Almaiah et al. (2022) are showing that digital literacy and content quality improvement with sufficient institutional support are decisive factors in working on student perceptions. The knowledge of these factors does not only assist the universities in addressing the needs of students but also enhances more satisfaction and acceptance of online platforms.

The usefulness and ease of use of E-learning is closely related to the satisfaction and acceptance of the students. According to Chen et al. (2020), perceived usefulness and satisfaction are listed among the most powerful predictors of E-learning adoption in higher education environments, whereas Aldholay et al. (2018) established that students who had positive attitudes towards the quality of online systems exhibited greater levels of engagement and intention to use it.

Usability and ease of use are the most important determinants of E-learning platform adoption, according to the Technology Acceptance Model (TAM) of Davis (1989). Perceived usefulness indicates how much the students think that E-learning enhances

their grades, whereas ease of use is used to mean how much the students think that the system is effortless. On the same note, the DeLone and McLean (2003) IS Success Model emphasize the significance of the quality of the system and quality of information in guaranteeing positive user experiences. Later studies based on these initial models: Al-Fraihat et al. (2020) determined that the quality of the system and the quality of service were related to the satisfaction to a significant degree, whereas Almaiah et al. (2019) concluded that the system design also has an effect on the acceptance, yet it is mediated by the technical support and user training.

The role of lecturers is also critical in creating sensitivity of the students towards E-learning. The way they teach, their readiness to embrace technology, and their capability to create interactive material are highly influential to the satisfaction of students. Bervell and Umar (2017) and Dhawan (2020) observed that the pedagogical practices of the lecturers directly influence the engagement and positive attitudes of the learners toward the digital platforms. In addition, Al-Okaily et al. (2022) discovered that those students who viewed their instructors as supportive and capable of using technology were suspected of forming positive attitudes towards online learning.

Overall, individual beliefs, digital proficiency, institutional support, and lecturer attitudes form a conglomerate of factors that influence students' perceptual variables to E-learning. Although basic theories like the TAM and the IS Success Model can still be used, new empirical studies have accentuated that infrastructural issues, quality of digital platforms, and lecturer preparedness determine perceptions especially in emerging economies.

## **2.4 Organizational/Institutional factors influencing implementation of eLearning**

Integration of technology in higher education institutions is greatly determined by institutional and organizational support. Leadership has always been cited as an important aspect in facilitating successful adoption of e-learning. The pioneer researches like that by Anderson and Dexter (2005) pointed out that both academic and administrative applications of technology should be evaluated by institutional leaders in order to make strategic decisions. The leaders should not only be able to effectively use the technology but also provide the opportunity to keep growing professionally, foster its adoption and be good role models in expressing their positive attitudes towards technological innovation. Good leaders formulate an appropriate vision of e-learning, facilitate ongoing training, and always handle the change in a manner that identifies with the goals of the institution.

Although these initial findings still hold, current studies have affirmed that the issue of leadership commitment still determines institutional adoption. Alqahtani and Rajkhan (2020) argue that powerful leadership and policy guidance is critical in developing faculty motivation as well as institutional preparedness to e-learning. In a parallel argument, Mtebe and Raisamo (2019) hold that the existence of the friendly management in African universities has a direct impact on the level of interaction between faculty and students with digital platforms. An enabling setting of implementation, such as ICT policies, resource allocation, and incentive structures, is offered by top management support (Al-Fraihat et al., 2020).

Motivation of faculty and staff is strongly related with the support which is offered by the institutional management. Rhema and Miliszewska (2011) previously found out that

support top management enhances staff commitment whereas Mapuva (2009) indicated leadership has the power to either facilitate or inhibit e-learning adoption. Nonetheless, recent research like Hussein et al. (2020) and Almaiah et al. (2022) gives some new evidence that institutional motivation, acknowledgment, and training are the most significant factors predicting the staff preparedness to implement e-learning in higher education.

Besides leadership, formulation of clear institutional policies and strategies is also essential. Universities which install clear policies towards e-learning, clearly state implementation plans, and invest in capacity development have high adoption rates. As an example, Kebritchi et al. (2017) and Almazova et al. (2020) emphasized the fact that the institutions that had a structured e-learning policy in the COVID-19 pandemic were more likely to success in switching to online learning. On the other hand, those institutions that lacked proper planning found it difficult to sustain quality and continuity of learning.

Another important factor is infrastructure. Poor ICT infrastructure, untrustworthy internet and inadequate technical assistance have been cited as obstacles in African universities (Sife et al., 2007; Oye et al., 2012). All these are still ongoing issues, yet more recent studies by Tarus et al. (2022) and Kiprotich et al. (2023) indicate that despite the enhancement of bandwidth and computer laboratories in Kenya, a lack of investment, as well as overpopulation, have continued to be a barrier to efficient e-learning. The challenge of cheap and good internet connectivity remains the key of adoption of e-learning, in East Africa (Letseka et al., 2018; Kasse and Balunywa, 2018).

Across the world, organizations have realized the necessity of the strong learning management systems (LMS) and digital systems to facilitate e-learning. Bond et al. (2021) note that the e-learning system is scalable based on how the institution is capable of investing in cloud-based systems, offer technical training and care, and ensure the system is cyber-secure. On the same note, Mseleku (2020) emphasizes that disparity in distribution of infrastructure makes the digital divide in African institutions more severe as rural students cannot use e-learning.

Staff training and technical support are other challenges encountered in the institutional implementation. The faculty might not have the skills to design and provide effective online learning environment without proper capacity building. According to a study by Alshurideh et al. (2020), continuous professional development, workshops, and incentives had a significant impact on the willingness of the faculty to use e-learning tools. Similarly, Abuhassna and Yahaya (2020) found that the pandemic did not lead to the disrupted transition to e-learning in universities that invested in organized faculty training programs.

In East Africa, the infrastructure, funding, and institutional readiness remain to be the main issues of implementation. According to a recent comparative study by Kadenyi and Mwangi (2022), Kenyan universities are at the back of the pack when it comes to affordability of bandwidth despite government-led efforts in the form of Kenya Education Network (KENET). The report highlighted that in as much as access has been increased in fiber optic cables like SEACOM and EASSY, institutional budgets are still too small to afford the capacity of large student populations. As such, even in the internet-connected locations, it is usually slow and ineffective with respect to e-learning.

It is also affected by institutional culture and attitudes. Faculty resistance, absence of ownership and less awareness of the benefits of e-learning can delay adoption. Chisango et al., (2020) indicated that one of the more frequent effects of digital initiatives is institutional resistance, which is frequently connected to poor change management and the inability to implement digital initiatives in accordance with the current teaching practices. In this regard, despite the availability of technology, the level of utilization is low.

To conclude, some of the institutional issues that affect the implementation of e-learning include leadership, policy frameworks, infrastructure, funding, training, and organizational culture. Although the role of leadership and infrastructure has been established in the literature of the past, recent sources (e.g., Alqahtani and Rajkhan, 2020; Bond et al., 2021; Almaiah et al., 2022; Kiprotich et al., 2023) establish the fact that such aspects are still significant and should be addressed as a complex. A supportive policy, adequate resources, and sustainable e-learning adoption of higher learning institutions are possible to attain through a combination of visionary leadership and supportive policies.

## **2.5 Level of computer literacy**

The two factors are computer literacy and self-efficacy, which are critical in the adoption of e-learning technologies. Computer self-efficacy refers to the personal belief and confidence a person has with regard to using computer technology (Compeau and Higgins, 1995). In earlier research, it was established that computer self-efficacy has an effect on both behavioral intentions and real use of technology (Venkatesh and Davis, 1996). Although these theoretical insights are still heeded these days, increasing

digitalization in learning has made scholars extend the debate to encompass digital literacy, ICT competence, and digital readiness as fundamental conditions to an effective implementation of e-learning.

Computer self-efficacy signifies not just one feeling of being able to make use of computers, but also the belief in the ability to perform numerous duties, including the use of learning management tools, working with digital files, engaging in online discussions, and solving simple issues. Once students feel that they are capable, they are more inclined to visit the e-learning platforms, consider them useful and will persevere. On the other hand, low self-efficacy students will most probably be intimidated by such systems and will experience anxiety, frustration or even reject e-learning opportunities. Recent research affirms the relationship: e.g., Alshehri et al. (2019) have discovered that computer self-efficacy was a powerful predictor of e-learning acceptance in Saudi university students, and Khlaisang and Songkram (2019) have also identified the same relationship in Thailand.

Digital literacy, which is closely related to computer self-efficacy, has expanded the competencies required by learners in the 21<sup>st</sup> century. The European Commission (2018) defines digital literacy as the capacity to use digital tools as well as the critical and creative skills that are required to work with digital environment in a safe and productive manner. Ng (2017) believes that digital literacy goes past the functional proficiency to the cognitive, socio-emotional, and ethical aspects of digital involvement. This means that to achieve successful e-learning adoption, institutions should not simply provide facilities but should also make sure that there are holistic digital literacy skills acquisition among students.

Computer literacy emergence as a role came to the fore during the COVID-19 pandemic, as institutions of higher learning all over the world turned to emergency remote learning. Adedoyin and Soykan (2020) emphasized that the more digitally literate students were the easier they adjusted to online learning settings than their less digitally literate counterparts. In a similar way, Hebebcı et al. (2020) noted that the absence of digital competence was among the significant obstacles to successful online learning during the pandemic in Turkey. These results indicate that digital literacy is a moderating as well as a determining factor of e-learning success.

In Africa, there is a greater issue of computer literacy and digital preparedness. These research results have continuously revealed that although there is rising access to mobile phones and internet connectivity, a significant proportion of students do not have any basic ICT skills that can enable them to engage with e-learning in any meaningful way. According to Mtebe and Raisamo (2019), Tanzanian students had difficulties in using learning management systems as there was very little exposure and insufficient training. On the same note, Chisango et al. (2020) established that weak digital literacy was the major factor contributing to disengagement of students in e-learning in Zimbabwean universities. This is the same case in Kenya. In a research study by Tarus et al. (2022), it was demonstrated that although Kenyan university students possess smartphones in large numbers, many of them were not able to effectively utilize productivity tools, do online academic research, and use institutional e-learning services. This disconnect played a great role in the quality of the online learning results.

