2024

Factors influencing E-learning readiness in public primary schools of Nairobi County, Kenya.

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FACTORS INFLUENCING E-LEARNING READINESS IN PUBLIC PRIMARY SCHOOLS OF NAIROBI COUNTY, KENYA.

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A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF DEGREE OF MASTER OF PUBLIC POLICY AND MANAGEMENT OF STRATHMORE UNIVERSITY

MAY 2024

DECLARATION

I certify that this research dissertation is original and has not been submitted or approved for the award of a degree at this or any other university. To the best of my knowledge, all material contained in this dissertation is original, except where appropriate references are provided for previously published or authored works.

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Supervisor's Approval

This research has been submitted for examination with my approval as the university supervisor.

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ABSTRACT

Africa is rising in the use of information communication technology (ICT) to accelerate social economic growth and benefit from technological advancements. To harness this digital dividend, many nations have developed policies particularly in the education sector as an enabler of E-learning. Kenya has recognized this potential and through the Digital Literacy Program (DLP), the country aims to integrate technology into the teaching and learning processes. However, public primary schools continue to grapple with low levels of E-learning readiness stemming from insufficient ICT infrastructure and a limited skill base that hinders the effective utilization of technology. This study sought to examine factors influencing E-learning readiness in public primary schools of Nairobi County, Kenya. The research was directed by the following specific objectives: to assess the impact of ICT infrastructure on the readiness for E-learning; to investigate the influence of ICT skills on the readiness for E-learning; to analyze the effect of teaching content on the readiness for E-learning; and to evaluate the influence of administrative support on the readiness for E-learning in public primary schools within Nairobi County. A descriptive research design was adopted with a total of 161 public primary schools in Nairobi County having 6,150 teaching staff formed the target population. Since the study area was within a school setup, the target population focused on the following categories: head of the school, head of departments, and ICT teachers identified through stratified and simple random sampling. To collect primary data, a structured questionnaire was employed, successfully engaging 153 respondents. Analysis of the gathered data indicated that ICT infrastructure plays a crucial role in determining E-learning readiness, significantly enhancing the adoption of E-learning in schools. Additionally, the findings demonstrated that ICT skills, teaching content, and administrative support positively influence E-learning readiness, with statistically significant correlations observed. The study concludes that the level of E-learning readiness among primary schools in Nairobi County remains low. The schools do not have sufficient infrastructure and lack adequate equipment and labs, as well as reliable internet connectivity and power. The low E-learning readiness was also attributable to a lack of adequate training for teachers on ICT skills such as data security and privacy. E-learning content was also a factor. The content was not easily accessible, not easy to use, not relevant and interactive, and was not up to date with the curriculum. Additionally, the study concluded that there was a lack of administrative support and that the schools lacked policies to guide the teachers and staff on the use of ICT for enlightenment and learning. These findings underscore the critical significance of the Technology adoption theory and Engholm's readiness model, which encompass essential factors for evaluating an organization's E-learning readiness. These factors include organizational culture, individual learner characteristics, technological infrastructure, content quality, and broader organizational and industry-specific elements. The study recommends that sustainable availability and access to E-learning equipment are needed in public primary schools, including reliable internet connectivity, electricity, and ICT labs. The study recommends that teachers be equipped with necessary ICT skills and the government should prioritize updating the teaching and learning curriculum. Regarding administration support, the study recommends that teachers be offered adequate technical support, capacity building, be encouraged to adopt E-learning and the administration should ensure that there are policies that offer teachers guidance and processes on how to use ICT for teaching and learning.

Keywords: *E-learning readiness, ICT infrastructure, ICT skills, teaching content, administration support.*

ACKNOWLEDGEMENTS

I begin in the name of God, Most Merciful and Beneficent. God is to be praised for granting me excellent health and strength throughout my research. I am grateful for the guidance and support of my supervisor, Dr. Everlyne Makhanu, whose time, effort, and direction were extremely helpful during the study.

My heartfelt gratitude to my family for their unwavering support, encouragement, and understanding in both good and bad times.

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ABBREVIATIONS AND ACRONYMS

COVID-19	Coronavirus Disease 2019
DLP	Digital Literacy Program
ICT	Information and Communication Technology
ICTA	ICT Authority
MOOC	Massive Open Online Courses

OPERATIONAL DEFINITION OF KEY TERMS

E-Learning Readiness	Measure of the degree to which a country, nation or economy may be ready, willing or prepared to obtain the benefits which arise from ICTs.
COVID-19	Coronavirus disease 2019 is a potentially severe, primarily respiratory illness caused by a coronavirus and characterized by fever, coughing, and shortness of breath. In some patients, the disease can also damage major organs, as the heart or kidneys.
Public primary schools	A school that is maintained at the public expense for the education of the children of a community that constitutes a part of a system of primary schools.

CHAPTER ONE
INTRODUCTION TO THE STUDY

1.1 Background Information

There has been a remarkable emergence in information and communication technology in the 21st century characterized by the continual emergence of new digital technologies that integrate into our daily lives (Jiří & Xiaojun, 2017). Global policies have increasingly become integral to achieving comprehensive socio-economic objectives, encompassing sectors such as healthcare, education, climate change, energy, employment, and social development (Serote & Maloma, 2023). In recent years, many nations have recognized the potential benefits of ICT and have integrated technology into the education sector through E-learning. As part of their overall national development plans, these countries have formulated specific objectives and strategies aimed at leveraging E-learning in schools to harness education opportunities for growth and progress (Republic of Afghanistan, Ministry of Communications, 2017).

In Kenya, the Ministry of Information and Communication published its first ICT policy in 2006, setting out a vision for "a prosperous ICT-driven Kenyan society" as well as committing to ensuring "the availability of accessible, efficient, reliable and affordable ICT services". In light of technological advancements, the National ICT Policy of 2006 underwent iterative revisions, ultimately resulting in the development of the updated iteration in 2019. This revised policy endeavors to foster a knowledge-centric society while prioritizing the provision of accessible, efficient, reliable, and cost-effective ICT services. (Barasa, 2021). Rwanda, similarly, endeavored with its Vision 2020 to transform its predominantly agrarian economy into a dynamic, knowledge-intensive, information-based one (Government of Rwanda, 2015).

The government of Kenya is also thought to be leading the way in recognizing the benefits of E-learning in the classroom. The government noted in the sessional paper 1 of 2005 that technology has a role to play in education and that, when used properly, it can be advantageous to both communities and schools (Government of Kenya (GOK), 2005). The idea serves as the foundation for the national ICT strategy for training and education. Article 35(3) of the Constitution underscores the government's recognition of ICT's pivotal role, delineating it as more than a mere subject but rather an indispensable facilitator for teaching, learning, and research within the educational and training spheres." (Republic of Kenya, 2010).

Governments must be able to seize, monitor, and manage ICT policy interventions in these key social sectors, education being one of them. E-learning facilitates the acquisition of skills and competencies crucial for navigating the evolving landscape of the competitive and globally interconnected "knowledge economy" by students. (Adebiyi & Orenyi, 2024). The Kenya National ICT Masterplan also seeks to improve the ICT human capacity in Kenya with an objective of workforce development and public digital literacy.

Technology will introduce new innovations in learning by facilitating communication and collaboration among teachers and students (Adnyani & Suarcaya, 2022). According to Suarcaya (2022), an optimal strategy for cultivating the ICT workforce lies in the seamless integration of E-learning within educational institutions. The research also indicates that the expenses associated with obtaining ICT hardware and software, as well as maintaining and repairing ICT equipment, serve as a significant hindrance to the effective utilization of E-learning in education. Other obstacles that hamper efficient implementation include the cost of ICT tools, availability of electricity, teachers', skills, and school leadership (Marin & Nascimbeni, 2022).

The COVID-19 pandemic precipitated unparalleled global transformations and the Education sector was not exempted (Dowuona, Amanor-Mfoafo, & Akrofi, 2020). Institutions in Kenya required critical tools to support their transition to adopting E-learning during the COVID pandemic. To equip students for today's reality in the backdrop that technology now defines the world, the Kenyan government made headlines in 2013 by launching the Digital Literacy Program (DLP), which stands as the country's pivotal national ICT initiative, endeavoring to elevate educational standards and cultivate 21st-century proficiencies among primary school cohorts. Central to its mission is the seamless integration of digital technologies into pedagogical frameworks. The program spans a multifaceted approach, encompassing the infusion of ICT into primary school curricula, provisioning public primary institutions with robust ICT infrastructural resources, fostering professional development among primary educators, educational administrators, and relevant stakeholders, and facilitating the development and validation of digital educational content to fortify the acquisition of 21st-century competencies (Oketch, 2014).

The Digital Literacy Program first phase, "Learning to Use," aimed to introduce students to user-friendly technology and promote early adoption. The second phase, "Using to Learn," introduces

students to the concepts and ideas of technology, ranging from learning to creativity and invention. Research indicates that a large number of Kenyan schools have yet to fully integrate technology into their curriculum. This is primarily because of inadequate infrastructure and insufficient training for both teachers and students, which prevents the school community and students from taking full advantage of the opportunities presented by technology (Manduku, Kosgey, & Sang., 2012). The present study made use of Kenya's Digital Literacy Program, specifically "Phase Two" of the "Using to Learn" program, which was launched in 2019 and will run through 2023, which aims to introduce students to technology for learning to foster creativity and innovation. Shared digital learning resource centers are being established for students in grades four through six in public primary schools.

1.1.1 E-Learning

Learning is the process of gaining knowledge and abilities through a variety of techniques, including practice, instruction, study, and firsthand experience. There are several ways that it can appear, such as blended learning, mobile learning, traditional learning, E-learning, blended learning, and personalized learning. E-learning refers to a mode of learning that employs ICT-supported teaching and learning approaches, typically delivered through electronic media, often over the internet (Kaushik & Agrawal, 2021).

Educational modules may be administered in various formats, including self-paced or instructor-led delivery, catering to individual or group dynamics. Furthermore, it can manifest as a hybrid model, combining face-to-face interaction with remote components, or exclusively through open-distance learning channels (Njagi, 2014). The effectiveness and success of E-learning are often contingent upon the self-motivation and discipline of the people engaged in the process (Kaushik & Agrawal, 2021).

Implementing E-learning in underdeveloped nations is fraught with difficulties, such as poor connectivity and accessibility, insufficient technological infrastructure, power outages, and the high expense of purchasing, maintaining, and repairing ICT equipment (Adnyani & Suarcaya, 2022). Other factors influencing the integration of E-learning are the quality, adaptability, and attitude of instructors toward E-learning (Njuguna, 2017). E-learning has also been seen to be

beneficial in providing interactive, proactive, and creative ways of teaching and learning hence improving the pedagogy of the traditional model of learning (Njagi, 2014).

1.1.2 E-Learning Readiness

E-learning readiness is described as the condition of being fully equipped to implement an E-learning initiative, serving as an indicator of a country, nation, or economy's readiness, willingness, or preparedness to capitalize on the advantages provided by information and communication technologies (ICTs) (Yusoff & Chuprat, 2019). The existence of various models for E-learning readiness, predominantly developed and applied within contexts is characterized by advanced readiness levels, predominantly in developed nations and their applicability within developing countries remains limited (Oketch, 2014).

Czarnecka (2017) assessed advantages and disadvantages of using E-learning in organizations, underscoring that using a combination of text, audio, static images, and videos in teaching content, makes it possible to share information and knowledge effectively and interestingly and ultimately achieves higher levels of E-learning readiness. Oketch (2014) highlights the imperative for institutions to engage in thorough preliminary analysis to evaluate their readiness for E-learning, should they aim to derive optimal benefits from it. Before initiating E-learning initiatives, it is paramount to establish a comprehensive understanding of the concept and framework of E-learning. Consequently, the study highlights the importance of developing robust technological strategies for educators, as challenges inhibiting effective technology utilization often stem from educators' attitudes, resistance to change, financial apprehensions, training gaps, and insufficient access.

A study by Ouma (2018) on E-learning readiness in public secondary schools defines the readiness of teachers and students in adopting E-learning and the importance of training teachers on ICT skills to effectively integrate technology into teaching and learning. Oketch (2014) identified internet connection as one of the criteria influencing the E-learning readiness of teachers. This case study found that while teaching material was a less significant component in determining E-learning readiness than cultural preparedness, there was a strong, albeit unfavorable, correlation between E-learning readiness and teaching content.

Likewise, Jiří & Xiaojun (2017) emphasized the importance of school administration support in E-learning readiness, which should encompass technicians equipped with installation, training, and maintenance skills. They highlighted that the absence of such support could diminish teachers' motivation to utilize computers effectively. Furthermore, they suggested that school support should extend to activities aimed at nurturing teachers' adoption of computer technology.

There is a wide range of models developed to explain E-learning readiness in the literature on the subject. These include the models developed by Chapnick (2000), Borotis and Poulymenakou (2004), Aydain and Tasci (2005), and Engholm (2002), as cited by Bubou and Job (2022). The Engholm model for E-learning preparedness serves as the theoretical foundation for this investigation. This study examined the ability of public elementary schools in Nairobi County, Kenya for E-learning readiness. The components that were used to assess E-learning readiness were ICT infrastructure, ICT skills, teaching content, and administrative support.

1.1.3 Public Primary Schools of Nairobi County, Kenya

The Nairobi City Council was superseded by the Nairobi City County, which was created by the Kenyan Constitution in 2010 and is tasked with providing a range of basic services to its citizens. Physical planning, social healthcare, social services, housing, facilities for elementary schools, inspectorate products and services, public works, and environment management are just a few of the areas it covers with these services. Moreover, its scope encompasses industries including trade, industrialization, tourism, wildlife, livestock development and fishing, agriculture, corporate development, industrialization, and public service governance (Nairobi City County, 2019). Nairobi, the capital city of Kenya, stands not only as the nation's administrative center but also serves as a pivotal commercial and industrial nucleus within the East and Central African Region. Bolstered by a populace exceeding 3.1 million, Nairobi significantly underpins Kenya's formal employment sector, constituting 50% of it. Moreover, it spearheads economic activity, contributing over 50% to the nation's gross domestic product (GDP). In essence, Nairobi's multifaceted role extends beyond mere administrative boundaries, playing an indispensable role in fostering both economic prosperity and social advancement within the region (Nairobi City County (NCC), 2014).

Nairobi County has approximately 225 public primary schools out of the overall 21,718 public primary schools in Kenya (Institute of Economic Affairs, 2016). They are spread across 8 Districts namely: Dagoretti, Embakasi, Kamukunji, Kasarani, Lan'gata, Makadara, Starehe, and Westlands (Nairobi City County, 2019). The promulgation of the Constitution of Kenya in 2010, coupled with the enactment of the Basic Education Act in 2013, precipitated a paradigm shift in the governance structure of public primary schools, wherein Boards of Management (BOMs) supplanted School Management Committees (SMCs) in the administrative framework. Nairobi County was purposively chosen for this Study given its metropolitan location as well as proximity to technology centers and hubs and education institutions of excellence.

Public primary schools were selected purposively for this study because the country's Digital Literacy Program (DLP) referenced in the study targets only public primary schools. The primary objective of this research endeavor is to ascertain the extent to which public primary schools have established foundational infrastructure for E-learning. Furthermore, there exists a dearth of empirical data regarding the proficiency of Kenyan primary school educators in executing DLP, specifically in its second phase labeled 'Using to Learn', spanning from 2019 to 2023 (Sitienei, 2015). The mere introduction of Information and Communication Technology (ICT) into educational settings does not inherently ensure its seamless integration. Successful adoption hinges upon educators possessing both the requisite computer proficiency and the requisite attitudes necessary for its effective incorporation within classroom pedagogy. Technology, in and of itself, is insufficient to catalyze transformative shifts in education. Rather, its potential to influence educational paradigms is realized only through the deliberate actions and mindset of those individuals who engage with it (Jiří & Xiaojun, 2017). Against this contextual backdrop, this study endeavors to scrutinize the myriad factors that impinge upon the state of E-learning readiness in the public primary schools situated within Nairobi County, Kenya.

1.1.4 ICT in Education Policy

Kenya's Ministry of Information and Communication published its first ICT policy in 2006, setting out a vision for "a prosperous ICT-driven Kenyan society" as well as committing to ensuring "the availability of accessible, efficient, reliable and affordable ICT services". The Kenya National ICT Masterplan also sought to improve the ICT human capacity in Kenya with an objective of ICT workforce development and public digital literacy (Ministry of ICT, 2019). One of the most

effective and efficient methods of developing the ICT workforce is to integrate ICT in schools. Rwanda too through its Vision 2020 aims to transition her agrarian economy to an information-rich knowledge-based one (Adebiyi & Orenyi, 2024).

Kenya's government is also seen to be at the forefront in acknowledging the importance of ICT in Education Policy. Through the sessional paper 1 of 2005 (Government of Kenya (GOK), 2005), the government observed that technology has a straightforward role to play in schools and if put into proper use, it will benefit schools and communities. The National ICT strategy for education and training is also based on the vision that "ICTs is a universal tool in education and training". Through Article 35(3) of the Constitution (Republic of Kenya, 2010), In the realm of complex academic discourse, the government acknowledges Information and Communication Technology (ICT) as a fundamental instrument for the facilitation of teaching, learning, and research within the sphere of education and training. It asserts that ICT shall not be perceived solely as a standalone subject for instruction and examination, but rather as an integrated and promoted resource to enhance pedagogical practices, scholarly inquiry, and educational advancement.

The Kenyan government made headlines in 2013 when it introduced the Digital Literacy Program (DLP), which aims to prepare learners for today's society in which technology currently dominates (Oketch, 2014). Kenya's national ICT initiative, DLP, promises to give elementary school pupils better learning and 21st-century skills. The initiative makes an effort to integrate digital technologies into education. Its objectives are to: build the capacity of elementary school educators, education managers, and stakeholders; integrate ICT into the method of instruction and learning in primary schools; allow the creation and accreditation of electronic materials that promote the acquisition of 21st-century skills; and provide elementary schools in public schools with ICT infrastructure that will facilitate the educating and learning process (Oketch, 2014).

1.2 Statement of the Problem

Kenya, in particular, continues to grapple with low levels of E-learning readiness stemming from insufficient ICT infrastructure and a limited skill base that hinders the effective utilization of technology across various sectors (World Economic Form, 2017). There also exists a significant digital divide amongst urban and rural areas concerning essential ICT infrastructure and internet accessibility. On average, internet access stands at 69%, accentuating the discrepancy in ICT

penetration between urban and rural regions (Ndung'u, Lewis, & Mothobi, 2019). Following the emergence of additional COVID-19, technology has emerged as one of the most important tools required to assist the shift for institutions implementing distance learning, skills training, and other essential elements of this change (Naa Kai Amanor-Mfoafo, 2020).

African countries continue to face delays in implementing E-learning initiatives, contributing to the ongoing existence of the digital divide, as noted by (Riungu & Mwangi, 2023). According to the OECD 2016 report, most educators in Africa lack the necessary ICT skills to effectively integrate ICT into their lessons (OECD, 2016). Technically speaking, teachers were unable to find high-quality digital learning tools and software, according to the OECD research from 2016. Furthermore, they lacked the necessary administration support and capacity building to effectively integrate digital technology into their lessons, which made it challenging to impart knowledge. Together with having hazy learning objectives, they also showed little enthusiasm for using computers to prepare their courses. The paper lists several other reasons that exacerbate the situation, such as a lack of prior ICT teaching expertise, a lack of management support when learning on-site, and insufficient technology teachers to equip students with computer skills.

There is an urgent need to assess factors influencing E-learning readiness in public primary schools in Kenya, referencing the current roll-out of phase two of the Digital Literacy Program. Upon its inception, the Digital Literacy Programme was conceived to seamlessly integrate Information and Communication Technology (ICT) into the educational curriculum within Kenya's public primary school system, thereby augmenting the efficacy of disseminating learning materials. (Government of Kenya, 2014). Efforts aimed at achieving cost-effective production of digital devices for the DLP Program through local assembly, as evidenced by insights gleaned from key informant interviews, failed to materialize due to the necessity of importing device components, notably plastic covers. The imposition of tariffs on imported parts for locally assembled devices exacerbated the issue, resulting in the final product being less economically accessible. Additionally, hurdles such as the unpreparedness of digital content and government budget constraints contributed to a delayed program launch (Barasa, 2021). Consequently, this study is aimed at being able to recommend policy and practice actions that primary schools in Nairobi County, Kenya can leverage on to enhance their E-learning readiness.

1.3 General Research Objectives

The general study objective examined factors influencing E-learning readiness in public primary schools of Nairobi County.

1.3.1 Specific objectives

The study was guided by these research objectives:

i) To determine the effect of ICT infrastructure on E-learning readiness in public primary schools of Nairobi County.
ii) To establish the effect of ICT skills on E-learning readiness in public primary schools of Nairobi County.
iii) To examine the effect of teaching content on E-learning readiness in public primary schools of Nairobi County.
iv) To establish the effect of administration support on E-learning readiness in public primary schools of Nairobi County.

1.4 Research Questions

The study sought to answer the following research questions:

i) How does ICT infrastructure affect E-learning readiness in public primary schools of Nairobi County?
ii) In what ways do ICT skills affect E-learning readiness in public primary schools of Nairobi County?
iii) How does teaching content affect E-learning readiness in public primary schools of Nairobi County?
iv) How does administration support affect E-learning readiness in public primary schools of Nairobi County?

1.5 Significance of the Study

The research holds importance for multiple parties involved. First, the findings may be used to provide important lessons to educators to take a cue when implementing E-learning in schools. It will enable them to implement strategies and processes that guarantee the efficient distribution and

delivery of E-learning to students. The first phase of the Digital Literacy program's report states that teachers are already observing improvements in their students' learning behaviors—they are becoming more aware, and learning is now more useful and enjoyable. Along with a decrease in absenteeism, more students are being accepted into public schools. Teachers' ICT abilities have now improved thanks to the teacher capacity-building aspect component (ICT Authority, Kenya., 2018).

Furthermore, it is anticipated that the study's conclusions will support the government's ICT Authority's, and other stakeholders' efforts to advocate for improved metrics for assessing public primary schools' preparedness for E-learning. According to the Digital Literacy Program (DLP) plan to implement phase 2, known as "use to learn," this study is relevant since it will assist in analyzing the variables that affect schools' preparedness for E-learning.

Lastly, the study is important because it contributes to the collection of empirical data regarding how ready educators, administrators, and schools are to use E-learning in the classroom. The study adds to the body of knowledge on E-Learning preparedness in Kenyan elementary schools and supports the significance of the Technology Adoption Theory and Engholm's preparedness Model. It is hoped that this research will serve as motivation for future scholars to investigate E-learning preparedness in more detail.

1.6 Scope of the Study

The study focused on the factors influencing their E-learning readiness, specifically ICT infrastructure, ICT skills, teaching content, and administration support. The geographical scope of the study focused on Nairobi County, Kenya with 161 public primary schools having 6,150 teaching staff forming the target population from the public primary schools (Appendix 6). The theoretical scope of the study was limited to the Technology Adoption Theory and Engholm model for E-learning readiness. The study was further limited to a quantitative methodology in solving the study problem.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

This chapter is dedicated to a comprehensive exploration of the relevant literature. It concentrates on the theoretical underpinnings crucial to framing the research. Furthermore, it delves into empirical studies aligned with the research aims, covering areas such as infrastructure, ICT skills, teaching content and administration support. Additionally, a conceptual framework is presented herein, depicting the interplay among the variables under scrutiny.

2.2 Theoretical Review

The literature concerning organizational readiness for E-learning offers managers with a diverse array of resources, encompassing guidelines, questions, strategies, instruments, and models. These tools aid in evaluating the organization's readiness for implementing E-learning initiatives (Oketch, 2014). The theoretical framework used in this study demonstrates how the researcher understood the models pertinent to the research topic and the field of study to which the research was related. The theoretical underpinning for this study is the Technology Adoption Theory and Engholm model for E-learning readiness.

2.2.1 Technology Adoption Theory

The Technology Adoption Theory were introduced by Fred Davis in 1986 and was developed to explain the adoption of new technologies by users, including factors that influence user acceptance of technology. Increasing adoption of information technology undoubtedly leads to strengthening of organizations by enhancing productivity (Soar, 2016). The Technology Adoption Theory stems from a broader lens of adoption theories, including Concerns-based Adoption Model and the United Theory of Acceptance and Use of Technology. While technology adoption is multifaceted and developmental, it is suggested that individuals construct distinctive perceptions about technology that influence their decisions of adoption (Straub, 2017).

The Technology Adoption Theories underscore the importance of addressing cognitive, emotional and contextual interests, while paying attention to factors outside the formal organization and the influence of informal environments on technology adoption. In addition, they model the process

through which users accept and use a technology when presented with a new one as well as factors that would influence the choice of when and how the users will use it (Soar, 2016).

Fred Davis' objective was to explain the factors influencing computer acceptance that led to different users' behaviours and cutting across different types of computing technologies. There were two beliefs that were tested, i.e. Perceived Usefulness (PU), which was the likelihood that a users' actions will improve upon use of a certain technology and Perceived Ease of Use (PEU) which was the extent to which the user expected an effortless use of the technology (Lai, 2017).

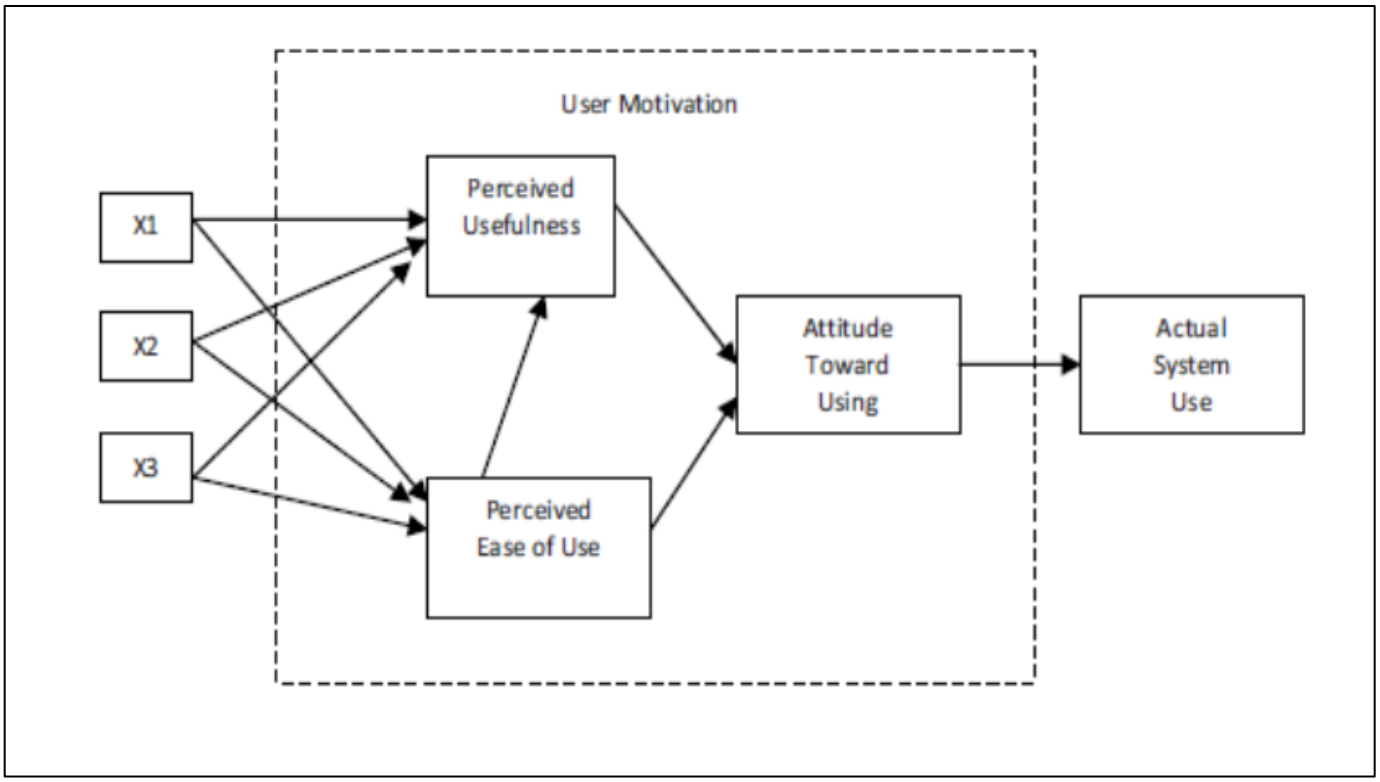

Fig 2.1. Original Technology Adoption Theory (Davis, 1986).

For this study, the factor on Perceived Ease of Use (PEU) from the Technology Adoption Theory has been adopted because of its relevance to the context of E-learning readiness in public primary schools and particularly the independent variable on teaching content that assesses the accessibility of teaching content, the ease of use, the relevance, interactivity and up to date teaching content. The Perceived Usefulness (PU) however was not adopted as the current study does not assess the likelihood of a user using the technology for E-learning readiness.

2.2.2 Engholm's Readiness Model

Engholm's Readiness Model, proposed by Engholm in 2002, stands out as one model that addresses factors deemed pertinent in an organization's readiness for E-learning. This model encapsulates a broad spectrum of organizational and individual considerations, including the organization's culture, individual learner characteristics, technology infrastructure, content availability, and organizational as well as industry-specific factors. The model is used to guide managers and personnel in Training and development in their organisation's E-learning readiness assessment. Engholm (2002) emphasized several key factors essential for a successful E-learning experience within organizations. Firstly, the organizational culture should foster a supportive learning environment, emphasizing self-directed learning and prioritizing training and development initiatives aligned with the organization's goals. Secondly, individual learners should be empowered to take responsibility for their learning, effectively manage their time, and be provided with sufficient flexibility and encouragement to learn. Thirdly, content ought to be adequately sourced, user-friendly, and tailored to accommodate diverse learning styles. Additionally, learners should have access to user-friendly technology, including enough hardware and software, along with reliable internet connectivity and sufficient bandwidth.

Table 2.1: Engholm's Model for E-learning Readiness

E-learning Readiness Factors	Explanation of Factors
Organization's culture	In an organizational culture where there is a collective understanding and appreciation of the advantages of training and learning, employees are actively cheered to engage in learning activities. They are provided with ample opportunities and allocated time to participate in training programs and further their knowledge and skills.
Individual learner	E-learning places significant emphasis on individualized learning experiences, primarily because of its accessibility and flexibility.
Technology	By definition, E-learning relies on computer and the internet and/or an intranet accessibility.
Teaching content	E-learning readiness is gauged through the assessment of content readiness. This involves determining whether the content is readily accessible, well-structured, and reusable.
Organizational and Industry Factors	E-learning is particularly well-suited for organizations requiring rapid creation, processing, and dissemination of information and knowledge. It is also beneficial for organizations with

	geographically isolated employees who need to access identical or similar materials.

Adapted from (Engholm, 2002)

The factors influencing E-learning readiness from Engholm's model that have been adopted in this study because they are relevant to the context of primary schools are technology factor, teaching content, organization culture and organizational factors. Only one factor was not adopted i.e. individual learner as the current study target group are the teachers, ICT teachers and Head teachers. The technology factor from Engholm model underscores the significance of ICT infrastructure in public primary schools and the importance of availability of computer equipment, internet connection, learning management systems and power supply as reflected in the study. The teaching content factor from Engholm emphasizes on the importance of user-friendly content. This has been reflected in the current study through assessing the accessibility of teaching content, ease of use, relevance, up to date content which is interactive to use in public primary schools. Engholm's model also includes organization culture and organizational factors which have been adopted in this study by assessing the extent to which the public primary school's administration encourages use of E-learning, supports teachers, provides capacity building for teachers as well as the importance of availing organizational policies for E-learning.

This study therefore focusses on addressing the research questions by investigating E-learning readiness, focusing on ICT infrastructure, ICT skills, teaching content, and administration support. These four factors were chosen for their significance in shaping the internal environment that impacts E-learning readiness in public primary schools of Nairobi County, Kenya.

2.3 Empirical Review

This segment outlines earlier research related to the study's variables, aiming to identify gaps in both context and empirical evidence that the current study aims to address. The studies referenced encompass diverse geographical and contextual perspectives.

2.3.1 Infrastructure and E-learning readiness

A study by Ghavifekr (2018) examined ICT integration in education and incorporation of ICT infrastructure for teaching & learning improvement in classrooms by primary school teachers in Klang Valley, Malyasia. The study selected through random sampling 61 teachers from 10 public

primary schools and used descriptive analaysis to understand the frequencies of teachers' use of ICT infrastructure including projector, document camera, multimedia computer, video camera and slide projector for E-learning in the classrooms. According to the findings, the most frequent tools that were used by the teachers were multimedia computer and projector system for teaching and learning. In addition, the teachers made good use of digital cameras and smartphones for documentation and recording of class procedings. The findings also illuminated that most teachers were using the ICT infrastructure in the teachers' rooms as opposed to the ICT infastructure in the classroom. The study focused on use of ICT infrastructure while the current study focuses on availability of ICT infrastructure including computer equipment, internet connection, storage rooms, learning managemey system and power supply for E-learning readiness in public primary schools.

Kiilu, Nyerere and Ogeta, (2018) assessed factors which influence adoption of ICT in higher education, focusing on the case of the University of Botswana. The study which adopted a comparative literature survey by reviewing the past and current literature concluded that technology is not compatible with faculty traditional teaching practices. The current study adopts a descriptive research design.