Recent years of empirical research support the notion that computer literacy has a direct impact on the perception of ease of use and perceived usefulness of e-learning technologies among the students. Indicatively, Almaiah et al. (2022) in a cross-country

study carried out in Jordan, Saudi Arabia, and the United Arab Emirates established that digital literacy has a significant effect on the behavioral intention and actual use of e-learning systems. Equally, Kumar Basak et al. (2018) have found that students of Indian origin who were more ICT competent expressed more positive attitudes to online learning and have better learning outcomes. The results are consistent with the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT) that self-efficacy and facilitating conditions are the primary contributors to technology acceptance.

The other dimension is the difference between access and ability. Most students might have access to the digital devices, but their access to them to make them profitable towards academic needs is distorted. Bond et al. (2021) contend that digital inequality currently is less physical than digital skills and literacies. In the case of higher education institutions, this implies that interventions should be directed towards, not only, developing infrastructure, but also developing skills. These gaps can be bridged through training workshops, orientation and peer support initiatives. Indicatively, Kiprotich et al. (2023) discovered that specific ICT training was essential in effectively enhancing the confidence and performance of Kenyan university students in online learning platforms.

The role of faculty and instructors in designing the digital competence of students is also a significant role. In case faculty themselves are not well digital literate, they might not be able to offer adequate guidance or create effective online learning experiences. Almazova et al. (2020) observed that the quality of the outcomes of the online learning was dependent on student and faculty digital literacy levels in the Russian universities during the pandemic. This indicates that digital literacy needs to be institutionalized in a comprehensive manner encompassing all the stakeholders and not just students.

To conclude, e-learning is an important process that requires computer literacy and self-efficacy as key facilitating factors. Classical theories underline their importance in the formation of attitudes to ease of use and usefulness, and the recent research findings prove the fact that digital literacy is directly related to the behavioral intention and the real adoption of e-learning systems. The lack of computer literacy in Africa as evidenced in Kenya and other African nations highlights the fact that this disparity is still a major problem in the implementation of e-learning. The solutions to such gaps are based on institutional strategies that incorporate digital skills training in curricula, lifelong faculty development, and investment in supportive infrastructures. Digital literacy, self-efficacy, learning outcomes intersection and its relationship with digital literacy should be further examined in future studies, particularly where resources are scarce, as in sub-Saharan Africa.

## **2.6 Summary and Research Gap**

Studies on the adoption of e-learning in higher education have increased tremendously especially after the COVID-19 pandemic that forced institutions to use digital platforms to learn (Ali, 2020; Adarkwah, 2021). The recent research had looked at various variables that influence the adoption of e-learning such as student determinants, institutional support systems, and digital competence levels (Scherer et al., 2021; Al-Fraihat et al., 2020). Although this literature is now becoming extensive, significant differences are still found in the results of different contexts, particularly in sub-Saharan Africa where other issues like restrictions on infrastructure, insufficient training and socio-economic inequalities have a bearing on adoption.

Regarding factors related to students, currently available research highlights the role of attitudes, motivation, and readiness on e-learning acceptance (Ngampornchai and Adams, 2016; Kuliya and Usman, 2021). Several of this work is however done within the Asian and Western setting and there is little known empirical evidence on Kenyan universities. Besides, although as confirmed by international studies the perceptions of usefulness and ease of use have an overwhelming influence on the adoption of digital devices, there is a paucity of knowledge regarding the way these perceptions are reflected in local settings that include irregular access to the internet and lack of access to digital devices. This creates a vacuum in describing how perceptual variables associated with students are unique determinants of adoption at resource-scarce Kenyan higher institutions of learning.

The provision of infrastructure, administrative support, and training opportunities have been also widely examined as institutional factors (Alhabeeb and Rowley, 2018; Al-Fraihat et al., 2020). Results indicate that institutional preparedness is an important factor in determining effective e-learning implementation. However, in the majority of the studies, the general challenges are identified, including the lack of sufficient financial support and insufficient implementation of policies, but the problematic aspects are not empirically connected with the actual adoption behavior of the Kenyan public university students. This leaves a gap in the comprehension of the institutional processes that directly either enable or obstruct adoption in particular universities i.e. in Masinde Muliro University of science and technology.

The importance of digital competence, such as computer self-efficacy and literacy, has received the interest as a decisive factor in e-learning application (Nguyen et al., 2020; Tsegay et al., 2022). There is consensus among the scholars that more computer literate

students tend to adopt e-learning technologies well. Nevertheless, the literature in the Kenyan setting has been very limited with most of them making general assumptions based on the technological aptitude of the students instead of carrying out stringent empirical research. This brings some critical issues to the fore on whether the level of computer literacy among the students of Kenya is high enough to facilitate effective adoption of e-learning.

Although these researches are valuable, there still are a number of gaps. First, there is the gap in knowledge about the interaction of student perceptual, institutional, and computer literacy variables to affect adoption in public universities in Kenya, especially considering the underutilization of e-learning platforms despite the committal of policy at the levels. Second, there is an empirical gap since several studies carried out in the past have not been carried out within the Kenyan higher education setting; hence, it is hard to extrapolate their results to local realities. Third, the research has a methodological gap, as much of the existing literature has been based on descriptive surveys or qualitative methods (e.g., interviews and case studies), with little use of a statistical method that is robust, e.g. logistic regression, to predict adoption behaviors.

As such, this paper attempts to fill these gaps by examining how e-learning is being adopted by students in the Masinde Muliro University of Science and Technology with the aim of uncovering the confluence of student perceptual variables, institutional variables, and computer literacy. The study using a correlational design and the regression-based analysis can not only be added to the local empirical evidence but also offers methodological progress in exploring technology adoption in higher education.

## CHAPTER THREE

### RESEARCH METHODOLOGY

#### 3.1 Introduction

The chapter provides the research approach and methodological framework used in the research. The section will deal with study site, population, and sampling methods and the sample size, data collection tools, instrument validation and reliability, data collection process, ethics, and analysis.

#### 3.2 Research Design

This study employed a correlational research methodology to examine the relationships amidst predictor and outcome variables. The design enabled the study of the relationship between student perceptual factors on the acceptance of the digital learning and the actual adoption behaviors on positive perceptions that favour technology integration and negative perceptions that inhibit the adoption behavior. This model was furthered to the study of institutional factors and levels of technological capabilities in relation to e-learning acceptance in higher education establishments. This research design was selected because it has the ability to examine phenomena in their natural environments without the intervention of the researcher so that it can be effectively generalized in other populations and institutional setting. The method enables to learn useful analysis of actual behavioral patterns and their connections in natural learning settings.

#### 3.3 Study Variables

The *Dependent variable* for this study is; adoption of eLearning, it is a binary variable where (yes) is adoption and (no) is, no adoption and in analysis yes is coded as (0) and no is coded as (1).

The ***Independent variables*** for this study are; a.) Students perceptual factors is measured on; motivation, usability perception, learning preference, ease of use, lecturers' characteristics, information provided and system quality. b.) Institutional policy & support system- is measured on; top management support, eLearning strategy and policies, technical support, eLearning infrastructure. c.) Level of computer literacy- is measured on competency to deal with eLearning platforms/ability to use computer, gadgets used in eLearning, previous computer learning skills & internet experience, eLearning culture.

The ***Control variables*** for this study are; students age, gender, discipline of study and previous training. The control variables are included because they have been shown in previous research to impact student adoption with e-learning. Controlling for these variables helps to isolate the effect of the independent variables (meaning reduce the bias that can occur if these variables have a relationship with both the independent and dependent variables) (Tagreed et al.,2016).

### **3.4 Study Location**

The study was conducted in Masinde Muliro University of Science and Technology. Masinde Muliro University is a public university located in Kakamega County in the Western region of Kenya. Masinde Muliro University of Science and Technology was chartered in 2007 under the Universities Act, granting it full university status after operating earlier as a constituent college of Moi University from 2002. The university has campuses located in Bungoma and Webuye. It has 11 schools, with an approximate population of 25,000 students. MMUST is one of the public universities facing similar challenges and opportunities in eLearning adoption as other public universities in Kenya. The university quickly took up virtual learning especially after the strike of Covid-19

pandemic. The institution has increasingly been investing on E-learning by putting in place infrastructures for E-learning and a policy to guide E-learning. Moreover, students' policy states that students were admitted for face-to-face learning and there has been an outcry and resistance from students and their leaders about the shift to eLearning.

There remains limited empirical research focusing specifically on the factors influencing eLearning adoption at MMUST, creating a contextual gap in the available literature. This study, therefore, sought to address this gap by examining the unique experiences and adoption patterns within the institution. Additionally, the researcher's familiarity with the institution and its operational environment influenced the selection of MMUST as the study site, as it facilitated access to respondents and relevant data.

### **3.5 Target population**

The study targeted 7500 fourth year students who had still enrolled. They are among the students who had an experience with E-learning. Fourth year students were present when the institution quickly took up virtual learning, benefited on tokens given during the pandemic, common courses were undertaken online.

### **3.6 Sampling size and procedure**

The researcher used the multi-stage sampling technique, whereby all the schools were purposively selected in Masinde Muliro University of Science and Technology to be used and were considered as strata in this study, then the students in each school were systematically sampled into the study, the Sampling Interval (SI) was determined by dividing the whole population with the sample size and randomly selected the starting point with a fixed periodic interval.

$$SI=K$$

$$K= 7500/366$$

$$K = N/n$$

$$K = 20.4$$

Where **K**=Systematic sampling interval, **N**=Population size, **n**= sample size

For this study, the sample size consisted of 366 fourth year students, which was calculated using a sample size calculator with a significant level of 0.05 and confidence level of 95 % (Krejcie & Morgan, 1970).

### **3.7 Research Instrument**

In this study the primary research instrument employed was questionnaire. This tool was chosen for its ability to gather comprehensive and relevant data to address the research objectives effectively. Questionnaires are effective in collecting data from a large number of respondents within a short time frame. They also allow for the anonymity for respondents, which can lead to more honest and unbiased respondents (Creswell & Creswell, 2018). In this study the questionnaire had five sections, section one included items related to student's demographic, section two to five contains questions that were used to collect data on the study objectives that is; Students perceptual factors, institutional factors, and level of computer literacy.