Okinda (2018) conducted a study for assessing the level of eLearning readiness at the Kenya Technical Teachers College (KTTC), Nairobi. The aim of the study was to establish a foundational aggregate index and propose activities of improving preparedness for the effective implementation of E-learning technologies in teaching, learning, and research. The research utilized a survey approach to gauge respondents' perceptions of E-learning readiness across Information and Communication Technologies (ICT). Samples were collected through a combination of quantitative and qualitative methods, which were interview guide and self-administered questionnaires. The study findings revealed that KTTC's ICT infrastructure was deemed e-ready, achieving an index score of 62.8%. The current study does not use a baseline aggregative index for one Technical College Institution but rather assesses eLearning Readiness across multiple Public Primary Schools for comparison

In an evaluation of E-learning readiness, Oketch (2014) identified internet connection as one of the criteria influencing the eLearning readiness of teachers from the University of Nairobi. Data

was gathered using questionnaires that were given to the lecturers, and the study's findings showed that technological readiness, followed by cultural readiness, was the most significant factor influencing the lecturers' readiness for E-learning. The majority of the lecturers also saw a need for additional training in content development. Oketch (2014) concluded that while the instructors were prepared for eLearning, the ICT infrastructure was insufficient to support its utilization. The current study focuses on Public Primary Schools, whereas the study is limited to higher education institutions in Kenya.

Tarus (2015) examined Kenyan universities' complex ICT infrastructure and found it to be a major obstacle to eLearning adoption in public tertiary education. The study carefully explained its findings from a comprehensive survey of 148 faculty members from three notable Kenyan public universities that use eLearning via a blended educational strategy. The rigorous study combined data from well-prepared surveys, thorough document analysis, and in-depth interviews. The findings showed that Kenyan public institutions must work hard to overcome ICT infrastructure issues to successfully integrate E-learning. The study focused on ICT infrastructure challenges that hinder the implementation of E-learning in Kenyan Public Universities, while the current study focuses on eLearning Readiness in Public Primary Schools.

2.3.2 ICT skills and E-learning readiness

Mirķe, Cakula and Tzivian, (2019) conducted an assessment on Hybrid Learning, focusing on innovation in educational practices. The study emphasized the design of learning environments that not only facilitate traditional knowledge acquisition but also foster capability development. The paper employed case studies to analyze various initiatives taking place in Hong Kong, China, Macau, Singapore and Taiwan, where learning technologies have been incorporated into traditional teaching settings. The study uncovered that the adoption of lifelong education could stimulate the development of human resources within Taiwan's knowledge economy. In response, the Taiwan Ministry of Education initiated policies in 2009 to advance technology-enhanced learning within lifelong education. This study studies the influence of ICT skills on the E-learning readiness of public primary schools in Nairobi, Kenya.

Czarnecka (2017) explored E-learning as a vehicle for employee development and training. The study underscores individual responsibility for professional growth and underscores the

significance of autonomy and flexibility in learning, emphasizing the freedom to learn at one's own pace and convenience. However, the present study focuses on examining the impact of ICT skills on E-learning readiness. Eslaminejad, Masood, and Ngah (2010) employed factors such as knowledge, attitudes, skills, and habits toward E-learning to evaluate the readiness of academic members and instructors. The research highlighted the pivotal role of academic and technical preparedness in E-learning implementation, suggesting a need for enhancing ICT knowledge and skills among educators. Furthermore, the study advocates for continuous training initiatives to continually upgrade instructors' IT competencies.

Saintika & Muhammad, (2021) conducted an assessment for evaluating the technical capability level and computer literacy amongst teachers and students in public secondary schools. The study endevoured to determine the readiness for E-learning implementation. The study focused on Rachuonyo North and Rachuonyo South Districts in Kenya. Descriptive research was used to obtain information and questionnaires were used in the survey targeting principals, teachers and students from the targeted population. A census approach was utilized to gather data from principals, whereas a random, multi-stage stratified sampling technique, equal to population size, was employed for students and teachers. The study concluded that both teachers and students were prepared to adopt E-learning. It recommended that education stakeholders focus on training all teachers in integrating technology into teaching practices. In contrast, the current study employed a sampling method consisting of stratified and simple random sampling techniques for research data collection.

Eslaminejad, Masood, and Ngah (2017) utilized factors such as knowledge, attitudes, skills, and habits towards E-learning to evaluate the readiness of academic members and instructors. The study revealed that academic and technical readiness emerged as the most crucial factor in E-learning implementation. Consequently, to advance E-learning initiatives, it is imperative to enhance teachers' knowledge and skills in ICT. The findings further suggested that continuous training should be provided to instructors rather than one-off sessions to progressively enhance their IT knowledge and skills over time.

Additionally, Mafenya (2016) employs attitude, skill, experience, organizational barriers, and motivation factors to explore student pedagogical readiness at the University of South Africa. The

research revealed that when students and faculty recognizes the advantages of e-learning, education can be enhanced provided there is meticulous planning during implementation. Building on these investigations, the second hypothesis of this study aimed to scrutinize how ICT skills influence e-learning readiness among public primary schools in Nairobi County. The study identified a significant positive correlation between ICT skills and e-learning readiness.

2.3.3 Teaching Content and E-learning Readiness

Borotis and Poulymenakou, (2016) conducted research aimed at creating an instrument to gauge an entity's perceived readiness to participate in E-learning content. The study focused on assessing the validity and internal consistency of items within a self-assessment tool for e-learning readiness and offered data to support the ongoing refinement of the instrument. Participants in the study were drawn from the United States Coast Guard (USCG). The research utilized statistical analysis to assess the relationships among the questions featured in the self-assessment, aiming to ascertain how consistently the measure reflects a unified phenomenon across its various sections. It was concluded that items concerning technical skills (such as using email) might be merged with items associated to the content of communication using technology (such as establishing online working relationships). The present study investigates how content impacts E-learning readiness and employs questionnaires to collect data from the target group.

Czarnecka (2017) carried out a study on E-learning as a method of employee development and training. The objective of the study was to assess the advantages and disadvantages of using E-learning in employees' development and training. The study findings revealed that the combination of text, audio, static images, and videos in E-learning content, makes it possible to share information and knowledge effectively and interestingly. The current study examines the teaching content's accessibility, ease of use, and relevance, in influencing E-learning readiness.

Any system's driving force is its teaching content, and from the standpoint of education, the readiness of that content to be used in E-learning is determined by its nature. That is, is the educational material well-organized and adaptable? In a case study of the University of Nairobi, Oketch (2014) evaluated the readiness for E-learning by using teaching content and cultural readiness as the independent variables. The study found that while teaching material was a less

significant component in determining E-learning readiness than cultural preparedness, there was a strong, albeit unfavorable, correlation between E-learning readiness and teaching material.

Barak (2015) dissertation delved into an assessment of learning motivation within the context of massive open online courses (MOOCs), with a particular focus on linguistic and social engagement elements within the course content. Its primary objective was to juxtapose the motivation patterns of MOOC participants who undertook the same course but in different languages. Employing a mixed methods approach, the study gathered data through pre- and post-questionnaires. The findings illuminated that regardless of the language of instruction, participants were propelled by analogous objectives, and there existed a positive correlation between motivation and the frequency of contributions made in online forums. While the former study scrutinized language and social engagement within content, the present research explores how the accessibility, usability, and pertinence of instructional material affect the readiness for E-learning in public primary schools within Nairobi County.

2.3.4 Administration Support and E-learning Readiness

A study by Xiaojun (2017) examines the incorporation of Information and Communication Technology (ICT) within educational settings was the focal point of this research, particularly exploring teachers' perceptions. The investigation delved into the myriad factors shaping teachers' attitudes toward ICT, classifying them into extrinsic and intrinsic categories. Extrinsic elements encompass administrative backing, pedagogical training, and computer apprehension. This inquiry sought to offer valuable insights for educators and policymakers, aiming to mitigate the adverse impacts of ICT implementation influenced by both intrinsic and extrinsic factors, notably administrative support. The present study endeavors to ascertain the influence of administrative support on the preparedness for E-learning within public primary school environments.

Ghavifekr and Ibrahim (2015) conducted a comprehensive investigation into the efficacy of ICT Integration within Malaysian Schools. Their research aimed to assess the impact of ICT integration on both educators and students within the instructional framework of public secondary institutions. The findings revealed a prevalent challenge across many schools: insufficient administrative support in addressing technical complexities emerged as a significant hindrance, leading to frustration among both faculty and learners and disrupting the educational process. The absence

of technical assistance and the lack of computer maintenance exacerbated the issue, rendering computers unusable for educational purposes. Consequently, educators hesitated to incorporate technology into their teaching practices due to concerns over equipment malfunction, exacerbated by the absence of support and assistance from the administration. This present study shifts the focus to public primary schools, aiming to scrutinize the influence of administrative support on E-learning readiness within this educational setting.

Ghavifekr (2015) evaluated the effectiveness of ICT integration in Malaysian schools and highlighted that professional development training programs for teachers significantly contributed to quality of learning improvement. They emphasized the importance of considering additional aspects of ICT integration, particularly from a management perspective, for instance strategic planning and policy-making, in future studies.

2.4 Summary and Research Gaps

The evidence shows research that has focused on ICT infrastructure, ICT skills, teaching content, administration support, and E-Learning Readiness. However, there is a paucity of studies exploring the influence of the factors on E-learning Readiness of Public primary schools of Nairobi County. A study by Oketch (2014) focused on the E-learning readiness assessment model but confined to higher education Institutions and not public primary schools. Author Tarus (2015) explored the challenges of implementing E-learning in Kenyan public universities but focused on ICT infrastructure challenges, while the current study examines four factors i.e. infrastructure, ICT skills, teaching content, and administration support. Author Okinda (2018) used a baseline aggregative index for one Technical College Institution while the current study assesses eLearning Readiness across multiple Public Primary Schools of Nairobi County. A Study by Ouma (2018) employed a census while the current study used stratified and simple random sampling for the research. Authors Watted, Haick, and Barak (2015) assessed the motivation to learn in massive open online courses, examining aspects of language and social engagement of content, while the current study examines how the accessibility, ease of use, and relevance of the teaching content influences E-learning readiness in public primary schools of Nairobi County.

Table 2.2 Research Gaps

Author	Title	Research Findings	Research Gaps
Ghavifekr (2018)	ICT Integration in Education: Incorporation for Teaching & Learning Improvement	The study found that the most frequent ICT infrastructure tools that were used by the teachers were multimedia computer and projector system for teaching and learning.	The study focused on use of ICT infrastructure for teaching and learning improvement while the current study focuses on availability of ICT infrastructure for E-learning readiness in public primary schools.
Okinda (2018)	Assessing E-Learning Readiness at the Kenya Technical Teachers College. *VOL. 1, No. 3*.	The study revealed that KTTC's ICT infrastructure is e-ready, at an index of 62.8 %.	The study used a baseline aggregative index for one Technical College Institution while the current study examines eLearning Readiness across multiple Public Primary Schools for comparison.
Ouma (2018)	Assessing the level of readiness for E-learning implementation in public secondary schools within the Rachuonyo North and Rachuonyo South districts of Kenya.	The study resolved that both teachers and students are prepared to embrace e-learning. It recommended that education stakeholders should provide comprehensive training to all teachers on how to effectively integrate technology into their teaching practices.	The study employed a census while the current study uses stratified and simple random sampling for the research.
Borotis and Poulymenak (2016)	Assessing Readiness for E-Learning.	The study concluded that elements associated with technical skills (such as using email) could be amalgamated with components concerning the content of communication using technology (such as building online working relationships).	The study utilized statistical relationships among the questions included in the self-assessment to assess the extent to which the measure produces consistent results across its various sections, as it measures a single phenomenon, while the current study examines how content influences E-learning readiness for ICT adoption and uses questionnaires for data collection from the target group.
Tarus (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).*	The outcomes uncovered that the implementation of e-learning in Kenyan public universities is hindered by significant ICT infrastructure challenges that ought to be taken care of for successful implementation to be achieved.	The study focused on ICT infrastructure challenges that hinder implementing eLearning in Kenyan Public Universities, whereas the current study focuses on E-learning readiness for ICT adoption in public primary schools.
Oketch (2014)	E-learning Readiness Assessment Model in Kenya's Higher Education Institutions: A Case Study of University of Nairobi.	The study concluded that while the lecturers demonstrated readiness for e-learning, the ICT infrastructure was insufficient to adequately support its implementation.	The study is confined to higher education Institutions in Kenya, while the current study emphases on Public Primary Schools in Kenya.

2.5 Conceptual Framework

The study conceptualized factors influencing E-learning readiness in public primary schools of Nairobi County. The independent variable is access to ICT infrastructure, ICT skills, teaching content; and administration support, while the dependent variable is E-learning Readiness (Figure 2.1).

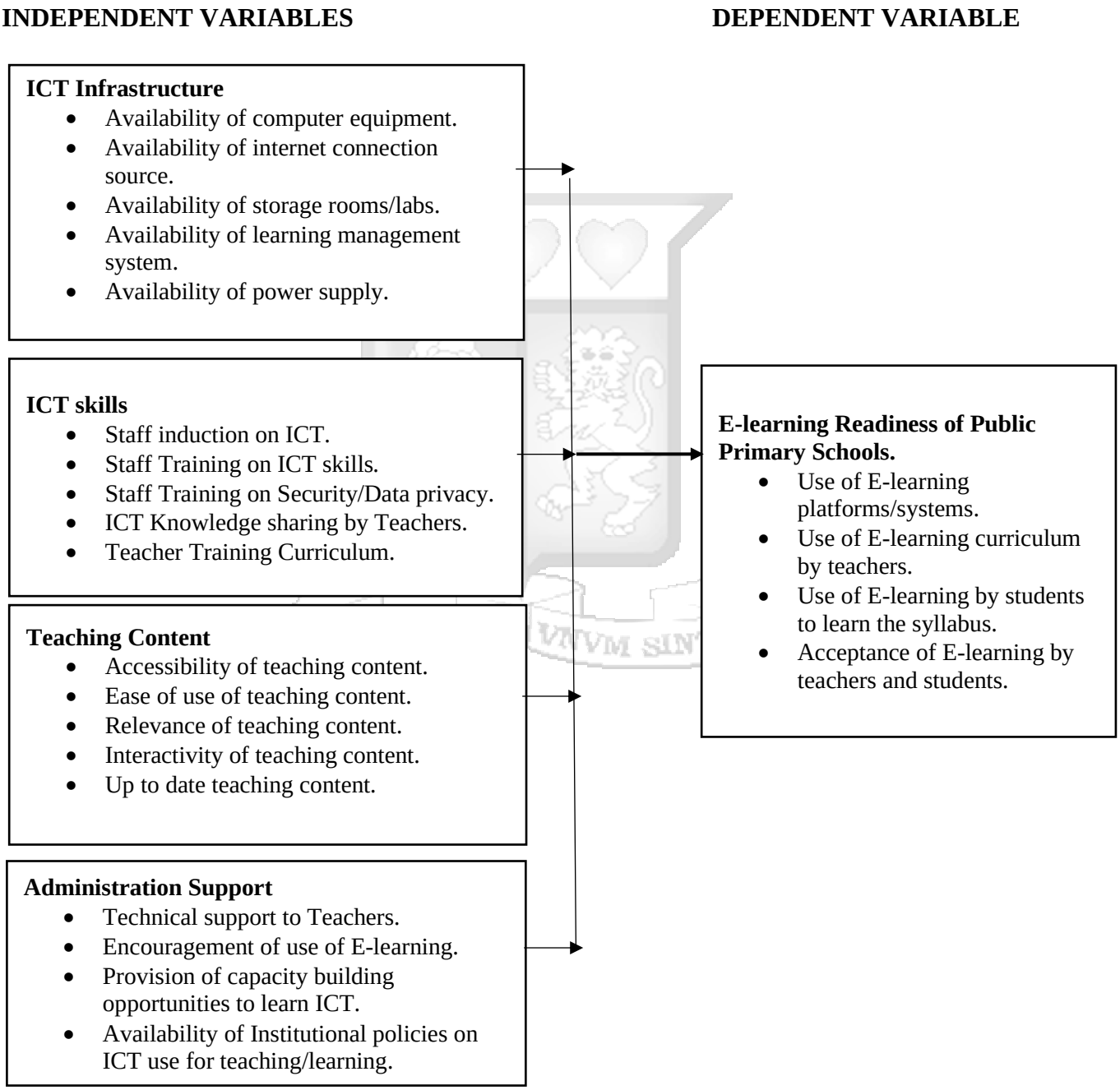

Fig 2.2: Conceptual Framework

Table 2.3: Operationalization of Variables

Table 2.3 shows the operationalization of the study variables and shows how the measurement of each variable was measured.

Objective	Variable	Measurement	Data Collection Tool	Data Analysis	Supporting Literature
To determine effect of ICT infrastructure on E-learning readiness in public primary schools of Nairobi County.	ICT Infrastructure	Quantitative data	Interview questionnaire	Descriptive Correlation tests	Tarus (2015) Oketch (2014) Okinda (2018)
To establish effect of ICT skills on E-learning readiness in public primary schools of Nairobi County.	ICT skills	Quantitative data	Interview questionnaire	Descriptive Correlation tests	Czarnecka (2017) Ouma (2018)
To examine effect of teaching content on E-learning readiness in public primary schools of Nairobi County.	Content	Quantitative data	Interview questionnaire	Descriptive Correlation tests	Watkins (2014) Oketch (2014)
To establish effect of administration support on E-learning readiness in public primary schools of Nairobi County.	Administration Support	Quantitative data	Interview questionnaire	Descriptive Correlation tests	Jiří et al. (2017) Ghavifekr et al. (2015)

2.6 Chapter Summary

Drawing upon the aforementioned literature review, it becomes evident that the assessment of E-learning readiness assumes paramount importance in facilitating the efficacious adoption of E-learning initiatives, obviating the need for extensive expenditure of resources such as time and capital. A comprehensive analysis reveals that competencies and attitudes emerge as pivotal determinants of E-learning readiness. Thus, it behooves each institution to exercise discernment in delineating the salient factors for gauging their E-learning preparedness, recognizing the inherent variability in readiness levels across institutions. This discernment is imperative for procuring accurate insights delineating the true state of institutional preparedness. Notably, extant literature predominantly delves into institutions of higher learning. Our research, however, seeks to diverge from this trend by investigating E-learning readiness within the context of public primary schools in Nairobi County, Kenya.

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the methodology used to address the research paradox and specifically presents the research design, the target population of the study, the sampling procedures, the sample size and data collection methods. The chapter further carefully examines the procedures for gathering data, describes the methods for analyzing and presenting the data, and thoughtfully handles ethical issues.

3.2 Research Philosophy

The lens that a researcher uses to view the study problem is called philosophy. Research philosophy can be approached from three common perspectives: interpretative, critical, and positivist. According to positivists, standardized tools can be used to measure and monitor an objective, unitary reality without prejudice (Carpentieri & Mimura, 2017). Interpretivists acknowledge the existence of reality but contend that it cannot be objectively evaluated since people view it differently through lenses based on their expectations, knowledge, and prior experiences (Afsar & Badir, 2017). The positivist theory that underpins this study assumes that its surroundings and events are objective, intentional, and measurable; as a result, a deductive technique would be the most suitable for conducting the investigation. Because of this, data was gathered using a quantitative method, and analysis of the cause-and-effect relationship between variables conducted using a quantitative approach, led by the study questions.

3.3 Research Design

The precise configuration and structure that serve as the foundation for the research process are referred to as the research design. To address the research query, the document provides guidelines regarding the approach, technique, and particular methods of data collection and analysis (Laurel, 2011). A descriptive research methodology was used in the study to determine and report the original findings. Descriptive research is a design that aims to produce a report and ascertain the current condition of affairs, according to Mugenda & Mugenda (2019). This process was designed to clarify, define, and interpret the current circumstances, or 'what exists'. Investigating an occurrence occurring at a certain place and time was the aim of this technique. The purpose of this

study was to look at what influences Nairobi County public primary schools' preparedness to embrace E-learning.

3.4 Population and Sampling

3.4.1 Target Population

Nairobi County's public primary schools served as the study's population. The 6,150 teaching staff members of Nairobi County's public elementary schools were the target population (Kenya National Bureau of Statistics, KNBS, 2020), (Appendix 6). The unit of analysis was 161 staff comprising teachers, ICT teachers and Head teachers as summarized in Table 3.1. Since the study area was within a school setup, the target population focused on the following categories: head of the school, head of departments, and ICT teachers.

Table 3.1: Sample Size

Respondent category	**Population**
Teachers	54
ICT Teachers	21
Head Teachers	86
Total	**161**

3.4.2 Sampling Design

The study used stratified and simple random sampling procedure which relies on dividing the target population into subjects and selecting a subset of participants from the selected target population. The units of observation were 161 public primary schools of Nairobi County, as the Digital Literacy Project (DLP) was implemented in only public primary schools. Mugenda & Mugenda (2019) proposed a sample size of between 10% -30% of the target population as a good representation. Based on this, the study used Yamane formula to get a sample size of 153 participants i.e. teaching staff as shown below:

$$n = \frac{N}{1 + N(e)^2}$$

Where ***n*** is the sample size, ***N*** is the population size, and ***e*** is the level of precision.

Therefore; **n** = 6150/ {1+6150 $(0.05)^2$}

n = 237.57 x 30%

n = 161

3.5 Data Collection

Data collection is the precise, systematic gathering of information relevant to the research sub-problems (Levy, 2015). The study relied on quantitative data in the process of solving the research problem. The quantitative information was collected from primary data. Head teachers and teachers of the sampled primary schools were the sources of the primary data.

The questionnaire (Appendix 5) consisted of six sections. These were on respondents' demographic information, sections on infrastructure, ICT skills, teaching content, administration support and E-learning readiness. To achieve this, the study used a structured questionnaire with closed ended questions for quantitative data. The reason for using a structured questionnaire is because they are easy to administer, ensure confidentiality, save on time and convenient for collecting information from a larger sample (Levy, 2015).

Additionally, the questionnaire guarantees anonymity, which encourages candid responses to delicate issues, and is impartial, resulting in accurate and reliable data. It has four sections. Section one consists of items to gather data on demographic characteristics of the respondent, section two consists of items to assess the school's ICT infrastructure that affects E-learning readiness, section three is designed to assess the ICT Skills while section four and five are designed to assess the teaching content and administration support respectively affecting E-learning readiness.

3.6 Research Quality

3.6.1 Reliability of the Research Instrument

Any research must have reliable research instruments. The degree to which a test is conducted using a research tool consistently produces the same results on the same subject is known as its reliability (Fernandes, Martins, Caixeta, & Filho, 2017). A pilot study was undertaken to among

five (5) respondents from the sample who were not targeted in the final sample size of the actual study. A reliability test was carried out in this study to make sure the questionnaire is trustworthy in gathering reliable data from the field. This was accomplished via the test-retest methodology, which involves giving the same research tool to the same group more than once (Creswell, 2014).

3.6.2 Validity of the Research Instrument

In any research process, validity cannot be wished away. Creswell (2014) defined validity as the degree to which units of measurements accurately reflect the phenomenon they are intended to assess. The validity of the questionnaire was examined to make sure it gathers correct data from the field. To ensure validity in this study, the utilization of both primary and secondary data techniques complemented one another, a process known as triangulation. Triangulation refers to the utilization of several data sources, such as the structured questionnaire with closed ended questions as well as open ended questions to elicit deeper discussion on the topic under examination (Creswell, 2014).

3.7 Data analysis

According to (Munro & Thanem, 2018), data analysis is a broad field that includes a variety of techniques and activities used to accurately portray factual information, spot reoccurring patterns, create explanations, and validate theories. It is agreed upon by Schostak and Schostak (2008) that there are two main approaches to data analysis. Before any additional analysis, structured questionnaires were updated and any data that needed to be cleaned was collected. After that, the quantitative data was uploaded and processed using the Statistical Program for Social Sciences (SPSS) version 25. For the data analysis needs of this study, SPPS provides a large selection of extremely flexible statistical models (Brohi, Jantan, Mehmood, & Khuhro, 2018).

Descriptive and inferential statistics were used in the study to analyze the data. We can comprehend the traits and patterns found in the sample thanks to descriptive statistics, which give a succinct overview of the data. Comparing distinct study samples is a useful application of descriptive statistics. Researchers can analyze 27 characteristics of a sample that may have an impact on their findings by using descriptive statistics (Thompson & Panacek, 2006).

Data consistency, completeness, and mistakes were examined and confirmed through cross-checking. Tables were used to portray the analyzed data descriptively. (Munro & Thanem, 2018) employed a correlation coefficient model in inferential statistics to investigate the association between the independent and dependent variables

3.8 Ethical Issues

The investigation rigorously adhered to ethical principles throughout its duration. Participants were assured that their identifying information would remain strictly confidential, accessible only to those directly involved in the study, and solely for its intended purposes. The National Commission for Science, Technology, and Innovation (NACOSTI) and the University both gave their prior approval for the research. Additionally, the intention of researching the premises of the public primary schools that were chosen was formally communicated to all head teachers and instructors working there. Participants were free to leave the study at any time without penalty because participation was entirely voluntary. The highest level of confidentiality was maintained for all research data collected, and the participating schools' identities were kept secret at all times.

CHAPTER FOUR
DATA ANALYSIS AND INTEPRETATION

4.1 Introduction

The purpose of the study was to assess E-learning readiness in public primary schools of Nairobi County. In this section, the study presents data analysis, interpretation of results, presentation, and discussion of the study findings. Data analysis was done using both descriptive and inferential analysis. The descriptive analysis describes the respondents and their perceptions regarding the factors influencing E-learning readiness. Inferential analysis was done to determine the relationship between the chosen factors and the adoption of E-learning by primary schools. Findings are presented using means, frequency and percentages tables and figures.

4.2 Response Rate

The researcher distributed 161 questionnaires out of which 153 were dully filled and returned. This represented a 95.03% response rate. According to Mugenda and Mugenda (2003), a response rate of 70% and above is considered sufficient to yield reliable findings and conclusions. The response rate in this study was therefore sufficient. The response rate is presented in Table 4.1.

Table 4.2:Response and non-response rates

Rate	**Frequency**	**Percentage**
Response	153	95.03
Non-response	8	4.97
Total	**161**	**100**

4.3 Demographic Information

In this section, the analysis sought to analyze the demographic data for the respondents. This helped to understand the respondents and to find out if the sample was a good representation of the population. The variables analyzed here include the gender of the respondents, designation, age, highest education, and working experience.

4.3.1 Gender

Analysis was done to determine the gender of the respondents. The purpose was to determine whether the sample was representative in terms of gender. From the analysis, 59% of the respondents were males and 41% were females. The findings show that the majority of the respondents were males. The findings are indicated in Figure 4.1.

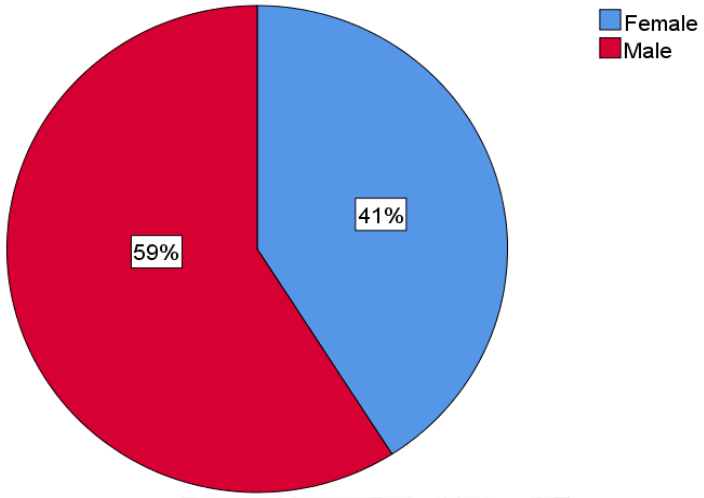

Figure 4.1: Gender of the respondents

Further analysis was done to determine the gender of the respondents in the different job roles. Based on the findings, the majority of the teachers were males (57.1%) and females 42.9%. Similarly, the majority of the head teachers (58.9%) were males and females accounted for 41.1%. In the case of ICT teachers, the majority were males (64.3%) and females 35.7%. The findings are presented in Table 4.2.

Table 4.3: Gender and Job Role Cross tabulation

			Designation/Role			Total
			Teacher	Head teacher/Deputy Head teacher	ICT teacher	
Gender:	Female	Count	22	34	7	63
		% within Designation/Role in the School:	42.9%	41.1%	35.7%	41.0%
	Male	Count	29	48	13	90
		% within Designation/Role in the School:	57.1%	58.9%	64.3%	59.0%
Total		Count	51	82	20	153
		% within Designation/Role in the School:	100.0%	100.0%	100.0%	100.0%

4.3.2 Designation

Analysis was done to determine the job position of the respondents. The findings are presented in Figure 4.2.

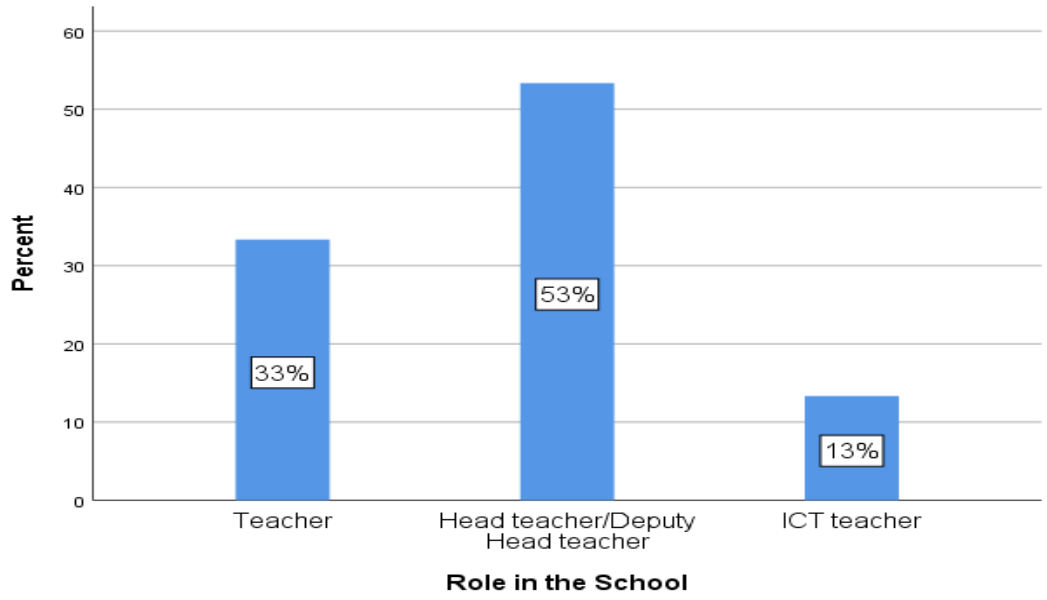

Figure 4.2: Role in school

The findings indicate that most of the respondents were head teachers represented by 53%. Teachers accounted for 33% and ICT teachers represented 13%. The findings indicate that the

majority of the schools did not have ICT teachers. The high number of teachers who participated in the study was as a result of the absence of the head teachers and deputy head teachers in the school. In such cases, the senior teachers participated in the study.

4.3.3 Age

The analysis of age indicated that the majority of the respondents (30.48%) were aged between 31-40 years, and above 50 years (30.48%). The respondents aged between 41-50 years accounted for 25.71% and a small proportion was aged between 20-30 years as represented by 13.33%. Cumulatively, the majority of the respondents were aged between 31 and 50 years. The findings are presented in Table 4.3.

Further analysis indicated that in the case of teachers, the majority were aged between 31-40 years as represented by 40%. The teachers aged between 41-50 years were represented by 34.3% and a small proportion was aged above 50 years as represented by 5.7%. In the cases of head teachers, the majority were aged above 50 years as shown by 50%. Those aged 41-50 years were represented by 23.2%, those aged between 31-40 years were represented by 19.6% and a small proportion were aged between 20-30 years as represented by 7.1%. In the case of ICT teachers, the majority were aged between 31-40 years as represented by 50%. Those aged between 20-30 years were represented by 21.4%, those aged between 41-50 years were represented by 14.3%, and those aged above 50 years were represented by 14.3%. The findings are presented in Table 4.3.

Table 4.4: Age and job designation cross-tabulation

			Teacher	**Head teacher/Deputy Head teacher**	**ICT teacher**	
Age:	20 - 30 years	Count	10	6	4	20
		% within Designation	20.0%	7.1%	21.4%	13.3%
	31 - 40 years	Count	21	16	10	47
		% within Designation	40.0%	19.6%	50.0%	30.5%
	41 - 50 years	Count	17	19	3	39
		% within Designation	34.3%	23.2%	14.3%	25.7%
	Above 50 years	Count	3	41	3	47
		% within Designation	5.7%	50.0%	14.3%	30.5%
Total		Count	51	82	20	153

	% within Designation/	100.0%	100.0%	100.0%	100.0%

4.3.4 Highest Education

Analysis was done to determine the highest attained by the respondents. The findings indicated that the majority of the respondents had diplomas as represented by 50.48%. The respondents with bachelor's degrees were represented by 36.19% and a small proportion had postgraduate degrees as represented by 13.33%. The findings are represented in Table 4.4.

Further analysis indicated that in the case of teachers, the majority had diplomas as represented by 57.1%. The teachers with bachelor's degrees accounted for 34.3%, and those with postgraduate degrees represented 8.6%. Similarly, in the case of head teachers, the majority had diplomas (44.6%), 37.5% had bachelor's degrees, and 17.9% had postgraduate degrees. In the case of ICT teachers, the majority of the respondents had diplomas representing 57.1%. Those with bachelor's degrees were represented by 35.7% and those with postgraduate degrees were represented by 7.1%. The analysis findings are presented in Table 4.4.