### **3.8 Pilot Study**

A pilot study was conducted at Kibabii University that was selected due to its comparable academic structure and organizational features to the main research site, Masinde Muliro University of Science and Technology (MMUST). This pilot institution had been carefully chosen to be sure that the feedback that would be gathered would be relevant and applicable to the actual research environment. In the study, 10 percent of the estimated population of 366 respondents was used. The sample size was comprised of participants with similar academic levels and disciplines in order to reflect the

demographics of the target population. This research design ensured that preliminary results would provide reliable insights into the efficacy of instruments in real research situations.

The main aim of the preliminary research was to determine the appropriateness, understandability and suitability of the research instruments, especially the structured survey. The pilot in particular aimed at checking the understanding of the questions, detecting the possible unclear or confusing aspects and ensuring the ability of the questionnaire to capture the data aligned with the aims of the research. Moreover, the pilot study allowed determining possible administrative barriers, such as time of completion, the degree of cooperation of the participants, and other organizational aspects, such as data handling and the frequency of responses. Critical changes were made in terms of phrasing of questions, structure, as well as presentation to enhance comprehension and consistency.

The pilot research also provided preliminary assessment of instrument validity and reliability. The preliminary research and feedbacks of the participants in this stage were essential in shaping the final questionnaire version, which in turn enhanced the quality of data collection in the main study in terms of its quality and academic soundness.

### **3.8.1 Validity of Research Instruments**

Content validity was adopted to ensure that the data collection tools fully addressed all topics of the study objectives. This kind of validity was important because it evaluated the presence of the right and full set of items in the questionnaire that captured the aims of the study. By applying content validity, it was possible to make sure that the questionnaire was valid in terms of the objectives of the study and the theoretical

constructs that were under measurement. Through pilot tests, the researcher was able to identify and correct any shortcomings in the instrument and therefore increased the instrument ability to gather pertinent and comprehensive data. This allowed the comprehensive investigation of the effects on the adoption of eLearning. The methodology assisted in making valid and reliable conclusions, thus forming part of the knowledge base in the educational technology and eLearning. Various factors that affect the adoption of eLearning were collected in the questionnaire that is; student-related factors, institutional factors, level of computer literacy, and the combined impact of the three. (Boateng et al.,2018)

### **3.8.2 Reliability of Research Instruments**

Cronbachs Alpha analysis was done to test consistency of measurement between items in the questionnaire, specifically proving reliability of multi questions Likert scale. The research employed the set levels of reliability: 0.60 or more indicates the presence of satisfactory reliability, 0.80 or more strong reliability and 0.90 or more excellent measurement. Greater Alpha coefficients indicate the consistency of patterns of responses of the participants to the clusters of items, which justifies the accuracy of the measurements, and less values indicate the inadequacy of the construct reliability.

Findings showed that the institutional factor measures attained Alpha coefficients that were more than 0.8, student attitudinal measures attained greater than 0.7, and student measurement of digital literacy attained greater than 0.6, and the measures fell within reasonable reliability ranges (Hair et al., 2011). Table 2 explains the information in detail concerning every construct, the variables related to them and their measurement of reliability..

### **3.9 Data Collection Procedure**

Official correspondence from Masinde Muliro University was secured by the researcher to support the permit application submitted to the National Commission for Science and Technology and Innovation (NACOSTI). Upon receiving this permit, the researcher was authorized to proceed with the investigation. Data collection activities were conducted with the assistance of research collaborators who facilitated the information gathering process.

### **3.10 Ethical Consideration**

Participants involved in the research were informed about the study's purpose. They took part by their own choice and could stop whenever they wanted. Those willing to participate in the study read the terms and signed a consent form to show that they understood everything in the data collection instruments and agreed to join the study. Participants who took part in this study kept their responses confidential. Code names, keeping notes and preserving questionnaire with respondents' responses. Respondents' hopes and expectations of getting some assistance from the study were discussed by making it clear that the research will help formulate policies and run programs that, in turn, benefit the students in the study. No direct benefit was assured. Also, it came at no expense for the person participating in the research.

### **3.11 Data Analysis**

In data preparation the researcher did; data entry, data cleaning checking for and correct errors, such as missing values, outliers, or inconsistencies and diagnostic analysis. A check of missing data revealed that there was 0% missingness on all demographic variables as shown in Table 1, an indication that missing data was not a problem for all

the key variables. Skewness and Kurtosis were used to screen the data for distribution of residuals, specifically for the demographic characters and found the data was approximately within the normal range (sk=-1. to 1 and kurt (-4 and 4).

Two diagnostic tests were further performed to review the assumptions of logistic analysis. First, variable scores were standardized and a normality test performed to check for outliers. Second, multicollinearity test was performed and the covariates were less collinear, the highest being .8670, indicating that the multicollinearity assumption was met (Hosmer *et al* 2013). Based on the screening of the data it appeared appropriate to proceed with the logistic regression analysis.

Logistic Regression analysis was then used to examine the research hypotheses because eLearning adoption as an outcome of interest is a dichotomous variable and logistic regression calculated the probability of success over the probability of failure. In the study the probability of eLearning to be adopted was coded as **1**, not adopted **0**. In the formula below **P** was the probability of the student to accept E-learning, (**P/1-P**) was the likelihood or odd ration of adoption. The general logistic module was expressed as follows.

$$\log\left(\frac{p}{1-p}\right) = \beta_0 + \beta_1 X$$

The odd ratio represented the odds of how likely an outcome will occur given a particular exposure, compared to the odds of the outcome occurring in the absence of exposure. In the study the odd ratio was used to compare the relative odds of the occurrence in the outcome for example students' adoption given the exposure to predictor variables i.e., Students perceptual factors, Institutional factors, level of computer literacy. The logistic

regression equation per objective was as follows. To assess the influence of students' perceptual factors on the adoption of eLearning a logistic analysis model fitted was as below.

$$\log\left(\frac{p}{1-p}\right) = \beta_0 + \beta_1 X_1 + \dots + \beta_7 X_7 + \gamma_1 + \gamma_2 + \gamma_3 + \varepsilon \dots \dots \dots \text{(i)}$$

Where by:  $p$  is the probability of adopting eLearning.  $\beta_0$  is the intercept,  $\beta_1, \beta_7$  is the coefficients for the independent variables Students perceptual factors,  $X_1, \dots, X_7$  is the measure for student related factors that is Motivation, usability perception, learning preferences, ease of use, lecturer's characteristic, information provided and system quality.  $\gamma_1, \gamma_2, \gamma_3$  are the coefficients for the control variables. Where  $\gamma_1$  is students age,  $\gamma_2$  is gender,  $\gamma_3$  is discipline of study and previous training.  $\varepsilon$  is the error.

To address objective 2 a logistic regression expressed as

$$\log\left(\frac{p}{1-p}\right) = \beta_0 + \beta_1 X_1 + \dots + \beta_4 X_4 + \gamma_1 + \gamma_2 + \gamma_3 + \varepsilon \dots \dots \dots \text{(ii)}$$

Where by:  $p$  is the probability of adopting eLearning.  $\beta_0$  is the intercept,  $\beta_1, \beta_4$  is the coefficients for the independent variables institutional policy and support system,  $X_1, \dots, X_4$  is the measure for institution policy and support system, that is top management support, eLearning strategy & policy, technical support, eLearning infrastructure.  $\gamma_1, \gamma_2, \gamma_3$  are the coefficients for the control variables. Where  $\gamma_1$  is students age,  $\gamma_2$  is gender,  $\gamma_3$  is discipline of study and previous training.  $\varepsilon$  is the error.

objective 3 a logistic regression expressed as

$$\log\left(\frac{p}{1-p}\right) = \beta_0 + \beta_1 X_1 + \dots + \beta_4 X_4 + \gamma_1 + \gamma_2 + \gamma_3 + \varepsilon \dots \dots \dots$$

(iii)

Where by:  $p$  is the probability of adopting eLearning.  $\beta_0$  is the intercept,  $\beta_1, \beta_4$  is the coefficients for the independent variables level of computer literacy,  $X_1, \dots, X_4$  is the measure for level of computer literacy, that is competency to deal with eLearning platforms/ability to use computer, eLearning culture, previous computer learning skills and internet experience.  $\gamma_1, \gamma_2, \gamma_3$  are the coefficients for the control variables. Where  $\gamma_1$  is students age,  $\gamma_2$  is gender,  $\gamma_3$  is discipline of study and previous training.  $\varepsilon$  is the error.

## **CHAPTER 4**

### **DATA PRESENTATION, INTERPRETATION AND DISCUSSION**

#### **4.1 Introduction**

This chapter presents the data, interpretation and discussion of the findings. The findings are structured to provide insights into the demographic characteristics of respondents and to evaluate the influence of various factors on the adoption of eLearning in higher education institutions. By examining these results, we aimed to uncover patterns and relationships that will inform our understanding of the dynamics surrounding eLearning adoption.

#### **4.2 Demographic Information of Students' Respondents**

A total of 322 out of the 366 targeted respondents participated in the study, representing 89.44% response rate. Participants demographic characteristics were assessed on items including; Age, gender, name of school, and residence of the participants. A summary is presented in Table 1.

**Table 4. 1: Summary of Characteristics of the sample**

<b>Variable</b>		<b>Percentage Missing</b>	<b>Frequency</b>	<b>Percentage</b>	<b>Cum.</b>	<b>Skew</b>	<b>Kurtosis</b>
<b>Age</b>	<b>codes</b>	<b>0%</b>				<b>1.353</b>	<b>4.042</b>
20yrs and below	0		11	3.42	3.42		
21-25	1		191	59.32	62.73		
26-30	2		95	29.5	92.24		
31-35	3		15	4.97	97.2		
36 and above	4		9	2.79	100		
<b>Gender</b>		<b>0%</b>				<b>.075</b>	<b>1.000</b>
Female	0		167	52	52		
Male	1		155	48	100		
<b>School/Faculty</b>		<b>0%</b>				<b>.004</b>	<b>1.502</b>
SEDU	0		72	22.36	22.36		
SASS	1		19	5.9	28.26		
SCI	2		41	12.73	40.99		
SAVET	3		10	3.11	44.1		
SEBE	4		31	9.63	53.73		
SOM	5		13	4.04	57.76		
SONAS	6		17	5.28	63.04		
SOBE	7		72	22.36	85.4		
SPHBST	8		22	6.83	92.24		
SONMAPS	9		25	7.76	100		
<b>Area of residence</b>		<b>0%</b>				<b>.896</b>	<b>2.286</b>
Per-urban	0		54	16.8	16.8		
Rural	1		76	23.6	40.4		
Urban	2		192	59.63	100		

**N=322**; **SEDU** represents- school of education; **SASS** represents-School of Arts and Social Science; **SCI** represents-School of Computing and Informatics; **SAVET**- represents School of Agriculture, Veterinary Sciences and Technology; **SEBE**- represents School of Engineering and the Built Environment; **SOM**-represents School of Medicine; **SONMAPS** represents-School of Nursing, Midwifery and Paramedic Sciences; **SOBE** represents- School of Business and Economics; **SPHBST**-represents School of Public Health, Biomedical Sciences and Technology

From the Table, the majority of the responds were aged between 21-25years old representing 59.3%, followed by 26-30 years representing 29.5% and the least were 36 years and above representing 2.79%. Female respondents were the majority 167 representing 52% of the participants and male were 155 representing 48% of the participants.

The participants in the study were drawn from the 10 schools at the university. The schools with highest participants were SOBE and SEDU, each had 72 respondents representing a total of 44.72%. This was followed by SCI (41) representing 12.73% of the respondents. The school with the least respondents was SOM representing 4.04%.

The majority of the participants resided in urban area (192) representing 59.63% followed by Rural (76) representing 23.6%. Those who resided in per-urban were 54 representing 16.8% of the participants.

The other variables in the study: students' perceptual factors, institutional factors and student computer literacy were derived from the participants respondents. The study utilized three distinct methods to establish the appropriate number of factors for retention: eigenvalue analysis, Velicer's Minimum Average Partial (MAP) procedure, and parallel analysis techniques. To enhance factor interpretability, both orthogonal varimax rotation and oblique rotation methods were applied. All factor loadings above 0.5, according to standard practice Stevens (2002), were used to determine the factors for analysis. Eleven (i.e. students perceptual factors, institutional factors, and student computer literacy) and four demographic variables were identified as potential predictors of adoption for eLearning.

#### **4.3 Reliability Test for predictor variables**

The reliability of predictor factors was tested using a Cronbach's alpha. Institutional factors had Cronbach's alpha coefficient greater than 0.8, Student perceptual factors had Cronbach alpha coefficient greater than 0.7, and students' level of computer literacy had Cronbach's coefficients greater than 0.6, which is still considered acceptable (Hair et

al.,2011) Detailed descriptions of each factor, variable, and level of reliability are presented in Table 2.

**Table 4. 2: Summary of factors and variables associated with adoption of eLearning in Higher education institutions**

<b>Factors</b>	<b>Variables</b>	<b>A.F.V</b>
<b>Gender</b>	Gender of students coded as: Female = 0; Male= 1	
<b>Age</b>	Age of participants coded as: 20yrs and below =0; 21-25 years = 1;26-30 years = 2; 31-35 years = 3 and 36 years and above = 4	
<b>School</b>	Name of school coded as: SEDU =0; SASS= 1; SCI =2; SAVET = 3, SEBE= 4, SOM = 5; SONAS=6, SOBE = 7; SPHBST= 8; SONMAPS = 9	
<b>Residence</b>	Place of students' residence coded as: Peri-urban = 0; Rural =1; Urban = 2	
<b>Student perceptual factors</b>	E-learning is efficient as a teaching method E-learning offers the possibility to efficiently manage my time I prefer E-learning compared to face to face The environment for E-learning is conducive to learning E-learning has improved my grades E-learning is affordable E-learning is more responsive to my learning needs than face to face. E-learning provides enough course content.	<b>.734</b>
<b>Computer literacy</b>	Have the skills to learn online Have the technical skills to handle any E-learning platform. I easily search and get information from the internet I have interacted with computers way back before joining university. Have a gadget for E-learning use The e-learning strategies satisfy my learning needs.	<b>.691</b>
<b>Institutional (policy and support system) factors</b>	I was trained by my university on how to handle E-learning platforms. The university has provided me with necessary resources to effectively learn online My university has enough e-learning infrastructure My lecturers have computers My university has stable internet WIFI where I can access and use My university has all the necessary software to support e-learning I can easily access and use my university's e-learning platforms My university has appropriate e-learning strategies/ policies My university blends e-learning with traditional learning I received support for the platform I'm using for eLearning	<b>.818</b>

### 4.3.1 The influence of student perceptual factors on adoption of E-learning

The first objective of the study was to examine the influence of student-perceptual factors on the adoption of eLearning. To examine these relationships, a logistic regression model 1 was fitted with student perceptual factors when controlling for demographic variables (i.e., age, gender, school type, and area of residence). The results are summarized in Table 3 and discussed in detail thereafter.

**Table 4. 3: Summary of logistic regression for students’ perceptual factor variables associated with adoption of eLearning in higher education**

Variables	Odd ratio	SE	Sig	95% CI LB	UB
<b>Age</b>					
21-25	.507	.387	.373	.113	2.262
26-30	.476	.369	.339	.104	2.177
31-35	.561	.518	.050*	1.092	3.432
36 and above	.120	.136	.043*	1.013	1.097
<b>Gender_(Male)</b>	2.129	.278	.026*	.6971	0.829
<b>School</b>					
SASS	1.551	.852	.425	.529	4.552
SCI	2.102	.946	.049*	.871	5.077
SAVET	3.301	2.796	.159	.627	1.362
SEBE	1.660	.7625	.270	.675	4.084
SOM	1.117	.708	.862	.322	3.871
SONAS	2.246	1.346	.017**	2.694	7.270
SOBE	.918	.3289	.018**	1.455	1.852
SPHBST	.723	.373	.530	.265	1.986
SONMAPS	1.796	.911	.240	.665	4.852
<b>Residence</b>					
Rural	1.201	.475	0.642	.554	2.606
Urban	1.029	.347	0.932	.531	1.994
<b>Student P. Factors</b>					
eLearning_ efficient teaching-app	1.086	.111	0.421	.888	1.327
eLearning helps_ manage Time	.984	.093	0.852	.815	1.184
Prefers eLearning to F2F	1.080	.122	0.049*	.865	1.348
Envir4Elearning_ conducive	1.088	.1143	0.23**	.885	1.337
eLearning improved My grades	.898	.100	0.334	.722	1.117
eLearning_ affordable	.909	.0890	0.330	.751	1.110
eLearning respond to My Learning Needs	.930	.103	0.510	.749	1.154
eLearning provides enough content	.812	.0890	0.05*	1.056	1.698
Correctly predicted: adoption of eLearning			74.78%		
Correctly predicted: non-adoption			71.97%		

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Note: n = 322; OR = Odds ratio; Sig = Significance level (3 dp); CI = Confidence level; LB = lower bound; UB = Upper bound. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ ; P=Perceptual

The results showed that student perceptual factors have a statistically significant influence on the adoption of e-learning in public institutions of higher learning in Kenya. The Chi-square test of the overall model 1 was significant ( $p < .001$ ). The Nagelkerke  $R^2$  showed that the variables in the model accounted for a modest overall variation in retention ( $R^2 = 0.25$ ). While the model did not show the extent of adoption of eLearning (it correctly predicted 74.8% of the participants in this study), it correctly predicted 71.97% of non-adoption of eLearning.

Student perceptual factors had statistically significant and positive influence on the adoption of eLearning. For instance, students whose age ranged between 31-35 years old and 36 years and above were 56% ( $\text{Exp}(\beta) = .561$ ,  $p = 0.05$ ), and 12% ( $\text{Exp}(\beta) = 0.120$ ,  $p = 0.043$ ) more likely to adopt eLearning, respectively, than those whose age ranged below 20 years, 21-25, and 26-30 years. Recent research confirms that adult or non-traditional students tend to use online learning forms since they are more likely to balance work, family, and education obligations (Addae et al., 2025). The younger learners especially those who are below the age of 30 years usually need more interactive and structured learning environment that makes direct interaction with the instructor and fellow learners easy. In-person environments allow them to obtain instant feedback, socialization, and a feeling of belonging that are essential to their academic and emotional growth (Almaiah et al., 2020). In addition, most students who are younger and join universities have fewer previous experiences with their self-directed learning and online platforms, which is why they feel less confident in using digital tools on their own (Mpungose, 2020). In Kenya, infrastructural inequalities and unreliable access to the internet or personal computers discourages younger students to adopt eLearning and

instead use the traditional face-to-face education (Kibuku et al., 2020). This suggests that while younger cohorts are generally more digitally exposed, their learning preferences remain shaped by pedagogical familiarity, social needs, and perceived instructional support in physical classrooms.

Male students were 2 times more likely to adopt to eLearning ( $\text{Exp}(\beta) = 2.129, p = 0.026$ ) than female students, is in line with Liaw and Huang (2013) research found out that mature students often value the convenience and flexibility offered by eLearning platforms.

Students belonging to the school of computing and informatics were 2 times more likely to adopt eLearning ( $\text{Exp}(\beta) = 2.102, p = 0.049$ ) than those belonging to school of Education. Similarly, students in the school of SONAS were 2 times more likely to adopt eLearning ( $\text{Exp}(\beta) = 2.246, p = 0.017$ ) than those in SEDU. Also, the results showed that students in SOBE were 92% more likely to adopt eLearning ( $\text{Exp}(\beta) = 0.918, p = 0.018$ ) than those in SEDU, these results support Al-Azawei et al. (2017), who reported that students in technology-related and professional disciplines often perceive eLearning systems as more useful and easier to use due to their greater technological proficiency. While students in other schools such as SASS, SAVET, SOBE, SOM, SONMAPS, SPHBTS showed a positive likelihood to adopt eLearning, the influence was not statistically significant.

Interestingly, students residing in either rural or urban had no significant influence on adoption of eLearning this is in accordance with (Singh & Thurman 2019; Li and Lalani 2020) previous researches that mentioned that both groups could benefit equally from eLearning opportunities when infrastructure barriers are addressed.