Table 4.5: Highest education and job designation cross-tabulation

			Teacher	**Head teacher/Deputy Head teacher**	**ICT teacher**	
Highest level of Education:	Bachelors	Count	18	30	7	55
		% within Designation	34.3%	37.5%	35.7%	36.2%
	Diploma	Count	29	37	11	77
		% within Designation	57.1%	44.6%	57.1%	50.5%
	Post-Graduate	Count	4	15	2	21
		% within Designation	8.6%	17.9%	7.1%	13.3%
Total		Count	51	82	20	153
		% within Designation	100.0%	100.0%	100.0%	100.0%

On ICT training, the majority of the respondents reported that they have attained ICT training as represented by 89.52%. Only a small proportion reported that they have not attained ICT training. While the majority reported that they have attained ICT training, it was not adequate. The majority had only attained basic training in computer use.

4.3.5 Working Experience

Analysis was done to determine the duration the respondents had worked in their current positions. The rationale of this was to determine whether the respondents had sufficient working experience and whether they were in a better position to give reliable data. Based on the results, 30.48% of the respondents had an experience of 6-10 years, 20.95% had an experience of 16 years and above, 18.10% had an experience of 11-15 years and 30.48% had an experience of 1-5 years. Cumulatively, most of the respondents had over 10 years of experience and were therefore in a good position to give reliable data.

4.4 E-learning Readiness in primary schools

The study sought to assess E-learning readiness in public primary schools of Nairobi County. In this case, the respondents were asked to rate various statements regarding e-learning readiness in the schools. The findings are presented in Table 4.9.

Table 4.5: E-learning Readiness in primary schools

Statement	N	Mean	SD
Schools in Nairobi County are using E-learning platforms/systems.	153	3.00	.920
Teachers in Nairobi County are using E-learning curriculum delivery.	153	2.90	.915
Students are using E-learning to learn the syllabus.	153	2.87	.960
There is a high level of acceptance of E-learning by teachers and students in Nairobi County.	153	3.08	.948

The findings indicate that the respondents generally disagreed that teachers in Nairobi County are using E-learning curriculum delivery (M=2.90, SD=.915) and that students are using E-learning to learn the syllabus (M=2.87, SD=.960). The respondents neither agreed nor disagreed that Schools in Nairobi County are using E-learning platforms/systems (M=3.00, SD=.920) and that there is a high level of acceptance of E-learning by teachers and students in Nairobi County (M=3.08, SD=.948). Generally, the findings indicate a low level of E-learning readiness among public primary schools in Nairobi County.

Table 4.6: Pearson Correlation on E-learning Readiness

Posterior Distribution Characterization for Pairwise Correlations						
		q9	q10	q11	q12	q13

q9	Posterior	Mode		-.009	.003	.042	-.031
		Mean		-.009	.003	.041	-.031
		Variance		.006	.006	.006	.006
	95% Credible Interval	Lower Bound		-.167	-.154	-.116	-.187
		Upper Bound		.147	.160	.197	.126
	N		153	153	153	153	153
q10	Posterior	Mode	-.009		.634	.601	.621
		Mean	-.009		.627	.593	.614
		Variance	.006		.002	.003	.003
	95% Credible Interval	Lower Bound	-.167		.530	.489	.514
		Upper Bound	.147		.721	.693	.709
	N		153	153	153	153	153
q11	Posterior	Mode	.003	.634		.606	.523
		Mean	.003	.627		.598	.516
		Variance	.006	.002		.003	.003
	95% Credible Interval	Lower Bound	-.154	.530		.495	.399
		Upper Bound	.160	.721		.697	.629
	N		153	153	153	153	153
q12	Posterior	Mode	.042	.601	.606		.647
		Mean	.041	.593	.598		.639
		Variance	.006	.003	.003		.002
	95% Credible Interval	Lower Bound	-.116	.489	.495		.545
		Upper Bound	.197	.693	.697		.731
	N		153	153	153	153	153
q13	Posterior	Mode	-.031	.621	.523	.647	
		Mean	-.031	.614	.516	.639	
		Variance	.006	.003	.003	.002	
	95% Credible Interval	Lower Bound	-.187	.514	.399	.545	
		Upper Bound	.126	.709	.629	.731	
	N		153	153	153	153	153
a. The analyses assume reference priors (c = 0).							

The results from the Bayesian analysis on the pairwise correlations of these infrastructure factors are summarized below:

Adequate Computers/Equipment and Labs (q9)

Posterior Mean correlations with other factors: Internet connection (q10): -0.009; Available rooms/labs (q11): 0.003; Learning management system (q12): 0.042; Power shortages (q13): -0.031. The presence of adequate computers and labs shows very weak correlations with other infrastructure factors, suggesting that their availability alone does not strongly influence the perceived readiness of other infrastructural elements.

Reliable Internet Connection (q10)

Posterior Mean correlations with other factors: Adequate computers/equipment and labs (q9): -0.009; Available rooms/labs (q11): 0.627; Learning management system (q12): 0.593; Power shortages (q13): 0.614. A strong and reliable internet connection is significantly correlated with the availability of rooms/labs, the presence of a reliable learning management system, and less frequent power shortages. This suggests that schools with better internet connectivity are more likely to have other supportive infrastructure in place, which enhances overall e-learning readiness.

Available Rooms/Labs (q11)

Posterior Mean correlations with other factors: Adequate computers/equipment and labs (q9): 0.003; Reliable internet connection (q10): 0.627; Learning management system (q12): 0.598; Power shortages (q13): 0.516. The availability of rooms/labs for storing computer equipment is significantly correlated with reliable internet connections and the presence of a learning management system, indicating that adequate storage facilities contribute positively to the infrastructure necessary for e-learning.

Reliable Learning Management System (q12)

Posterior Mean correlations with other factors: Adequate computers/equipment and labs (q9): 0.041; Reliable internet connection (q10): 0.593; Available rooms/labs (q11): 0.598; Power shortages (q13): 0.639. A reliable learning management system is strongly correlated with reliable internet connections and available storage facilities, and less strongly but still significantly with fewer power shortages. This underlines the importance of a dependable learning management

system in enhancing e-learning readiness through its interdependence with other critical infrastructure components.

Power Shortages (q13)

Posterior Mean correlations with other factors: Adequate computers/equipment and labs (q9): -0.031; Reliable internet connection (q10): 0.614; Available rooms/labs (q11): 0.516; Learning management system (q12): 0.639. Power stability is significantly correlated with reliable internet connections, available storage facilities, and a dependable learning management system. This suggests that power reliability is a crucial factor for maintaining other infrastructure elements necessary for effective e-learning.

Hypotheses Testing

The hypotheses tested about infrastructure factors are:

H1: The availability of adequate computers/equipment and labs significantly influences e-learning readiness. Analysis shows very weak correlations with other factors, indicating that this component alone does not significantly influence overall e-learning readiness.

H2: A strong and reliable internet connection significantly influences e-learning readiness. Strong correlations with other factors support this hypothesis, highlighting the critical role of internet connectivity in e-learning readiness.

H3: The availability of rooms/labs to store computer equipment significantly influences e-learning readiness. Significant correlations with reliable internet connections and learning management systems support this hypothesis, indicating the importance of storage facilities.

H4: A reliable learning management system significantly influences e-learning readiness. Strong correlations with other factors support this hypothesis, emphasizing the crucial role of a dependable LMS.

H5: Power shortages negatively influence e-learning readiness. Significant negative correlations with reliable internet connections, storage facilities, and learning management systems support this hypothesis, highlighting the negative impact of power instability.

The analysis reveals that several ICT infrastructure factors significantly influence E-learning readiness in public primary schools in Nairobi County. Reliable internet connectivity, adequate

storage facilities, and dependable learning management systems are strongly correlated with enhanced e-learning readiness. Power stability also plays a critical role in maintaining these infrastructural elements. Conversely, the mere presence of adequate computers and labs, while necessary, is insufficient by itself to ensure e-learning readiness. These findings align with the theoretical models and empirical studies discussed in the literature review, reinforcing the multi-faceted nature of e-learning readiness that necessitates comprehensive infrastructural support.

4.5 The Effect of ICT Infrastructure on E-learning Readiness

4.5.1 Descriptive Statistics on ICT Infrastructure

Determining the effect of ICT infrastructure on E-learning readiness in public primary schools of Nairobi County was the first objective of the study. In this case, the respondents were asked to give the extent to which they agreed or disagreed with various statements regarding the ICT infrastructure in their schools. The descriptive statistics were summarized for questions 9 to 13. The results are presented in Table 4.5.

Table 4.7: ICT Infrastructure and E-learning Readiness

Statement	N	Mean	SD
The school has adequate computers/equipment and labs for the students	153	2.49	1.241
The school has a strong and reliable internet connection	153	2.47	1.256
The school has available rooms/labs to store the computer equipment	153	2.90	1.308
There is a reliable learning management system for E-learning.	153	2.72	1.252
The school experiences power shortages	153	2.70	1.344

From the analysis, the respondents generally disagreed that; the schools have adequate computers/equipment and labs for the students (M=2.49, SD=1.241), the schools have a strong and reliable internet connection (M=2.47, SD=1.256), and that the schools have available rooms/labs to store the computer equipment (M=2.90, SD=1.308). The respondent also disagreed that there is a reliable learning management system for E-learning (M=2.72) and that the schools experience power shortages (M=2.70, SD=1.344). The findings indicate that generally, the schools had poor infrastructure required for E-learning adoption.

4.5.1 Inferential Statistics on Infrastructure and E-learning Readiness

The availability and quality of ICT infrastructure were assessed. The mean score of 3.2 indicates a moderate level of infrastructure readiness. Key issues highlighted include inadequate internet access and insufficient digital devices. A Pearson correlation was conducted to measure the infrastructure readiness in the observed schools to support ICT education. The results are summarized in the table below:

Table 4.8: Bayesian Estimates of Coefficients on ICT Infrastructure

	Posterior			95% Credible Interval	
Parameter	**Mode**	**Mean**	**Variance**	**Lower Bound**	**Upper Bound**
Infrastructure = 1.0	1.375	1.375	.257	.380	2.370
Infrastructure = 1.2	2.938	2.938	.064	2.440	3.435
Infrastructure = 1.4	1.813	1.813	.129	1.109	2.516
Infrastructure = 1.6	2.841	2.841	.047	2.416	3.265
Infrastructure = 1.8	2.173	2.173	.040	1.783	2.564
Infrastructure = 2.0	2.417	2.417	.057	1.947	2.886
Infrastructure = 2.2	2.688	2.688	.064	2.190	3.185
Infrastructure = 2.4	2.955	2.955	.047	2.530	3.379
Infrastructure = 2.6	2.846	2.846	.040	2.456	3.237
Infrastructure = 2.8	2.982	2.982	.037	2.606	3.358
Infrastructure = 3.0	3.406	3.406	.064	2.909	3.904
Infrastructure = 3.2	3.083	3.083	.086	2.509	3.658
Infrastructure = 3.4	3.500	3.500	.043	3.094	3.906
Infrastructure = 3.6	3.594	3.594	.064	3.096	4.091
Infrastructure = 3.8	3.361	3.361	.057	2.892	3.830
Infrastructure = 4.0	3.500	3.500	.073	2.968	4.032
Infrastructure = 4.2	3.500	3.500	.257	2.505	4.495
Infrastructure = 4.4	3.438	3.438	.129	2.734	4.141
Infrastructure = 4.6	3.417	3.417	.171	2.604	4.229
Infrastructure = 5.0	5.000	5.000	.514	3.592	6.408

a. Dependent Variable: E-learning Readiness
b. Model: Infrastructure
c. Assume standard reference priors.

The posterior mean for E-Learning Readiness increases with higher levels of perceived infrastructure. For instance, at the lowest level of ICT infrastructure (1.0), the mean E-Learning Readiness is 1.375, whereas at the highest level (5.0), it is 5.000. The credible intervals suggest significant differences at varying levels of ICT infrastructure, indicating a positive relationship between infrastructure and E-Learning Readiness. For ICT infrastructure levels of 1.0 to 2.0, the credible intervals show a wider range, indicating more variability in E-Learning Readiness scores at lower infrastructure levels. At higher ICT infrastructure levels (e.g., 4.0 to 5.0), the credible intervals are narrower, suggesting more consistency and higher E-Learning Readiness scores.

The general trend indicates that as ICT infrastructure improves (i.e., moving from lower to higher levels), E-Learning Readiness scores increase. This supports the hypothesis that better ICT infrastructure positively influences E-Learning Readiness. Given these results, the analysis provides strong evidence to reject the null hypothesis in favor of the alternative hypothesis, supporting the notion that ICT infrastructure positively influences E-Learning Readiness in public primary schools of Nairobi County.

4.6 ICT Skills as a Determinant of E-learning Readiness

4.6.1 Descriptive Statistics on ICT Skills

Establishing the effect of ICT skills on E-learning readiness in public primary schools of Nairobi County was the second aim of the Study. The respondents were asked to give the extent to which they agreed or disagreed with various statements regarding the influence of ICT skills on E-learning readiness in their schools. The findings are presented in Table 4.6.

Table 4.9: ICT Skills as a Determinant of E-learning Readiness

Statement	N	Mean	SD
The teachers have undergone an adequate induction on ICT	153	2.72	1.148
The teachers have undergone adequate Training in ICT skills for E-learning.	153	2.70	1.091
The teachers were Trained on security/data privacy.	153	2.58	1.215
There is a good level of knowledge sharing by Teachers.	153	3.18	1.108
There is the availability of a training curriculum for training Teachers.	153	2.94	1.134

Based on the analysis, the respondents disagreed that the teachers have undergone an adequate induction on ICT (M=2.72, SD=1.148), The teachers have undergone adequate training on ICT skills for E-learning (M=2.70, SD=1.091), that the teachers were trained on security/data privacy (M=2.58, SD=1.215), and that there is the availability of a training curriculum for training teachers (M=2.94, SD=1.134). The respondents neither agreed nor disagreed that there is a good level of knowledge sharing by teachers. The findings indicate that there was a low level of ICT skills among the teachers in public primary schools in Nairobi County.

4.6.2 Inferential Statistics on ICT Skills and E-learning Readiness

A Pearson correlation was conducted to measure the ICT skills readiness in the observed schools to support ICT education.

Table 4.10: Bayesian Estimates of Coefficients on ICT Skills

	Posterior			95% Credible Interval	
Parameter	**Mode**	**Mean**	**Variance**	**Lower Bound**	**Upper Bound**
ICT Skills = 1.0	1.417	1.417	.190	.561	2.273
ICT Skills = 1.2	2.400	2.400	.114	1.737	3.063
ICT Skills = 1.4	2.688	2.688	.143	1.946	3.429
ICT Skills = 1.6	2.972	2.972	.063	2.478	3.466
ICT Skills = 1.8	2.050	2.050	.114	1.387	2.713
ICT Skills = 2.0	2.442	2.442	.044	2.031	2.854
ICT Skills = 2.2	2.775	2.775	.057	2.306	3.244
ICT Skills = 2.4	3.031	3.031	.071	2.507	3.555
ICT Skills = 2.6	2.969	2.969	.071	2.445	3.493
ICT Skills = 2.8	2.886	2.886	.052	2.439	3.333
ICT Skills = 3.0	3.089	3.089	.041	2.693	3.486
ICT Skills = 3.2	2.833	2.833	.048	2.405	3.261
ICT Skills = 3.4	3.250	3.250	.048	2.822	3.678
ICT Skills = 3.6	3.036	3.036	.082	2.475	3.596
ICT Skills = 3.8	3.313	3.313	.071	2.788	3.837
ICT Skills = 4.0	3.558	3.558	.044	3.146	3.969
ICT Skills = 4.2	4.083	4.083	.190	3.227	4.939

ICT Skills = 4.4	3.333	3.333	.190	2.477	4.189
ICT Skills = 4.6	3.000	3.000	.571	1.517	4.483
ICT Skills = 4.8	4.000	4.000	.143	3.259	4.741

a. Dependent Variable: E-learning Readiness
b. Model: ICT Skills
c. Assume standard reference priors.

The posterior mean for E-Learning Readiness increases with higher levels of perceived ICT skills. For instance, at the lowest level of ICT skills (1.0), the mean E-Learning Readiness is 1.417, whereas at the highest level (4.8), it is 4.000. The credible intervals suggest significant differences at varying levels of ICT skills, indicating a positive relationship between ICT skills and E-Learning Readiness. For ICT skills levels of 1.0 to 2.0, the credible intervals show a wider range, indicating more variability in E-Learning Readiness scores at lower ICT skills levels. At higher ICT skills levels (e.g., 4.0 to 4.8), the credible intervals are narrower, suggesting more consistency and higher E-Learning Readiness scores. The general trend indicates that as ICT skills improve (i.e., moving from lower to higher levels), E-Learning Readiness scores increase. This supports the hypothesis that better ICT skills positively influence E-Learning Readiness. Given these results, the analysis provides strong evidence to reject the null hypothesis in favor of the alternative hypothesis, supporting the notion that ICT skills positively influence E-Learning Readiness in public primary schools of Nairobi County.

The analysis confirms the hypothesis that ICT skills significantly and positively influence E-Learning Readiness. Technical competency and computer literacy among teachers and students are crucial for enhancing E-Learning Readiness. As the level of ICT skills improves, the readiness for E-Learning increases, highlighting the critical role of ICT skills in the successful implementation of E-Learning programs.

4.7 Teaching Content as a Determinant of E-learning Readiness

4.7.1 Descriptive Statistics on Teaching Content

The purpose of the analysis here was to examine whether teaching content was a determinant of E-learning readiness in public primary schools of Nairobi County. The findings are presented in Table 4.7.

Table 4.11: Teaching Content as a Determinant of E-learning Readiness

Statement	N	Mean	SD
The E-learning teaching content is effortlessly accessible.	153	2.83	1.042
The E-learning teaching content is easy to use.	153	3.00	1.047
The E-learning teaching content is relevant.	153	3.47	.991
The E-learning teaching content is interactive.	153	3.50	1.075
The content in the e-learning platform is up-to-date and matches the Curriculum.	153	3.26	1.127

The findings indicated that the respondents disagreed that the E-learning teaching content is effortlessly accessible (Mean=2.83, SD=2.83). The respondents neither agreed nor disagreed that the E-learning teaching content is easy to use (M=3.00, SD=1.047), that the E-learning teaching content is relevant (M=3.47, SD=.991), that the E-learning teaching content is interactive (M=3.50, SD=1.075), and that the content in the e-learning platform is up to date and matches the Curriculum (M=3.26, SD=1.127). The respondents held a neutral opinion about E-learning content as most of them have not encountered it and are therefore doubtful.

4.8.2 Inferential Statistics on Teaching Content

Table 4.12: Bayesian Estimates of Coefficients on Teaching Content

	Posterior			95% Credible Interval	
Parameter	Mode	Mean	Variance	Lower Bound	Upper Bound
Teaching Content = 1.0	1.250	1.250	.253	.263	2.237
Teaching Content = 1.2	1.000	1.000	.506	-.396	2.396
Teaching Content = 1.4	2.750	2.750	.253	1.763	3.737
Teaching Content = 1.8	2.333	2.333	.169	1.527	3.139
Teaching Content = 2.0	2.417	2.417	.084	1.847	2.987
Teaching Content = 2.2	2.833	2.833	.084	2.263	3.403
Teaching Content = 2.4	2.386	2.386	.046	1.965	2.807
Teaching Content = 2.6	2.444	2.444	.056	1.979	2.910
Teaching Content = 2.8	3.000	3.000	.084	2.430	3.570
Teaching Content = 3.0	2.655	2.655	.024	2.350	2.959
Teaching Content = 3.2	2.813	2.813	.063	2.319	3.306
Teaching Content = 3.4	3.047	3.047	.032	2.698	3.396

Teaching Content = 3.6	3.078	3.078	.032	2.729	3.427
Teaching Content = 3.8	3.400	3.400	.051	2.959	3.841
Teaching Content = 4.0	3.588	3.588	.030	3.250	3.927
Teaching Content = 4.2	3.417	3.417	.056	2.951	3.882
Teaching Content = 4.4	3.900	3.900	.101	3.276	4.524
Teaching Content = 4.6	4.000	4.000	.253	3.013	4.987
Teaching Content = 4.8	3.833	3.833	.169	3.027	4.639

a. Dependent Variable: E-Learning Readiness
b. Model: Teaching Content
c. Assume standard reference priors.

The posterior mean for E-Learning Readiness increases with higher levels of perceived Teaching Content quality. For instance, at the lowest level of Teaching Content (1.0), the mean E-Learning Readiness is 1.250, whereas at the highest level (4.8), it is 3.833. The credible intervals suggest significant differences at varying levels of Teaching Content quality, indicating a positive relationship between teaching content quality and E-Learning Readiness. For Teaching Content levels of 1.0 to 2.0, the credible intervals show a wider range, indicating more variability in E-Learning Readiness scores at lower teaching content quality levels. At higher Teaching Content quality levels (e.g., 3.8 to 4.8), the credible intervals are narrower, suggesting more consistency and higher E-Learning Readiness scores. The general trend indicates that as Teaching Content quality improves (i.e., moving from lower to higher levels), E-Learning Readiness scores increase. This supports the hypothesis that better Teaching Content quality positively influences E-Learning Readiness. Given these results, the analysis provides strong evidence to reject the null hypothesis in favor of the alternative hypothesis, supporting the notion that Teaching Content quality positively influences E-Learning Readiness in public primary schools of Nairobi County.

The analysis confirms the hypothesis that Teaching Content quality significantly and positively influences E-Learning Readiness. The accessibility, ease of use, and relevance of teaching content are critical factors that enhance E-Learning Readiness. As the quality of teaching content improves, the readiness for E-Learning increases, highlighting the importance of well-organized and adaptable educational materials.

Statement 20: The E-learning teaching content is easy to use. With a mean of 2.76, respondents lean towards a neutral to somewhat negative view on the ease of use of E-learning content. The standard deviation of 1.051 reflects moderate variability in the responses.

Statement 21: The E-learning teaching content is relevant. The mean score of 3.03 indicates a neutral stance on the relevance of the E-learning content, with a moderate standard deviation of 1.051 suggesting some variability among the respondents.

Statement 22: The E-learning teaching content is interactive. The mean score of 3.54 reveals a positive perception of the interactivity of the E-learning content. The standard deviation of .974 indicates less variability compared to other items, implying more consistent responses.

Statement 23: The content in the E-learning platform is up to date and matches the curriculum. With a mean of 3.57, respondents generally agree that the E-learning content is current and aligns with the curriculum. The standard deviation of 1.056 reflects moderate variability in perceptions

4.8 Administration Support as a Determinant of E-learning Readiness

4.8.1 Descriptive Statistics on Administration Support

Analysis was done to determine the effect of administration support on E-learning readiness in public primary schools of Nairobi County. The respondents were asked to rate various statements relating to the effect of administration support on E-learning readiness. The findings are presented in Table 4.8.

Table 4.13: Administration Support as a Determinant of E-learning Readiness

Statement	N	Mean	SD
Teachers receive adequate technical support on E-learning.	153	2.74	1.065
Teachers are encouraged by Administration to take up e-learning as a teaching delivery mode.	153	2.56	1.168
Teachers are provided with opportunities for capacity building in ICT.	153	2.31	1.179
The school has policies available that guide Staff on the use of ICT for teaching/learning.	153	2.09	1.161

From the analysis, the respondents disagreed that teachers receive adequate technical support on E-learning (M=2.74, SD=1.065), they disagreed that teachers are encouraged by Administration to take up e-learning as a teaching delivery mode (M=2.56, SD=1.168), teachers are provided with

opportunities for capacity building in ICT (M=2.31, SD=1.179), and that their schools have policies available that guide Staff on use of ICT for teaching/learning (M=2.09, SD=1.161).

4.8.2 Inferential Statistics on Administration Support and E-learning Readiness

A Pearson correlation was conducted to measure the administration support readiness in the observed schools to support ICT education. The results are summarized in the table below:

Table 4.14: Bayesian Estimates of Coefficients on Administration Support

Parameter	Posterior			95% Credible Interval	
	Mode	Mean	Variance	Lower Bound	Upper Bound
Administration Support = 1.00	2.167	2.167	.079	1.615	2.719
Administration Support = 1.25	1.583	1.583	.158	.803	2.364
Administration Support = 1.50	2.083	2.083	.158	1.303	2.864
Administration Support = 1.75	2.417	2.417	.079	1.865	2.969
Administration Support = 2.00	2.194	2.194	.053	1.744	2.645
Administration Support = 2.25	3.071	3.071	.068	2.560	3.583
Administration Support = 2.50	2.321	2.321	.068	1.810	2.833
Administration Support = 2.75	2.625	2.625	.040	2.235	3.015
Administration Support = 3.00	2.786	2.786	.034	2.424	3.147
Administration Support = 3.25	3.125	3.125	.040	2.735	3.515
Administration Support = 3.50	2.904	2.904	.037	2.529	3.279
Administration Support = 3.75	3.236	3.236	.026	2.917	3.555
Administration Support = 4.00	3.614	3.614	.022	3.325	3.902
Administration Support = 4.25	3.375	3.375	.079	2.823	3.927
Administration Support = 4.50	3.500	3.500	.059	3.022	3.978
Administration Support = 4.75	4.125	4.125	.237	3.169	5.081
Administration Support = 5.00	3.750	3.750	.095	3.145	4.355

a. Dependent Variable: E-learning Readiness

b. Model: Administration Support

The results indicate that as the level of Administration Support increases, the mean E-Learning Readiness also tends to increase. For example, at the lowest level of Administration Support (1.00),

the mean E-Learning Readiness is 2.167, while at the highest level (5.00), it is 3.750. The credible intervals at each level further suggest that these increases are statistically significant.

Hypothesis Testing: Null Hypothesis (H0): There is no significant effect of Administration Support on E-Learning Readiness. Alternative Hypothesis (H1): There is a significant effect of Administration Support on E-Learning Readiness.

Given the Bayesian analysis results, where the credible intervals do not significantly overlap at different levels of Administration Support, we find evidence to reject the null hypothesis in favor of the alternative hypothesis. This means that Administration Support does indeed have a significant positive effect on E-Learning Readiness.

The analysis supports the hypothesis that Administration Support positively influences E-Learning Readiness in public primary schools of Nairobi County. The role of administrative support is pivotal, involving resource allocation, policy development, training, technical support, and fostering a supportive environment, all of which contribute to higher levels of E-Learning Readiness. This finding emphasizes the importance of strong administrative backing in the successful implementation and sustainability of E-learning programs. Future research could further explore specific administrative actions and policies that most effectively enhance E-Learning Readiness.

4.9 Overall model for factors influencing E-learning Readiness in primary schools

Inferential analysis was done to determine the relationship between the independent variables and the dependent variables. In this study, the analysis was done to determine the effect of infrastructure, ICT skills, teaching content, and administration support on E-learning readiness in public primary schools of Nairobi County. The findings are presented in Table 4.10.

Table 4.15: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.823[a]	.677	.664	.45587

From the model summary table, R-value obtained was 0.823 which indicates that there was a strong positive relationship between the independent variables and the dependent variable. This indicates that there was a strong positive relationship between ICT infrastructure, ICT skills, ICT

content and administrative support and e-learning readiness in primary schools in Nairobi county. This implies that these factors are key determinants of e-learning readiness in schools. The R square value indicates that the four factors explain 67.7% variation in e-learning readiness in primary schools in Nairobi County.

Table 4.16: ANOVA table

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	43.516	4	10.879	52.348	.000[b]
	Residual	20.782	100	.208		
	Total	64.298	104			

From the ANOVA table, the value obtained (Sig=0.0001<0.05) indicates that the regression model was statistically significant and suitable for predicting the effect of the independent variables on the dependent variable.

Table 4.17: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.174	.195		.892	.375
	ICT Infrastructure	.306	.075	.337	4.062	.000
	ICT skills	.177	.069	.190	2.556	.012
	ICT content	.190	.092	.193	2.057	.042
	Administration Support	.232	.088	.242	2.623	.010

The Coefficients are guided by Technology Adoption Theory and Engholm (2002) Model, that to have a successful E-learning experience, organizational culture should be supportive of learning, followed by training and development observed and E-learning aligned well with the organization's goals.

From the coefficients table, ICT infrastructure is a significant determinant of E-learning readiness in public primary schools of Nairobi County. This was indicated by a p-value of 0.0001<0.05. This shows that there was a significant relationship between ICT infrastructure and E-learning adoption in schools. The coefficient of 0.306 shows that ICT infrastructure had a positive contribution to the adoption of E-learning in schools. The findings indicate that for schools to embrace E-learning, there is a need for learning management systems, communication applications, electronic devices

and internet accessibility. The lack of this infrastructure limits the ability of the schools to embrace E-learning.

Regarding ICT skills, the p-value obtained 0.012<0.05 indicates that there was a statistically significant relationship between ICT skills and e-learning readiness in primary schools in Nairobi County. The coefficient of 0.177 indicates that ICT skills had a positive effect on E-learning readiness in schools. The findings indicate that teachers must have ICT technical skills. This shows the need for ICT teachers to undergo training to acquire knowledge and skills and be ready and well-prepared for the adoption of E-learning in schools.

Regarding teaching content, the p-value obtained 0.042<0.05 indicates that there was a statistically significant relationship between ICT content and E-learning readiness in primary schools. This implies that ICT content is a key determinant of E-learning readiness in schools. The coefficient obtained of 0.190 indicates that ICT content had a positive effect on E-learning readiness in schools. The findings imply that the ICT content and the educational material should be well-organized and adaptable to facilitate and promote E-learning in schools.

Regarding administrative support, the value obtained was 0.10<0.05. This indicates that there was a statistically significant relationship between administration support and E-learning in primary schools in Nairobi County. The coefficient value obtained at 0.232 indicates that administration support contributes positively to E-learning readiness in public primary schools of Nairobi County. The findings imply that for the schools to adopt E-learning effectively, the school administration and the support from other stakeholders are crucial and necessary. This support includes provision for funding, guidance, oversight and removing barriers to the adoption of E-learning.

4.10 Chapter Summary of Findings

This chapter presented the deductions from the findings from the analysis in figures and tables. The Spearman's correlation analysis indicates that there was poor e-learning readiness in primary schools in Nairobi County assessing factors of ICT infrastructure, ICT skills, teaching content and administrative support.

The hypotheses tested in this study align with the theoretical underpinnings provided by the Technology Adoption Theory and Engholm's Readiness Model. These models emphasize the

importance of organizational culture, individual learner readiness, technology, content, and various contextual factors in assessing e-learning readiness.

Hypothesis 1: ICT Infrastructure Positively Influences E-learning Readiness.

ICT Infrastructure, encompassing internet connectivity, hardware, and software, is critical for e-learning readiness. The study's results show a significant positive correlation between infrastructure and E-learning readiness. Schools with adequate ICT infrastructure exhibited higher levels of E-learning readiness, confirming findings by Oketch (2014), Taurus (2015), and Okinda (2018). Specifically, Oketch (2014) highlighted that while lecturers were ready for E-learning, inadequate ICT infrastructure hindered its full utilization. Taurus (2015) emphasized similar challenges in Kenyan universities, suggesting that the same issues extend to primary schools.

Hypothesis 2: ICT Skills Positively Influence E-learning Readiness.

ICT skills among teachers and students are pivotal for E-learning adoption. The analysis reveals a strong positive relationship between ICT skills and E-learning readiness. Schools with higher levels of technical competency and computer literacy showed better preparedness for E-learning. This supports Ouma's (2018) findings, which underscore the need for continuous training to enhance ICT skills. Czarnecka (2017) also emphasizes that individual responsibility and flexibility in learning are crucial, which aligns with the study's observation that trained and skilled teachers and students are readier to embrace e-learning.

Hypothesis 3: Teaching Content Positively Influences E-learning Readiness.

The accessibility, ease of use, and relevance of teaching content are critical for e-learning readiness. The study found that well-organized and adaptable educational materials significantly enhance e-learning readiness. This aligns with the literature by Watkins (2014), who developed an instrument to measure perceived readiness for e-learning content, and Oketch (2014), who noted that while content readiness was important, it was less significant than cultural preparedness in determining e-learning readiness. Watted, Haick, & Barak (2015) further support this by emphasizing the role of engaging content in motivating learners.

Hypothesis 4: Administration Support Positively Influences E-learning Readiness.

Administrative support plays a crucial role in overcoming technical challenges and ensuring smooth E-learning implementation. The analysis shows a positive relationship between

administrative support and E-learning readiness. Schools with proactive and supportive administration demonstrated higher levels of e-learning readiness. Ghavifekr & Ibrahim (2015) and Jiří & Xiaojun (2017) highlight that administrative backing is essential for addressing technical issues and providing necessary resources, which is consistent with the study's findings.

The study's hypotheses and findings are rooted in the theoretical frameworks provided by the Technology Adoption Theory and Engholm's Readiness Model. The Technology Adoption Theories emphasizes on the importance of addressing cognitive, emotional and contextual interests of users while Engholm's model emphasizes the importance of organizational culture, individual learner readiness, technology, and content. They suggest that for a successful E-learning experience, users and organizations need a supportive culture and adequate technological resources. The Technology Adoption Theory and Engholm's Readiness Model underscore the multifaceted nature of E-learning readiness and the need to address various internal and external factors.

CHAPTER FIVE

DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This section delineates the discourse surrounding the discoveries, conclusions, and recommendations gleaned from the research. The initial segment offers a synopsis of the principal findings, while the subsequent segment delves into detailed discussions. Following this, the third segment encapsulates the overarching conclusions drawn from the study. Lastly, the final segment provides avenues for potential future research endeavors.