While the eight student perceptual factors in the model, had positive influence on eLearning adoption, only three factors: prefers eLearning to face-to-face (Exp ( $\beta$ ) = 1.080,  $p = 0.049$ ); environment for eLearning is conducive to learning (Exp ( $\beta$ ) = 0.120,  $p = 0.043$ ), and eLearning provides enough course content (Exp ( $\beta$ ) = 0.120,  $p = 0.043$ ) had positive and statistically significant influence on eLearning adoption, this confirms the critical role of perceived usefulness, particularly content adequacy and environment quality in driving adoption (Alshammari et al., 2025).

Based on these findings, the null hypothesis ( $H_{01}$ ), which stated that there is no statistically significant relationship between student perceptual factors and the acceptance and adoption of eLearning, was rejected. This indicates that student perceptual factors significantly influence eLearning adoption in public universities.

#### **4.3.2 The influence of institutional factors on adoption of E-learning**

The second objective of the study was to establish the influence of institutional factors on the adoption of eLearning. To establish these relationships a logistic regression model II was fitted with institutional factors controlling for demographic variables (i.e., age, gender, school type, and area of residence) The results are summarized in Table 4 and discussed in detail thereafter.

**Table 4. 4: Logistic regression for institutional factor variables associated with adoption of eLearning**

Variables	Odds ratio	SE	Sig	95% CI LB	UB
<b>Age</b>					
21-25	.595	.444	.486	.138	2.566
26-30	.586	.442	.479	.133	2.573
31-35	.621	.564	.060	.104	3.689
36 and above	.129	.147	.027**	1.014	1.204
<b>Gender_(Male)</b>	.0139	1.202	.038**	1.760	2.040
<b>School</b>					
SASS	1.582	.882	.411	.530	4.721
SCI	2.175	1.000	.019**	2.883	5.356
SAVET	4.329	3.856	.100	.756	2.801
SEBE	1.213	.555	.673	.495	2.975
SOM	1.009	.658	.989	.281	3.624
SONAS	2.238	1.376	.190	.671	7.470
SOBE	.872	.318	.028**	.427	.781
SPHBST	.753	.390	.583	.273	2.076
SONMAPS	1.761	.910	.274	.639	4.848
<b>Residence</b>					
Rural	1.130	.451	.759	.517	2.469
Urban	1.018	.348	.958	.522	1.988
<b>Institutional Factors</b>					
Trained by university	.926	.089	.0247**	.680	.982
Have Resources_2effectly learn online	.958	.110	.071	.765	1.200
eLearning infrastructure university	1.137	.137	.028**	1.898	2.439
Lecturers have computers	1.165	.11	.105	.969	1.402
University has stable internet	.760	.095	.027**	.595	.970
Univesrity_software4elearning	.869	.104	.239	.687	1.098
easy2use eLearning platform	1.078	.124	.513	.860	1.352
Necessary eLearning policies	1.187	.152	.018**	1.925	2.524
Blends eLearning &_face2face	1.034	.107	.635	.844	1.266
eLearning platform awareness	1.012	.026	.808	.962	1.065
Correctly predicted adoption- eLearning			72.1%		
correctly predicted: no adoption			70.8%		
Correctly classified			74.7%		

Note: n = 322; OR = Odds ratio; Sig = Significance level (3 dp); CI = Confidence level; LB = lower bound; UB = Upper bound. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

The results revealed that Institutional factors have a statistically significant influence on the adoption of e-learning in public institutions of higher learning in Kenya.

The Chi-square test of the overall model was significant ( $p < .001$ ). The Nagelkerke R2 showed that the variables in the model accounted for a modest overall variation in retention ( $R^2 = 0.21$ ). While the model did not show the extent of adoption of eLearning

(it correctly predicted 72.1% of the participants in this study), it correctly predicted 70.8% of non-adoption of eLearning.

The results of the analysis showed that while the all-age groups had a positive influence on eLearning adoption, only the influence of students who were 36 years and above (Exp ( $\beta$ ) = 0.129,  $p$  = 0.027), was statistically significant indicating that these age group was more likely to adopt eLearning.

The results showed that male students were likely to adopt eLearning (Exp ( $\beta$ ) = 0.139,  $p$  = 0.038) compared to female students. Also, while belonging to any of the 10 schools was positively associated with adoption of eLearning compared to SEDU, belonging to two schools; SCI and SOBE had a positive and Significant influence on adoption of eLearning in higher education. That is SCI (Exp ( $\beta$ ) = 2.175,  $p$  = 0.019) and SOBE (Exp ( $\beta$ ) = 0.872  $p$  = 0.028). Students residing in either rural or urban had no significant influence on adoption of eLearning.

The results showed that, while the ten institutional factors had a positive influence on eLearning adoption, the influence of only four factors were statistically significant predictors of eLearning adoption in higher education. These factors included; receiving training from the university on how to handle E-learning platforms (Exp ( $\beta$ ) = 0.926,  $p$  = 0.025); university has enough e-learning infrastructure (Exp ( $\beta$ ) = 1.137,  $p$  = 0.028); university has stable internet WIFI where I can access and use (Exp ( $\beta$ ) = 0.760,  $p$  = 0.027), and university has appropriate e-learning strategies/ policies (Exp ( $\beta$ ) = 1.187,  $p$  = 0.018). The results indicated that university training users on eLearning platforms was 93% more likely to cause adoption of eLearning in institutions of higher learning. Having eLearning infrastructure was 114% more likely to cause adoption of eLearning in Higher education institutions. The stability of internet at the university for access and use are

76% more likely to cause adoption of eLearning. On the same note, university with the right e-learning strategies/ policies stands 119% chance of creating a difference in the adoption of eLearning in higher learning institutions.

These findings would agree with the recent literature that places a high value on facilitating conditions as important preconditions of eLearning adoption (Feng et al., 2025). More specifically, infrastructural, connectivity, training, and governance are associated with the facilitating conditions dimension of eLearning adoption models. The heavy impact of the university training highlights how technical capacity building cannot be ignored; failure to do this can lead to failure of high adoption even with the well-resourced environments. Furthermore, the importance of a well-developed infrastructure and reliable internet resonates with the results of the literature analyzed in the times of the COVID-19 pandemic, as it revealed that institutions with stronger digital infrastructure and connectivity experienced an easier transition to the online form of learning (Ahmed et al., 2023; Shams et al., 2022).

Lastly, the policy impact of eLearning has modified the fact that institutional dedication and apparent governance are not symbolic that they practically impact adoption results. This is in line with the current trends in recent reviews that have placed policy and strategic alignment as core elements of sustainable eLearning ecosystems (Hu, Raman, and Shan, 2025).

Based on these findings, the null hypothesis ( $H_{02}$ ), which stated that there is no statistically significant relationship between institutional factors and the acceptance and adoption of eLearning, was rejected. This indicates that institutional factors play a critical role in influencing eLearning adoption in higher education institutions.

### 4.3.3 The influence of the level of computer literacy among students on adoption of eLearning

The third objective of the study was to assess how student's levels of computer literacy influence their adoption of eLearning. To establish these relationships a logistic regression model III was fitted with student computer literacy controlling for demographic variables (i.e., age, gender, school type, and area of residence) The results are summarized in Table 5 and discussed in detail thereafter.

**Table 4. 5: Summary of logistic regression for student's computer literacy variables associated with adoption of eLearning in higher education**

Variables	Odd ratio	SE	Sig	95% CI LB	UB
<b>Age</b>					
21-25	.513	.383	.371	.119	2.213
26-30	.490	.371	.345	.111	2.154
31-35	.539	.500	.054	.088	3.294
36 and above	.149	.167	.069	.016	1.351
<b>Gender_(Male)</b>					
	1.280	.316	.032**	.789	2.076
<b>School</b>					
SASS	1.409	.794	.543	.467	4.252
SCI	2.232	1.029	.028**	.904	5.507
SAVET	3.099	3.464	.095	.782	2.483
SEBE	4.099	3.464	.409	.599	3.517
SOM	1.332	.838	.648	.388	4.572
SONAS	2.229	1.348	.019**	2.681	7.290
SOBE	.883	.330	.047*	1.425	1.836
SPHBST	.607	.314	.334	.221	1.671
SONMAPS	1.732	.868	.270	.652	4.625
<b>Residence</b>					
Rural	1.206	.473	.633	.559	2.608
Urban	1.039	.357	.912	.530	2.035
<b>Computer literacy</b>					
Have skills to Learn online	.907	.080	.041*	.762	.909
Have -Tech skills to Learn online	.966	.089	.027**	1.508	1.988
Easy to get content online	1.123	.123	.288	.907	1.391
Interacted with Computersbe4	.902	.086	.280	.748	1.088
Have eLearning gadgets	.864	.186	.496	.566	1.318
eLearning satisfy learning needs	.801	.083	.032**	.653	.981
Correctly predicted-adoption-eLearning			73.1%		
correctly predicted: no adoption			69.8%		
Correctly classified			70.57%		

Note: n = 322; OR = Odds ratio; Sig = Significance level (3 dp); CI = Confidence level; LB = lower bound; UB = Upper bound. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

Findings on table 5 revealed that level of computer literacy has a statistically significant influence on the adoption of e-learning in public institutions of higher learning in Kenya. The Chi-square test of the overall model was significant ( $p < .001$ ). The Nagelkerke R<sup>2</sup> showed that the variables in the model accounted for a modest overall variation in retention (R<sup>2</sup> = 0.361). While the model did not show the extent of adoption of eLearning (it correctly predicted 73.1% of the participants in this study), it correctly predicted 69.8% of non-adoption of eLearning.

For the control variables', while the all-age groups had a positive influence on adoption of eLearning, the effect was not statistically significant. Male students were more 128% more likely to adopt eLearning Exp ( $\beta$ ) = 1.128,  $p = 0.032$ ) compared to female students. The results showed that students who belong to SCI were 2 times more likely to adopt eLearning Exp ( $\beta$ ) = 2.232,  $p = 0.028$ ) than those in SEDU and the influence is statistically significant. Similarly, students in SONAS were 2 times more likely to adopt eLearning Exp ( $\beta$ ) = 2.229,  $p = 0.019$ ) than those in SEDU and the effect is statistically significant. The results also showed that students in SOBE were 88% more likely to adopt eLearning Exp ( $\beta$ ) = 883,  $p = 0.047$ ) compared to students in SEDU and the effect was statistically significant. While the influence of belong to other schools such as SASS, SAVET, SOBE, SOM, SPHBST and SONMAPS was positive it was not statistically significant.

The results showed that while the effect of student's residence had a positive influence on adoption of eLearning, the effect was not statistically significant. Of the six measures of student computer literacy, only three variables were statistically significant, that is; having skills to learn online was 91% more likely to cause the adoption of eLearning Exp

( $\beta$ ) = .907,  $p = 0.041$ ). Similarly, having technical skills to learn online was 97% more likely to positively influence the adoption of eLearning Exp ( $\beta$ ) = .966,  $p = 0.027$ ). Also, the ability of eLearning to satisfy the learners learning needs was 80% more likely to influence the adoption of eLearning Exp ( $\beta$ ) = .801,  $p = 0.032$ ).

Another important factor that determined the adoption of eLearning was student computer literacy. Students who indicated that they had the capabilities of learning online, as well as the technical capabilities of using eLearning platforms were more likely to adopt the eLearning. This observation shows how important computer literacy is in enhancing eLearning. It recommends that, besides offering eLearning platforms, the universities must equally equip the students with the technical expertise in order to utilize them efficiently (Al-Hariri et al.,2017; Ssekakubo et al.,2018; Islam,2016). Also, eLearning potential to meet the learning needs of students was a predictive of adoption as it is also highlighted in (Al-Fraihat et al.,2020) that underlines the need to design eLearning materials and activities that would cater to the various learning needs and preferences of students. Students will use eLearning more often and accept it when they believe that it can support their educational requirements (Sun et al.,2018).

According to these results, the null hypothesis ( $H_03$ ) according to which the level of computer literacy showed no statistically significant correlation with the acceptance and adoption of eLearning among the students was rejected. This validates that computer literacy has powerful and important predictive value of eLearning adoption in state universities.

## **CHAPTER 5**

### **SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS**

#### **5.1 Introduction**

This chapter presents the overview of the study, summary of the key findings, conclusion and recommendations and suggestions for further research.

#### **5.2 Overview of the study**

E-learning had become an important tool of increasing access, flexibility, and quality of education in higher learning institutions. In Kenya, even though the ICT infrastructure was heavily invested in and the government policies were favorable to its adoption and successful use, the e-learning was not widely adopted and used. This research was hence conducted in order to analyze the factors that influenced the adoption of e-learning in the higher learning institutions within the society with the Masinde Muliro University of science and technology as the case study. In particular, the research was informed by three goals, namely, to investigate the effect of student-perceptual factors on adoption of eLearning; to investigate the effect of student-perceptual factors on adoption of eLearning; to determine the impact that levels of computer literacy have on adoption of eLearning in student.

The correlational research design was used in the study to determine the correlation between the independent variables (student perceptual factors, institutional factors and computer literacy) and the dependent variable (e-learning adoption). Students enrolled in MMUST in 7,500 fourth year students of various academic disciplines formed

the target population. The sample size of 366 students was used to cover the population since multi-stage sampling techniques were applied. Structured questionnaires were used to gather data and binary logistic regression analyzed the data.

### **5.3 Summary of the findings and implications**

The research determined that the student perceptual factors significantly affected in a statistically significant way the adoption of eLearning in the public higher institutions of learning. Students who were mature aged 31-35 years and other students who were mature aged above 36 years were more inclined to use eLearning as opposed to the students who were young. It was also established that male students were more inclined towards eLearning than female students thus significant differences between genders. Moreover, the students studying the School of Computing and Informatics, the School of Nursing, Midwifery and Paramedic Sciences, and the School of Business and Economics were much more prone to adopt eLearning than their counterparts in the School of Education. Most of the perceptual factors indicated a positive impact on the eLearning adoption, but only three were found to be significant, preference of eLearning to face-to-face learning, the perception of the eLearning environment as a good place to learn, and the perception that eLearning provides sufficient course content.

The analysis also found out that institutional issues had a significant effect on the adoption of eLearning. Among the ten institutional variables studied, four were statistically significant predictors, which include the training provided by the university on the use of eLearning platforms, the presence of sufficient eLearning infrastructure, the stable internet access, and the existence of clear eLearning policies. Those students who underwent university training, who attended institutions that had proper

infrastructure and who had a stable internet connection were focused towards adopting eLearning. On the same note, universities that had properly developed policies of eLearning registered more adoption rates.

Finally, the research established that computer literacy could greatly affect the uptake of eLearning among the students. In particular, eLearning was more apt to be adopted by students with the ability to learn over the internet, the technical abilities to utilise eLearning platforms and students who felt that eLearning could meet their learning requirements. Those students in the Schools of Computing and Informatics, Nursing, Midwifery and Paramedic Sciences and Business and Economics showed higher adoption rates as well as those in the male students, but no significant impact was observed regarding the place of residence (urban or rural). On the whole, the results revealed that the digital competence of students and their perspectives on the capacity of eLearning to satisfy their needs in learning were the important factors predetermining the adoption.

The results suggest that one of the things that universities should focus on is creating eLearning systems that are able to offer sufficient course material and which can create a positive and facilitating learning process. Gender and age-related differences in technology adoption should be mitigated by establishing mentorship and customized digital assistance initiatives.

On the institutional level, the findings indicate that the role of public universities should be improved in terms of investment in digital infrastructure, stable internet connectivity, and the creation of coherent and enabling policies on eLearning. Moreover, the students

and faculty should be trained continuously to increase the effectiveness of eLearning platforms.

Lastly, the results highlight the need to incorporate digital literacy education into educational curriculums. Universities ought to offer practical training, capacity building activities and orientation so as to prepare the students with the technical skills required to participate effectively in eLearning. The facilitation of the adoption and student involvement will also be improved by ensuring that eLearning platforms should be created to support various learning requirements.

#### **5.4 Conclusion**

This paper aimed to investigate the determinants of the use of eLearning by students in state universities. These results indicated that student perception variables, institutional support, and computer literacy levels had a significant influence on the adoption of eLearning. In particular, preference to eLearning among students and the sense of the right environment to study and sufficient content of course material became the decisive perceptual factors. Training, infrastructure, internet connectivity and well-defined policies were also considered to be critical in enhancing adoption of eLearning in the institutions. Moreover, the use of computer skills and especially the capacity of students to navigate through eLearning systems and use digital tools was an excellent predictor of adoption.

All in all, the research findings are that positive student perception, institutional support, and sufficient digital competence of learners are the key factors that lead to successful adoption of eLearning. The efforts to deal with the differences in gender, age and discipline of study combined with investing in infrastructure and digital literacy

initiatives will be critical to boosting the integration and sustainability of eLearning in the public universities.

## **5.5 Recommendations**

According to the study findings, a number of recommendations are made as to improve the uptake of eLearning in state higher education in Kenya.

To begin with, in terms of student perception, universities ought to develop eLearning facilities that offer sufficient and complete course materials, offer favorable and conducive learning environment and facilitate interactive learning. They also ought to have mentorship and awareness programmes to tackle the disparities in the use of technology based on gender and age so as to attract the greater acceptance among the different groups of students.

Second, when considering the institution elements, the higher education establishment must focus on investing in a secure internet connection and digital capabilities in order to facilitate an efficient learning process. They should equally formulate and implement transparent eLearning policies that identify roles, duties and expectations of faculty members and students. In addition, intensive training programs on the staff and learners ought to be established to enhance the competency and confidence in the utilization of eLearning platforms.

Lastly, on the issue of computer literacy, universities ought to run compulsory digital literacy education in their curriculum, especially to students who have little background exposure to technology. The digital competencies of the students also should be evaluated periodically to determine the areas where they need further assistance. Second,

online support systems, i.e. virtual tutors and help desks should be offered at the institutions to support the students who have difficulties with digital skills as well as to help make eLearning platforms to accommodate the varied learning needs.

With these suggestions adopted, the public universities will be in better standing to boost adoption and overall effectiveness of eLearning programs.

### **5.6 Suggestions for Further Researches**

- This study is a cross-sectional study, a future study to conduct longitudinal studies to track changes in eLearning adoption over time and assess the sustainability of adoption rates
- This study only focused on one public university therefore a future study should take comparative studies across multiple universities and educational contexts to identify variation in eLearning adoption factors
- This study only focused on quantitative approach hence a future study to incorporate qualitative research to explore in-depth perceptions and experiences of students and faculty regarding eLearning adoption and its impact on learning outcomes.

## REFERENCES

- Adrianus, A. (2021). Challenges of E-learning in Kenyan public universities: A case study of the University of Nairobi. *Journal of Educational Technology Systems*, 50(1), 90-105. <https://doi.org/10.1177/0047239521995736>
- Aguti, B. (2015). *A Model to facilitate effective E-learning in technology-enhanced learning environments within universities* (Doctoral dissertation, University of Southampton).
- Ahmed, A. M. (2010). Factors influencing the adoption of E-learning technologies in higher education. *International Journal of Technology and Learning*, 7(2), 65-75.
- Aixia, W., & Wang, X. (2011). Positive attitudes towards E-learning among motivated students with prior knowledge and software proficiency. *Journal of Educational Technology & Society*, 14(3), 112-125.
- Al-Azawei, A., Parslow, P., & Lundqvist, K. (2016). Barriers and opportunities of E-learning implementation in Iraq: A case of public universities. *The International Review of Research in Open and Distributed Learning*, 17(5).
- Al-Adwan, A. S., & Smedley, J. K. (2012). Implementing e-learning in the Jordanian higher education system: Factors affecting impact. *International Journal of Education and Development using Information and Communication Technology (IJEDICT)*, 8(1), 121-135.
- Al Rawashdeh, A. Z., Mohammed, E. Y., Al Arab, A. R., Alara, M., & Al-Rawashdeh, B. (2021). Advantages and disadvantages of using e-learning in university

- education: Analyzing students' perspectives. *Electronic Journal of E-learning*, 19(3), 107-117.
- Ameen, N., & Willis, R. (2017). The use of E-learning of students in Iraqi universities: potential and challenges.
- Anderson, T., & Dexter, S. (2005). Effective leadership in integrating E-learning in educational institutions: Defining policies, goals, and strategies. *International Journal on E-Learning*, 4(4), 398-413
- Ansong, E., Lovia Boateng, S., & Boateng, R. (2017). Determinants of E-learning adoption in universities: Evidence from a developing country. *Journal of Educational Technology Systems*, 46(1), 30-60.
- Al-Rahmi, W. M., Alias, N., Othman, M. S., Alzahrani, A. I., Alfarraj, O., Saged, A. A., & Rahman, N. S. A. (2018). Use of E-learning by university students in Malaysian higher educational institutions: A case in Universiti Teknologi Malaysia. *Ieee Access*, 6, 14268-14276.
- Ali, M., Hossain, S. K., & Ahmed, T. (2018). Effectiveness of E-learning for university students: evidence from Bangladesh. *Asian Journal of Empirical Research*, 8(10), 352-360.
- Abbas, E. W., & Rajiani, I. (2019). Managing E-learning in public universities by investigating the role of culture. *Polish Journal of Management Studies*, 20.
- Abdalmenem, S. A., Abu-Naser, S. S., Al Shobaki, M. J., & Abu Amuna, Y. M. (2019). Relationship between E-learning Strategies and Educational Performance Efficiency in Universities from Senior Management Point of View.