5.2 Summary of the findings

The primary aim of this research endeavor was to discern the factors underpinning E-learning readiness within public primary schools situated in Nairobi County, Kenya. More specifically, the study sought to ascertain the influence of ICT infrastructure, ICT proficiency, teaching content, and administrative support on the readiness for e-learning adoption within these educational institutions.

Upon comprehensive examination, the research revealed a prevalent deficiency in E-learning readiness across primary schools in Nairobi County. Respondents generally expressed dissent regarding the utilization of E-learning modalities for curriculum delivery and the active engagement of learners with E-learning platforms to grasp syllabus content. This deficiency was further underscored by a notable absence of requisite e-learning platforms or systems within these schools. The inadequacy in E-learning readiness was notably linked to a dearth of ICT infrastructure within these educational settings.

Statistical analyses, particularly correlation coefficients, underscored the significant impact of ICT infrastructure on E-learning readiness within primary schools across Nairobi County. The schools grappled with insufficiencies in essential equipment such as computer systems, internet connectivity, and E-learning management systems, thereby impeding the facilitation of effective E-learning initiatives. Also, most schools lacked rooms and labs to store the computer equipment and experienced power shortages.

Poor E-learning readiness was also partly attributed to lack of ICT skills among the teachers. From the correlation coefficient, ICT skills had statistically significant effect on e-learning readiness in primary schools in Nairobi County. In the majority of the schools, the teachers reported that they have not underwent adequate introduction to ICT, they lack sufficient training on ICT skills for e-learning and they lacked training on data security and privacy. Also, most schools lacked a good level of knowledge sharing by teachers and a training curriculum for training teachers.

5.3 Discussions of findings

5.3.1 ICT Infrastructure as a Determinant of E-learning Readiness

The purpose of the study was to assess E-learning readiness in public primary schools of Nairobi County. From the analysis, the findings indicated that there is low adoption of E-learning in public primary schools. This was attributed to various factors including ICT infrastructure, ICT skills, teaching content, and administrative support. Regarding ICT infrastructure, the schools lacked adequate computers and other hardware, reliable internet connectivity, computer labs, learning management systems, and power shortages. The lack of infrastructure is a result of a lack of funds and the high cost of computer systems and related accessories.

The results align with those of Mulwa, Kalui, and Nyambeki (2014), who discerned that the presence of infrastructure constituted a pivotal factor influencing the readiness for E-learning within public secondary schools in the Makadara district of Nairobi. The majority of the schools had a low investment in e-learning as a result of the high cost associated with computer hardware, computer software, and other related accessories. Other challenges included the high cost of bandwidth and connectivity, the lack of electricity in most schools, and the lack of sufficient building space. Similar findings were obtained by Gachukia (2016), who conducted a study in Kalawa Primary School and identified that a lack of sufficient ICT infrastructure contributed to the low adoption of e-learning in the schools.

5.3.2 ICT Skills e as a Determinant of E-learning Readiness

E-learning readiness in primary schools was also influenced by ICT skills. The study identified that teachers lack the necessary skills for E-learning which has been a hindrance to e-learning adoption among schools. The teachers have not undergone sufficient induction on ICT, they lacked ICT training, lacked knowledge on data privacy and security, and there was no training curriculum

for training teachers. Generally, the teachers were not fully familiar with e-learning systems and content to promote a smooth transition to E-learning.

The findings align with Nyaga's (2018) examination of the readiness of public primary school educators to implement the Digital Literacy Programme within Imenti North Sub-County. Nyaga identified a deficiency in digital learning adoption stemming from inadequate skills among other factors. Specifically, teachers lacked essential training in digital literacy and fundamental computer competencies. This deficiency impeded the efficient implementation of the Digital Literacy Programme across schools. Similarly, Kiilu, Nyerere, and Ogeta (2018) conducted a study on teacher-trainee competency and institutional readiness for e-learning adoption in selected teacher-training colleges in Kenya. Their findings echoed a lack of proficiency among educators in various technological aspects, including operating computers and word processors, utilizing search engines, managing learning content, and engaging in collaborative learning via emails. Moreover, deficiencies were noted in the use of interactive whiteboards and conducting internet-based information searches.

5.3.3 Teaching Content as a Determinant of E-learning Readiness

E-learning readiness in primary schools also depended on the ICT content. The study identified that e-learning content is crucial in e-learning adoption in schools. However, there was not readily available, accessible and relevant E-learning teaching content and in cases where the content was available, the content was not easy to use. Also, in a case where the content was available, it was not interactive and the content could not be considered to be up to date. These factors hindered e-learning readiness in the schools.

The findings corroborate those of Hussein, Abayo, and Mugambi (2019), whose examination of the determinants of digital learning implementation in public primary schools within Nairobi County concluded that the presence of digital content significantly influences the adoption and execution of digital learning strategies within educational institutions. The research underscored a deficiency in comprehensive, pertinent, and readily accessible digital resources covering the curriculum, thereby impeding students' engagement in E-learning activities. Similarly, Ngugi (2015), in a study encompassing selected schools in Nairobi County, identified digital content as a pivotal factor influencing the adoption and execution of E-learning initiatives. The investigation

revealed a prevalent absence of a responsive curriculum for computer studies alongside a dearth of locally relevant digital course materials across most educational institutions surveyed.

5.3.4 Administrative Support as a Determinant of E-learning Readiness

E-learning readiness was also dependent on the administration's support. The study identified that poor E-learning learning was partly attributed to poor administrative support. The school administration did not offer adequate technical support on e-learning, the school administration did not encourage teachers to take up E-learning as a delivery technique, and the administration did not offer the teachers capacity-building opportunities. Also, there were no policies to guide the staff on how to adopt and use ICT in teaching and learning. These factors contributed to poor e-learning readiness in schools.

The findings are in line with the results of a study conducted by Ghavifekr & Ibrahim (2015) among Malaysian secondary schools in which a lack of school management support emerged as a key hindrance to E-learning. In most schools, the school administration did not provide support on technical challenges faced by the teachers. This led to frustration for the teachers and students and interrupted the teaching and learning process. Similar findings were obtained by Kamau, Mbogo and Chege (2017) who identified that the adoption and implementation of E-learning in most Kenyan schools was hindered by a lack of administration support among other factors.

5.3 Conclusions

Based on the findings gleaned from the research, the following recommendations are articulated. The investigation concludes that the readiness for E-learning among primary schools within Nairobi County, Kenya remains notably deficient. This inadequacy can be ascribed to a myriad of factors. Primarily, it is evident that the schools lack the requisite infrastructure essential for facilitating E-learning effectively. This deficiency encompasses insufficient equipment and laboratories, unreliable internet connectivity, absence of robust E-learning management systems, and in certain instances, an unreliable power supply.

Low E-learning readiness was also attributable to poor skills among the teachers. The study concludes that in most schools, the teachers have not undergone an adequate induction on ICT, they have not adequate training on ICT skills needed for e-learning, the teachers lacked training on data security and privacy, and there was no training curriculum for teachers. This lack of skills contributed to poor e-learning among the schools. Poor e-learning among the primary schools was

also attributed to e-learning content. The schools lacked easily accessible eLearning content, the e-learning was not easy to use, the e-learning content was not relevant and interactive, and the e-learning content available was not up to date and did not match the curriculum.

Additionally, the study concludes that poor E-learning readiness was attributed to lack of administrative support. The study concludes that in the schools with no e-learning, the teachers reported that they did not get adequate e-learning support, the school administration did not encourage the teachers to adopt e-learning, and the school administration did not offer the teachers enough opportunities for capacity building in ICT, and the schools lacked policies to guide the teachers and staff on the use of ICT for teaching and learning.

5.4 Recommendations

The study makes the following recommendations based on the research findings:

The study identified that in most schools, there was inadequate ICT infrastructure to support E-learning. The government is therefore recommended to ensure there is sustainable availability and access to E-learning equipment. For instance, the government should ensure that the schools are provided with computers systems, reliable internet connectivity, reliable electricity, proper classrooms and ICT labs, storage facilities among others. The government should reduce taxes on ICT equipment for education to make them affordable.

The study identified that E-learning was hindered by lack of ICT skills among the teachers. In this regard, the government is recommended to embark on suitable training of teachers on E-learning. The government is recommended to widen the training curriculum from basic computer skills and incorporate competencies in eLearning devise operations, peer review and content creation.

The study identified that the primary schools in Nairobi lacked relevant and accessible e-learning content. In most of the schools, there was no official ICT curriculum, which presents a serious constraint to the government's plan to promote e-learning. In this regard, the government is recommended urgently prioritize the development of e-learning content. Furthermore, Kenya Institute of Curriculum Development (KICD) should offer good guidelines to content developers on digital content development.

The study concluded that low E-learning readiness in primary schools was partly attributed to lack of administrative support. In this regard, the administration in the schools are recommended to

offer teachers adequate technical support and to encourage them to adopt E-learning as a method of teaching. Additionally, the school administration is recommended to offer teachers capacity building in ICT and to ensure there are policies that offer teachers guidance on how to use ICT for teaching and learning.

5.5 Study Limitations

The researcher experienced some limitations during the study. One of the limitations was that a significant number of teachers were not ready to provide information relating to a Government initiative due to the sensitive of the information. To mitigate this issue, the researcher sought the necessary consent from the administration and Head Teachers on the Digital Literacy Program. Another limitation was the process of distributing questionnaires where the respondents were often in class during the day time and therefore lacked the opportunity to fill the questionnaires on time. This meant that the researcher had to allow responses to be received out of work hours for the Staff.

5.6 Suggestions for Further Research

The study identifies avenues for further investigation. It was delimited to primary schools within Nairobi County. Consequently, there exists a necessity for analogous inquiries to be conducted in alternative countries to facilitate comparative analyses and deepen comprehension regarding the determinants impacting e-learning preparedness. Moreover, there is a call for akin investigations to be executed in secondary educational institutions to ascertain the degree of E-learning adoption and the variables influencing its implementation therein. Given the study's exclusive focus on public primary schools, it is imperative to undertake a juxtaposing study to discern the factors influencing E-learning readiness across both public and private primary educational settings.

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APPENDICES

APPENDIX 1: LETTER TO REPSONDENTS

Dear Participant,

RE: Invitation to Participate in Research Survey on Factors Influencing E-learning Readiness in Public Primary Schools of Nairobi County.

My name is Edna Karijo and I am a student in the Master of Public Policy and Management Program at Strathmore University, School of Business. As part of my course requirements, I am required to undertake a research study that will foster best practices and policy in my area of study. I'm conducting a study on **'Factors Influencing E-learning Readiness in Public Primary Schools of Nairobi County**.

As part of Public Primary Schools in Nairobi County, your school has been identified to participate in the study and because of the value of information that you may have that will be beneficial to this research. Your assistance and input in the collection of research data will be highly appreciated. Kindly take a few minutes and fill the questionnaire that will take approximately fifteen minutes.

The questionnaire consists of six sections and is purposely made for gathering information for academic research only. Your answers will be appreciated as well as treated with the confidentiality it deserves.

Thank you for your time and support. If you have any questions please contact:

Edna Karijo – edna.karijo@strathmore.edu.

APPENDIX 2: LETTER OF INTRODUCTION

Ole Sangale Rd, Madaraka Estate,
P.O Box 59857 00200, Nairobi, Kenya.
Cell: +254 703 414/6/7, Twitter: @SBSKenya
Email: info@sbs.ac.ke or visit www.sbs.strathmore.edu

Strathmore UNIVERSITY BUSINESS SCHOOL

Monday, 25 July 2022

To Whom It May Concern,

RE: FACILITATION OF RESEARCH – EDNA KARIJO

This is to introduce Edna Karijo who is a **Master's in Public Policy and Management** (MPPM) student at Strathmore University Business School, admission number MPPM 112420. As part of our MPPM Program, Edna is expected to do applied research and undertake a project. This is in partial fulfilment of the requirements of the MPPM course. To this effect, she would like to request for appropriate data from your organization.

Edna is undertaking a research paper on **Factors Influencing E-learning Readiness in Public Primary Schools of Nairobi County during Covid-19."** The information obtained from your organization shall be treated confidentially and shall be used for academic purposes only.

Our MPPM Program seeks to establish links with industry, and one of these ways is by directing our research to areas that would be of direct use to industry. We would be glad to share our findings with you after the research, and we trust that you will find them of great interest and of practical value to your organization.

We appreciate your support and shall be willing to provide any further information if required.

Yours Faithfully,

Caroline Tiara.
Manager – Graduate Programs.
Strathmore University Business School

APPENDIX 3: ETHICAL CLEARANCE

Strathmore UNIVERSITY

24th April 2024

Ms Karijo Edna,
edna.karijo@strathmore.edu

Dear Ms Karijo,

RE: Factors Influencing E-Learning Readiness in Public Primary Schools of Nairobi County

This is to inform you that SU-ISERC has reviewed and **approved** your above **SU-masters** research proposal. Your application reference number is **SU-ISERC2076/24.** The approval period is from **24th April 2024 to 23rd April 2025.**
This approval is subject to compliance with the following requirements:

i. Only approved documents including (informed consents, study instruments, MTA) will be used.
ii. All changes including (amendments, deviations, and violations) are submitted for review and approval by SU-ISERC.
iii. Death and life-threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to SU-ISERC within 72 hours of notification.
iv. Any changes anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to SU-ISERC within 72 hours.
v. Clearance for the export of biological specimens must be obtained from relevant institutions.
vi. Submission of a request for renewal of approval at least 60 days prior to the expiry of the approval period. Attach a comprehensive progress report to support the renewal.
vii. Submission of an executive summary report within 90 days of completion of the study to SU-ISERC.

Before commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology, and Innovation (NACOSTI) https://research-portal.nacosti.go.ke/ and obtain other clearances needed.

Yours sincerely,

Mr Ambrose Rachier,
Chairperson; SU-ISERC

STRATHMORE UNIVERSITY INSTITUTIONAL SCIENTIFIC AND ETHICS REVIEW COMMITTEE
(SU-ISERC)
24-Apr-2024
Email:ethicsreview@strathmore.edu
P.O BOX 59857-00200
NAIROBI-KENYA

APPENDIX 4: RESEARCH LICENSE

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **839965**

Date of Issue: **14/May/2024**

RESEARCH LICENSE

This is to Certify that Ms.. Edna Karijo of Strathmore University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Nairobi on the topic: FACTORS INFLUENCING E-LEARNING READINESS IN PUBLIC PRIMARY SCHOOLS OF NAIROBI COUNTY for the period ending : 14/May/2025.

License No: **NACOSTI/P/24/35365**

839965

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.

See overleaf for conditions

APPENDIX 5: QUESTIONNAIRE TO THE HEAD TEACHERS AND CLASSROOM TEACHERS

Instructions: There are 6 sections in this questionnaire. Please take your time and read it carefully. Please indicate with a tick (√) or across (×) in the box next to the answer of your choice.

SECTION 1: DEMOGRAPHIC INFORMATION

1. Gender:

Female [ ] Male [ ]

2. Age:

Below 21 [ ] 21-30 [ ] 31- 40 [ ] 41-50 [ ] Above 50 [ ]

3. Highest level of Education:

Diploma [ ] Bachelor degree [ ] Post-graduate [ ]

4. Designation/Role in Institution: .....

5. Experience in the above position (number of years post-graduation):

1-5 years [ ] 6-10 years [ ] 11-15 years [ ] 16 years and above [ ]

6. How many teachers overall does the school have?

0-14 [ ] 15-29 [ ] 30-49[ ] 50 and above[ ]

7. How many of them are ICT teachers?

1-4 [ ] 5-9 [ ] 10-14 [ ] 15 and above [ ]

8. Have you had any training in ICT? Yes [ ] No [ ]

FACTORS INFLUENCING E-LEARNING READINESS IN PUBLIC PRIMARY SCHOOLS OF NAIROBI COUNTY.

E-learning Readiness is the measure of the degree to which a country, nation, economy or organization may be ready, willing or prepared to obtain the benefits which arise from ICTs.
Please indicate in the table with a tick (√) or across (×) in the box next to the answer of your choice. Kindly answer the following questions based on your agreement with the organization's e-learning readiness.

SECTION 2: ICT INFRASTRUCTURE

The following table shows statements related to the ICT infrastructure factors that influence E-Learning readiness. Please indicate to what extent these statements influence E-Learning readiness.

ICT Infrastructure statements		**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
9.	The school has adequate computers for the students.	□	□	□	□	□
10.	The school has strong reliable internet connection.	□	□	□	□	□
11.	The school has available rooms/labs to store the computer equipment.					
12.	There is a reliable learning management system for E-learning.	□	□	□	□	□
13.	The school experiences power shortages.	□	□	□	□	□

SECTION 3: ICT SKILLS

The following table shows statements related to the ICT skills factors that influence E-Learning readiness. Please indicate to what extent these statements influence E-Learning readiness.