- Adeoye, I. A., Adanikin, A. F., & Adanikin, A. (2020). COVID-19 and E-learning: Nigeria tertiary education system experience.
- Al Kurdi, B., Alshurideh, M., & Salloum, S. A. (2020). Investigating a theoretical framework for E-learning technology acceptance. *International Journal of Electrical and Computer Engineering (IJECE)*, *10*(6), 6484-6496.
- Al Rawashdeh, A. Z., Mohammed, E. Y., Al Arab, A. R., Alara, M., & Al-Rawashdeh, B. (2021). Advantages and disadvantages of using E-learning in university education: Analyzing students' perspectives. *Electronic Journal of E-learning*, *19*(3), 107-117.
- Almaiah, M. A., Al-Khasawneh, A., & Althunibat, A. (2020). Exploring the critical challenges and factors influencing the E-learning system usage during COVID-19 pandemic. *Education and information technologies*, *25*, 5261-5280.
- Al-Okaily, M., Alqudah, H., Matar, A., Lutfi, A., & Taamneh, A. (2020). Dataset on the Acceptance of E-learning System among Universities Students under the COVID-19 Pandemic Conditions. *Data in brief*, *32*, 106176.
- Alqahtani, A. Y., & Rajkhan, A. A. (2020). E-learning critical success factors during the covid-19 pandemic: A comprehensive analysis of E-learning managerial perspectives. *Education sciences*, *10*(9), 216.
- Bdalmenem, A., Alharbi, S., & Alhomoud, F. (2019). Challenges and obstacles facing the implementation of E-learning in Saudi Arabia: A comprehensive review. *International Journal of Emerging Technologies in Learning (iJET)*, *14*(17), 4-24

- Boateng, G. O., Neilands, T. B., Frongillo, E. A., Melgar-Quiñonez, H. R., & Young, S. L. (2018). Best practices for developing and validating scales for health, social, and behavioral research: A primer. *Frontiers in Public Health*, 6, 149.
- Chen, P., & Huang, X. (2012). Understanding student factors in E-learning adoption: Enhancing learning impact and acceptance. *Computers & Education*, 59(4), 1234-1244.
- Cheok, M. L., & Wong, S. L. (2015). Predictors of e-learning satisfaction in teaching and learning for school teachers: A literature review. *International Journal of Instruction*, 8(1), 75-90.
- Eze, S. C., Chinedu-Eze, V. C., & Bello, A. O. (2018). The utilisation of E-learning facilities in the educational delivery system of Nigeria: a study of M-University. *International Journal of Educational Technology in Higher Education*, 15(1), 1-20.
- Elfaki, N. K., Abdulraheem, I., & Abdulrahim, R. (2019). Impact of E-learning vs traditional learning on student's performance and attitude. *International Journal of Medical Research & Health Sciences*, 8(10), 76-82.
- Elina, J., & Erkki, S. (2007). E-learning in institutions of higher learning: Student training and satisfaction. *Journal of Educational Technology & Society*, 10(1), 284-296.
- Ebner, M., Schön, S., Braun, C., Ebner, M., Grigoriadis, Y., Haas, M., ... & Taraghi, B. (2020). COVID-19 epidemic as E-learning boost? Chronological development and effects at an Austrian university against the background of the concept of "E-learning Readiness". *Future Internet*, 12(6), 94.

- Fernando, E., Murad, D. F., Warnars, H. L. H. S., & Oktriono, K. (2019). Development conceptual model and validation instrument for E-learning succes model at universities in Indonesia: perspectives influence of instructor's activities and motivation. In *2019 International Congress on Applied Information Technology (AIT)* (pp. 1-6). IEEE.
- Falfushynska, H. I., Buyak, B. B., Tereshchuk, H. V., Torbin, G. M., & Kasianchuk, M. M. (2021, March). Strengthening of E-learning at the leading Ukrainian pedagogical universities in the time of COVID-19 pandemic. *Int CTE Workshop Proceedings* (Vol. 8, pp. 261-273).
- Fawaz, M., & Samaha, A. (2021). E-learning: Depression, anxiety, and stress symptomatology among Lebanese university students during COVID-19 quarantine. In *Nursing forum* (Vol. 56, No. 1, pp. 52-57).
- Falola, H. O., Ogueyungbo, O. O., Adeniji, A. A., & Adesina, E. (2022). Exploring sustainable E-learning platforms for improved universities' faculty engagement in the new world of work. *Sustainability*, *14*(7), 3850.
- Gachanja, J. G., Mutisya, D. N., & Ngugi, P. W. (2021). Challenges and opportunities in the implementation of E-learning in Kenyan universities during the COVID-19 pandemic. *Journal of Educational Technology Systems*, *50*(1), 67-85. <https://doi.org/10.1177/00472395211017456>
- Gherheș, V., Stoian, C. E., Fărcașiu, M. A., & Stanici, M. (2021). E-learning vs. face-to-face learning: Analyzing students' preferences and behaviors. *Sustainability*, *13*(8), 4381.

- Gok, T., & Sadiq, M. N. (2015). Computer literacy and online learning attitude of students. *Procedia - Social and Behavioral Sciences*, 174, 1063-1070.
- Hadullo, K., Oboko, R., & Omwenga, E. (2018). Factors affecting asynchronous E-learning quality in developing countries university settings. *International journal of Education and Development using ICT*, 14(1).
- Hussein, R., Tahir, N. M., & Ismail, Z. (2007). The impact of computer literacy on E-learning acceptance among students: A case study at Universiti Teknologi MARA (UiTM) Malaysia. *International Journal of Education and Development using Information and Communication Technology*, 3(4), 80-91.
- Ibrahim, N. K., Al Raddadi, R., AlDarmasi, M., Al Ghamdi, A., Gaddoury, M., AlBar, H. M., & Ramadan, I. K. (2021). Medical students' acceptance and perceptions of E-learning during the Covid-19 closure time in King Abdulaziz University, Jeddah. *Journal of infection and public health*, 14(1), 17-23.
- Ifenthaler, D., & Schweinbenz, V. (2016). Students' acceptance of tablet PCs in the classroom. *Journal of Research on Technology in Education*, 48(4), 306-321.
- Kariuki, P. (2016). An analysis of the readiness and effectiveness of E-learning in higher education institutions in Kenya. *Journal of Educational Technology & Society*, 19(2), 45-55
- Kattoua, T., Al-Lozi, M., & Alrowwad, A. A. (2016). A review of literature on E-learning systems in higher education. *International Journal of Business Management and Economic Research*, 7(5), 754-762.

- Kazemzadeh, S. (2022). The critical issues of quality and acceptance in online education: A comprehensive review. *Journal of Online Learning and Teaching*, 18(1), 112-124.
- Kim, H. J., Hong, A. J., & Song, H. D. (2019). The roles of academic engagement and digital readiness in students' achievements in university E-learning environments. *International Journal of Educational Technology in Higher Education*, 16(1), 1-18.
- Kibuku, R. N., Ochieng, D. O., & Wausi, A. N. (2020). E-learning Challenges Faced by Universities in Kenya: A Literature Review. *Electronic Journal of E-learning*, 18(2), pp150-161.
- Kulikowski, K., Przytuła, S., & Sułkowski, Ł. (2021). The motivation of academics in remote teaching during the Covid-19 pandemic in polish universities—Opening the debate on a new equilibrium in E-learning. *Sustainability*, 13(5), 2752.
- Letseka, M., Letseka, M. M., & Pitsoe, V. (2018). The challenges of E-learning in South Africa. *Trends in E-learning*, 8, 121-138.
- Letseka, M., Maile, S., & Maile, T. (2018). Impact of skills and technical expertise on E-learning implementation in higher education institutions. *Journal of Education and Human Development*, 7(2), 45-58.
- Layali, K., & Al-Shlowiy, A. (2020). STUDENTS' PERCEPTIONS OF E-LEARNING FOR ESL/EFL IN SAUDI UNIVERSITIES AT TIME OF CORONAVIRUS: A LITERATURE REVIEW. *Indonesian EFL Journal*, 6(2), 97-108.

- Layali, K., Gouveia, L., & Ayoubi, R. M. (2020). Status and challenges of E-learning in African universities: Insights from practitioners across 34 countries. *African Journal of Educational Technology*, 9(1), 45-59.
- Mabeya, J. M. (2020). ICT skills and E-learning adoption in Kenyan public universities. *African Journal of Education and Technology*, 10(2), 45-61.  
<https://doi.org/10.4314/ajet.v10i2.4>
- Makokha, G. L., & Mutisya, D. N. (2016). Status of E-learning in public universities in Kenya. *International review of research in open and distributed learning*, 17(3), 341-359.
- Mutisya, D. N., & Makokha, G. L. (2016). Challenges affecting adoption of E-learning in public universities in Kenya. *E-learning and Digital Media*, 13(3-4), 140-157.
- Mohammed Nasser Hassan Ja'ashan, M. (2020). The challenges and prospects of using E-learning among EFL students in Bisha University. *Arab World English Journal (AWEJ) Volume*, 11.
- Mpungose, C. B. (2020). Is Moodle or WhatsApp the preferred E-learning platform at a South African university? First-year students' experiences. *Education and information technologies*, 25(2), 927-941.
- Mpungose, C. B. (2021). Lecturers' reflections on use of Zoom video conferencing technology for E-learning at a South African university in the context of coronavirus. *African Identities*, 1-17.
- Maatuk, A. M., Elberkawi, E. K., Aljawarneh, S., Rashaideh, H., & Alharbi, H. (2022). The COVID-19 pandemic and E-learning: challenges and opportunities from the

perspective of students and instructors. *Journal of computing in higher education*, 34(1), 21-38.

Moustakas, L., & Robrade, D. (2022). The challenges and realities of E-learning during COVID-19: The case of university sport and physical education. *Challenges*, 13(1), 9.

Namisiko, P., Munialo, C., & Nyongesa, S. (2014). Towards an optimization framework for E-learning in developing countries: A case of private universities in Kenya. *Journal of Computer Science and Information Technology*, 2(2), 131-148.

Naresh, B., & Reddy, B. S. (2015). Challenges and opportunity of E-learning in developed and developing countries-a review. *International Journal of Emerging Research in Management & Technology*, 4(6), 259-262.

Naveed, Q. N., Muhammad, A., Sanober, S., Qureshi, M. R. N., & Shah, A. (2017). A mixed method study for investigating critical success factors (CSFs) of E-learning in Saudi Arabian universities. *methods*, 8(5), 171-178.

Nwagwu, W. E. (2020). E-learning readiness of universities in Nigeria-what are the opinions of the academic staff of Nigeria's premier university? *Education and Information Technologies*, 25(2), 1343-1370.

Nyerere, J. K., Gravenir, F. Q., & Mse, G. S. (2017). Challenges facing the implementation of open distance and E-learning (ODEL) in Kenyan universities: A case of Kenyatta University and University of Nairobi. *Journal of Learning for Development*, 4(2), 145-162.

- Odhiambo, G. (2014). A comparative study of the perception of E-learning in Jomo Kenyatta University of Agriculture and Technology (JKUAT) and the United States International University (USIU). *International Journal of Education and Development using Information and Communication Technology (IJEDICT)*, 10(2), 170-182.
- Pham, Q. T., & Tran, T. P. (2020). The Acceptance of E-learning Systems and the E-learning Outcome of Students at Universities in Vietnam. *Knowledge Management & E-learning*, 12(1), 63-84.
- Polit, D. F., & Beck, C. T. (2006). The content validity index: Are you sure you know what's being reported? Critique and recommendations. *Research in Nursing & Health*, 29(5), 489-497.
- Puma, E. G. M. (2022). How universities have responded to E-learning as a result of Covid-19 challenges. *Periodicals of Engineering and Natural Sciences*, 10(3), 40-47.
- Quadri, N. N., Muhammed, A., Sanober, S., Qureshi, M. R. N., & Shah, A. (2017). Barriers effecting successful implementation of E-learning in Saudi Arabian universities. *International Journal of Emerging Technologies in Learning (Online)*, 12(6), 94.
- Sarikhani, R., Salari, M., & Mansouri, V. (2016). THE IMPACT OF E-LEARNING ON UNIVERSITY STUDENTS' ACADEMIC ACHIEVEMENT AND CREATIVITY. *Journal of Technical Education and Training*, 8(1).

- Salamat, L., Ahmad, G., Bakht, M. I., & Saifi, I. L. (2018). Effects of E-learning on students' academic learning at university level. *Asian Innovative Journal of Social Sciences and Humanities*, 2(2), 1-12.
- Shahmoradi, L., Changizi, V., Mehraeen, E., Bashiri, A., Jannat, B., & Hosseini, M. (2018). The challenges of E-learning system: Higher educational institutions perspective. *Journal of education and health promotion*, 7.
- Shahzad, A., Hassan, R., Aremu, A. Y., Hussain, A., & Lodhi, R. N. (2021). Effects of COVID-19 in E-learning on higher education institution students: the group comparison between male and female. *Quality & quantity*, 55, 805-826.
- Ssekakubo, G., Suleman, H., & Marsden, G. (2011). Infrastructure barriers to E-learning adoption in educational institutions: A critical review. *International Journal of Education and Development using Information and Communication Technology*, 7(3), 84-100.
- Tagoe, M. (2012). Students' perceptions on incorporating e-learning into teaching and learning at the University of Ghana. *International Journal of Education and Development using ICT*, 8(1), 91-103.
- Tarus, J. K., Gichoya, D., & Muumbo, A. (2015). Challenges of implementing E-learning in Kenya: A case of Kenyan public universities. *The International Review of Research in Open and Distributed Learning*, 16(1).
- Tawafak, R. M., Romli, A., & Arshah, R. A. (2019). E-learning prospect on improving academic performance in Omani Universities. In *IOP Conference Series: Materials Science and Engineering* (Vol. 551, No. 1, p. 012033). IOP Publishing.

- Tawafak, R. M., Romli, A. B., Arshah, R. B. A., & Malik, S. I. (2020). Framework design of university communication model (UCOM) to enhance continuous intentions in teaching and E-learning process. *Education and Information Technologies, 25*, 817-843.
- Tsekea, S., & Chigwada, J. P. (2021). COVID-19: strategies for positioning the university library in support of E-learning. *Digital Library Perspectives, 37*(1), 54-64.
- Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly, 27*(3), 425-478.
- Vershitskaya, E. R., Mikhaylova, A. V., Gilmanshina, S. I., Dorozhkin, E. M., & Epaneshnikov, V. V. (2020). Present-day management of universities in Russia: Prospects and challenges of E-learning. *Education and Information Technologies, 25*, 611-621.
- Vlasova, E. Z., Barakhsanova, E. A., Goncharova, S., Aksyutin, P., Kuzin, Z., & PROKOPYEV, M. S. (2018). Effective adaptive training of students in Russian pedagogical universities to use E-learning technologies. *Revista Espacios, 39*(23).
- Weerathunga, P. R., Samarathunga, W. H. M. S., Rathnayake, H. N., Agampodi, S. B., Nurunnabi, M., & Madhunimasha, M. M. S. C. (2021). The COVID-19 pandemic and the acceptance of E-learning among university students: The role of precipitating events. *Education Sciences, 11*(8), 436.
- Wekullo, C. (2023). E-learning policy implementation in Kenya: Opportunities and challenges. *Journal of Education Policy and Leadership, 18*(1), 78-95.

Yeo, S. C., Lai, C. K., Tan, J., & Gooley, J. J. (2021). A targeted E-learning approach for keeping universities open during the COVID-19 pandemic while reducing student physical interactions. *PLoS One*, *16*(4), e0249839.

## APPENDICES

### Appendix 1: Students' questionnaire

#### SECTION 1: INTRODUCTION AND CONSENT FROM RESPONDENTS.

Dear Sir/Madam, I am Cynthia Chikamai, a masters' student from Masinde Muliro University of science and Technology, carrying out academic research on factors influencing the adoption of E-learning in public higher learning institutions in Kenya, you have been identified to participate in this research. The purpose of the research is to examine student's adoption of E-learning that will reinvent pedagogy for standardized E-learning that will address the teaching, assessment, supervision and mentorship as key components of Higher Education. The data you provide will be used by researchers only for the purpose of this research and shall be kept anonymous and confidential. You are allowed to respond to this questionnaire voluntarily and the researcher appreciates your time. Please, respond accordingly by selecting or filling as guided by the questions.

#### DEMOGRAPHIC INFORMATION

1.How old are you?

Mark only one oval

15-20

21-25

26-30

31-35

36-40

41-45

46-50

51-55

56-60

Over 61

2. What is your gender? Male  Female

3. What is your school /Faculty? .....

4. What is your area of residence?

Rural  Urban  Per-urban

### UPTAKE OF E-LEARNING

5. Is E-learning going on in your university?  Yes  No

6. Personally, have you used E learning  Strongly agree  Agree

Neutral Disagree  Strongly Disagree

7. How did you learn about the platform you are using? Mark only one oval

Institution  
training

Personal  
preference

From  
colleagues

Internet

Other .....

9.) Which gadget do you frequently use for E-learning?

- Phone
- laptop
- Desktop
- Tablet

#### STUDENTS PERCEPTUAL FACTORS INFLUENCING THE ADOPTION OF E-LEARNING

**Directions:** For each statement, please indicate how much you **agree** or **disagree** with the statement by **putting a check in the box** on the right side of each statement. There are no right or wrong answers. Your answers will be kept **strictly confidential** and you will not be identified.

**Scale: 5-** Strongly Agree

4- Agree

3- Neutral

2- Disagree

1-Strongly Disagree

<b>QUESTIONS</b>	<b>5 Strongly agree</b>	<b>4 Agree</b>	<b>3 Neutral</b>	<b>2 Disagree</b>	<b>1 Strongly Disagree</b>
E-learning is efficient as a teaching method					
E-learning offers the possibility to efficiently manage my time					
I prefer E-learning compared to face to face					
The environment for E-learning is conducive to learning					
E-learning has improved my grades					
E-learning is affordable					
E-learning is more responsive to my learning needs than face to face.					
I prefer E-learning compared to face to face					
E-learning provides enough course content					

LEVEL OF COMPUTER LITERACY TOWARDS THE ADOPTION OF  
E-LEARNING

<b>QUESTIONS</b>	<b>5 Strongly agree</b>	<b>4 Agree</b>	<b>3 Neutral</b>	<b>2 Disagree</b>	<b>1 Strongly Disagree</b>
I have the skills to learn online					
I have the technical skills to handle any E-learning platform					
I easily search and get information from the Internet					
I have interacted with computers way back before joining University					
Have a gadget for E-learning use					
The e-learning strategies satisfy my learning needs.					

## INSTITUTIONAL FACTORS

<b>QUESTIONS</b>	<b>5</b> <b>Strongly agree</b>	<b>4</b> <b>Agree</b>	<b>3</b> <b>Neutral</b>	<b>2</b> <b>Disagree</b>	<b>1</b> <b>Strongly Disagree</b>
I was trained by my university on how to handle E-learning platforms.					
The university has provided me with necessary resources to effectively learn online					
My university has enough e-learning infrastructure					
My lecturers have computers					
My university has stable internet WIFI where I can access and use					
My university has all the necessary software to support e-learning					
I can easily access and use my university's e-learning platforms					

My university has appropriate e-learning strategies/ policies					
My university blends e-learning with traditional learning					
I received support for the platform I'm using for eLearning					

**Appendix II: Proposal Approval Letter**

**Appendix III: Proposal Approval Letter**