ICT skills statements		**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
14.	The teachers have undergone an adequate induction on ICT.	□	□	□	□	□
15.	The teachers have undergone adequate Training on ICT skills for E-learning.	□	□	□	□	□
16.	The teachers were Trained on security/data privacy.	□	□	□	□	□
17.	There is a good level of knowledge sharing by Teachers.	□	□	□	□	□
18.	There is availability of a training curriculum for training teachers.	□	□	□	□	□

SECTION 4: TEACHING CONTENT

The following table shows statements related to the teaching content factors that influence E-Learning readiness. Please indicate to what extent these statements influence E-Learning readiness.

Teaching content statements		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
19.	The E-learning teaching content is effortlessly accessible.	☐	☐	☐	☐	☐
20.	The E-learning teaching content is easy to use.	☐	☐	☐	☐	☐
21.	The E-learning teaching content is relevant.	☐	☐	☐	☐	☐
22.	The E-learning teaching content is interactive.	☐	☐	☐	☐	☐
23.	The content in the E-learning platform is up to date with the Curriculum.	☐	☐	☐	☐	☐

SECTION 5: ADMINISTRATION SUPPORT

The following table shows statements related to the administration support factors that influence E-Learning readiness. Please indicate to what extent these statements influence E-Learning readiness.

Administration support statements		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
24.	Teachers receive adequate technical support on E-learning.	☐	☐	☐	☐	☐
25.	Teachers are encouraged by Administration to take up E-learning as a teaching delivery mode.	☐	☐	☐	☐	☐
26.	Teachers are provided with opportunities for capacity building in ICT.	☐	☐	☐	☐	☐
27.	There school has policies available that guide Staff on use of ICT for teaching/learning.	☐	☐	☐	☐	☐

SECTION 6: E-LEARNING READINESS IN PUBLIC PRIMARY SCHOOLS

The following table shows statements related to E-Learning readiness. Please indicate to what extent these statements influence E-Learning readiness.

		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
28.	Schools in Nairobi County are using E-learning platforms/systems.	☐	☐	☐	☐	☐
29.	Teachers in Nairobi County are using E-learning curriculum delivery.	☐	☐	☐	☐	☐
30.	Students are using E-learning to learn the syllabus.	☐	☐	☐	☐	☐
31.	There is a high level of acceptance of E-learning by teachers and students in Nairobi County.	☐	☐	☐	☐	☐

----------*Thank You*----------

APPENDIX 6: LIST OF ALL PUBLIC PRIMARY SCHOOLS IN NAIROBI COUNTY

S/NO	NAME OF SCHOOL	ZONE	LOCATION
1	MBAGATHI ROAD PRIMARY	RIRUTA	KEMRI ROAD OFF MBAGATHI RD
2	NEMBU PRIMARY	RIRUTA	MUTHAMA - KIKUYU RD
3	KAWANGWARE PRIMARY	RIRUTA	KAWANGWARE NEAR CHIEFS OFFICE
4	TOI PRIMARY	RIRUTA	JOSEPH KANGETHE RD. NEAR WINNERS CHAPEL
5	RIRUTA HGM PRIMARY	RIRUTA	NAIVASHA RD. AFTER PRECIOUS BLOOD RIRUTA
6	DAGORETTI MUSLIM PRIMARY	RIRUTA	DAGORETTI MUSLIM - MUTHIORA ROAD.
7	KINYANJUI ROAD PRIMARY	RIRUTA	RIRUTA SATELLITE - KINYANJUI ROAD
8	JOSEPH KANGETHE PRIMARY	RIRUTA	WOODLEY - BEFORE JOSEPH KANGETHE RD.
9	JAMHURI PRIMARY	RIRUTA	NGONG ROAD. NEXT TO UNIVERSITY OF NAIROBI KENYA SCIENCE CAMPUS
10	GATINA PRIMARY	RIRUTA	KAWANGWARE GATINA
11	MUTUINI PRIMARY	WAITHAKA	DAGORETTI MARKET ALONG MUCHUGIA RD
12	MUKARARA	WAITHAKA	WAITHAKA NEAR MUKARARA PCEA CHURCH
13	DAGORETTI GIRLS REHABILITATION	WAITHAKA	ON BOUNDARY OF KIAMBU WEST & DAGORETTI DISTRICT AFTER MUHURI ROAD FORMER ROUTE 87
14	DAGORETTI SPECIAL SCHOOL	WAITHAKA	DAGORETTI CHILDREN CENTRE INSIDE THE FEED THE CHILDREN DAGORETTI MARKET
15	KAGIRA PRIMARY	WAITHAKA	WAITHAKA AFTER RUTHIMITU PRIMARY SCHOOL
16	KIRIGU PRIMARY	WAITHAKA	DAGORETI - MUTUINI
17	RUTHIMITU PRIMARY	WAITHAKA	RUTHIMITU
18	WAITHAKA SPECIAL SCHOOL	WAITHAKA	MUTUINI - NEAR KIRIGU PRIMARY
19	DR. MUTHIORA PRIMARY	WAITHAKA	MUTUINI
20	GITIBA PRIMARY	WAITHAKA	DAGORETTI MARKET BEFORE ST. JOSEPH CTHOLIC CHURCH
21	RIRUTA SATELLITE PRIMARY	RIRUTA	RIRUTA SATELLITE
22	KABIRIA PRIMARY SCHOOL	RIRUTA	OFF KABIRIA ROAD, WAITHAKA LOCATION
23	SHADRACK KIMALEL PRIMARY SCHOOL	RIRUTA	KENYATTA GOLF COURSE NGUMMO LAINI SABA
24	NDURARUA PRIMARY	RIRUTA	RIRUTA, NDURARUA GROUNDS ON KINYANJUI ROAD
25	UPPER HILL DAY NURSERY	RIRUTA	UPPER HILL AREA ALONG ELGON ROAD
26	UMOJA PRIMARY	DANDORA	UMOJA ESTATE PHASE I ALONG MOI DRIVE ROAD
27	RONALD NGALA PRIMARY	DANDORA	DANDORA PHASE IV/V
28	USHIRIKA PRIMARY	DANDORA	DANDORA PHASE V - NEXT TO RONALD NGALA PRIMARY
29	KARIOBANGI SOUTH PRIMARY	DANDORA	KARIOBANGI SOUTH ALONG MUTARAKWA ROAD
30	TOM MBOYA PRIMARY	DANDORA	DANDORA
31	GITUAMBA PRIMARY	DANDORA	RUAI SEWAGE
32	PETER KIBUKOSYA PRIMARY	DANDORA	UMOJA II ESTATE - SITE STAGE
33	ATHI PRIMARY	DANDORA	5KM FROM MAIN KANGUNDO RD. IN NGUNDU/ATHI ZONE
34	RUAI PRIMARY	DANDORA	ALONG KANGUNDO RD. AT RUAI SHOPPING CENTRE
35	JEHOVAH JIREH PRIMARY	DANDORA	MAILI SABA
36	NGUNDU PRIMARY	DANDORA	KAMULU - NGUNDU ALONG KANGUNDO RD.
37	UNITY PRIMARY	KAYOLE	UMOJA INNERCORE
38	UTAWALA ACADEMY	KAYOLE	WITHIN ADMINISTRATION POLICE TRAINING COLLEGE - EMBAKASI
39	KAYOLE I PRIMARY	KAYOLE	KAYOLE OFF KANGUNDO ROAD
40	TUMAINI PRIMARY	KAYOLE	UMOJA II OFF MOI DRIVE
41	OUR LADY OF NAZARETH PRIMARY	KAYOLE	MUKURU KWA NJENGA
42	MAUA PRIMARY	KAYOLE	KANGUNDO ROAD - NJIRU COKAA BURUBURU FARM
43	VISIONS PRIMARY (MIHANG'O)	KAYOLE	MIHANG'O LOCATION
44	EMBAKASI GARRISON PRIMARY	KAYOLE	EMBAKASI GARRISON BARRACKS COMPUND ALONG TO UTAWALA
45	MWANGAZA PRIMARY	KAYOLE	KAYOLE
46	EMBAKASI PRIMARY	KAYOLE	EMBAKASI VILLAGE
47	THAWABU PRIMARY	KAYOLE	KAYOLE
48	BONDENI PRIMARY	KAYOLE	KAYOLE SOUTH NEXT TO KAYOLE CATHOLIC CHURCH

			- (DIVEN WORD PARISH)
49	KOMAROCK PRIMARY	KAYOLE	KOMAROCK ESTATE OOF SPINE ROAD
50	KIFARU PRIMARY	KAYOLE	UMOJA II - MOI DRIVE
51	EDELVALE PRIMARY	KAYOLE	DOONHOLM PHASE V AT JACARANDA ESTATE ROUND ABOUT - TAKE THE EARTH ROAD
52	IMARA PRIMARY	KAYOLE	KAYOLE SOWETO RD. OPP. KAYOLE CHIEF'S OFFICE - MUGENDI STAGE
53	DOONHOLM PRIMARY	KAYOLE	DOONHOLM ESTATE NXT. TO RIKINA SUPERMARKETS
54	BUSARA PRIMARY	DANDORA	UMOJA ESTATE - MOI DRIVE ROAD
55	A.E.F. REUBEN PRIMARY	KAYOLE	OFF INTERPRISE AFTER HILL-LOCKS HOTEL IN REUBEN SLUMS
56	KWA NJENGA PRIMARY	KAYOLE	KWA NJENGA WARD OFF AIRPORT ROAD AT A.A. OF KENYA HEADQUARTERS
57	DANDORA PRIMARY SCHOOL	DANDORA	DANDORA PHASE ONE, ALONG KOMAROCK RD. OPP. SENIORS SCH, ADJACENT TO TOTAL PETROL STATION
58	SIMBA DAY NURSERY	KAYOLE	UMOJA
59	MUGUMO DAY NURSERY	KAYOLE	NEAR PETER KIBUKOSYA PRIMARY SCHOOL
60	MWANGAZA DAY NURSERY	KAYOLE	NEAR PETER KIBUKOSYA PRIMARY SCHOOL
61	UNITY DAY NURSERY	KAYOLE	UMOJA INNERCORE
62	UMOJA I DAY NURSERY	DANDORA	IN UMOJA NEXT TO DIVISON OFFICE UMOJA I ESATE
63	ST. DOMINIC'S PRIMARY SCHOOL	DANDORA	MWIKI
64	KAYOLE NORTH PRIMARY	DANDORA	KAYOLE NORTH (MATOPENI) AREA NEAR KAYOLE POLICE STATION
65	KANGUNDO ROAD PRY	DANDORA	OPPOSITE MAMA LUCY KIBAKI HOSPITAL
66	JAMES GICHURU PRIMARY	DANDORA	DANDORA PHASE II
67	WANGU PRIMARY	DANDORA	DANDORA PHASE II OPPOSITE CO-OPERATIVE BANK ON MUIGAI KENYATTA ROAD
68	DRUMVALE PRIMARY	DANDORA	KAMULU OFF KANGUNDO ROAD, SIR HENRY'S DRIVE - PEARL STREET(Drumvale)
69	NJIRU PRIMARY	DANDORA	ON YOUR WAY TO MWIKI BETWEEN NJIRU CHIEF'S CAMP / D.Os OFFICE AND QUARRY
70	EASTLEIGH AIRPORT PRIMARY	EASTLEIGH	2ND AVENUE OFF 3RD ST. NEXT TO MAINA WANJIGI SECONDARY
71	MUTHURWA PRIMARY	BAHATI	ALONG SAKWA RD. NEXT TO KMC
72	UHURU ESTATE PRIMARY	BAHATI	UHURU ESTATE ON UHURU RD. NEXT TO UHURU SECONDARY
73	HESHIMA ROAD PRIMARY	BAHATI	AMBIRA ROAD - MAKONGENI
74	OUR LADY OF MERCY GIRLS - SHAURI MO	BAHATI	AMBIRA RD. OFF JOGOO ROAD
75	BAHATI UHURU PRIMARY	BAHATI	HESHIMA AVENUE ZEMBAKASI CRESENT, ZEMBAKASI LANE
76	KIMATHI PRIMARY	BAHATI	KIMATHI ESTATE
77	MORRISON PRIMARY	BAHATI	BAHATI
78	DR. LIVINGSTONE PRIMARY	BAHATI	JERUSALEM ESTATE
79	NAIROBI RIVER PRIMARY	BAHATI	OUTERING RD. ESTATE OFF MUMIA SOUTH RD.
80	NEW EASTLEIGH PRIMARY	EASTLEIGH	EASTLEIGH NORTH
81	ZAWADI PRIMARY	EASTLEIGH	EASTLEIGH SECTION 3 NEAR EASTMAT No. 4 BUS STAGE
82	MOI AIR BASE PRIMARY	EASTLEIGH	KENYA AIR FORCE EASTLEIGH - NAIROBI
83	MOI FORCES ACADEMY	EASTLEIGH	NEXT TO MOI AIR BASE - JUJA ROAD
84	ST. TERESA'S BOYS PRIMARY SCHOOL	EASTLEIGH	EASTLEIGH SECTION I WITHIN THE CATHOLIC CHURCH NEAR MLANGO KUBWA
85	BAHATI DAY NURSERY	BAHATI	AT BAHATI SHOPPING CENTRE NEXT TO UHURU BAHATI PRIMARY SCHOOL
86	NEW PUMWANNI PRIMARY	EASTLEIGH	FROM RING ROAD NGARA CONNECT TO KINYANJUI ROAD - SCHOOL IS BEFORE THE KARIOKOR WWII COMMONWEALTH CEMETARY
87	BURUBURU I PRIMARY	BAHATI	BURUBURU PHASE I OFF MUMIAS ROAD NEXT TO ORANGE HOUSE
88	ROYSAMBU PRIMARY	KAHAWA	ZIMMERMAN
89	KAHAWA PRIMARY	KAHAWA	KAHAWA WEST NEXT TO FARMERS CHOICE FACTORY
90	KAMITI PRIMARY	KAHAWA	INSIDE KAMITI PRISONS

91	KAWAHA GARRISON PRIMARY	KAHAWA	KAHAWA BARRACKS ALONG THIKA RD.
92	GITHURAI PRIMARY	KAHAWA	GITHURAI 45 ROUND ABOUT NEXT TO CCN STONE MARKET
93	GARDEN ESTATE PRIMARY	KAHAWA	OFF THIKA RD. ON YOUR WAY TO WIDSOR
94	KENYATTA UNIVERSITY PRIMARY	KAHAWA	INSIDE KENYATTA UNIVERSITY GROUNDS
95	MAHIGA PRIMARY	KAHAWA	OPP. KAMITI PRISON BOUNDARY ON ENTRY TO KAHAWA WEST SHOPPING CENTRE
96	KIWANJA PRIMARY	KAHAWA	NEXT TO KENYATTA UNIVERSITY NYAYO HOSTELS ON KIWANJA RD. OFF KAHAWA RD. AFTER FARMAERS CHOICE
97	MARARUI PRIMARY	KAHAWA	AT MARARUI VILLAGE NEXT TO THOME ESTATE OFF THIKA ROAD
98	NJATHAINI PRIMARY	KAHAWA	NGOMONGO OPP. POLICE STATION OFF KAMITI ROAD
99	NGUNYUMU PRIMARY	RUARAKA	KOROGOCHO SLUMS-NGOMONGO
100	MATHARE 4A PRIMARY	RUARAKA	MATHARE 4A VILLAGE
101	THIKA ROAD PRIMARY	RUARAKA	BETWEEN N.Y.S. & KENYA COLLEGE OFF THIKA RD.
102	G.S.U. PRIMARY	RUARAKA	G.S.U. HEAD QUARTERS RUARAKA CAMP THIKA RD.
103	DANIEL COMBONI PRIMARY	RUARAKA	KOROGOCHO
104	MUTHAIGA PRIMARY	RUARAKA	THIKA ROAD OPP. MATHARI HOSPITAL
105	MARURA PRIMARY	RUARAKA	KARIOBANGI NORTH NEAR THE KARIOBANGI MARKET
106	M.M. CHANDARIA PRIMARY	RUARAKA	BABA DOGO
107	KASARANI PRIMARY	KAHAWA	KASARANI MWIKI RD. OPP. WARREN ENTERPRISES LTD.
108	KARIOBANGI NORTH PRIMARY	RUARAKA	KARIOBANGI NORTH NEAR CITY COUNCIL MARKET
109	MUREMA PRIMARY	KAHAWA	KASARANI - HUNTERS
110	MATHARE NORTH PRIMARY SCHOOL	RUARAKA	MATHARE NORTH AREA II
111	BABA DOGO PRIMARY SCHOOL	RUARAKA	ALONG BABA DOGO ROAD, NEXT TO M.M. CHANDARIA PRY, OPPOSITE PREMEIR FOOD INDUSTRIES
112	DRIVE-IN PRIMARY SCHOOL	RUARAKA	MATHARE NORTH NEAR RUARAKA HIGH SCHOOL
113	TREESIDE SPECIAL SCHOOL	KAHAWA	MWIKI ON YOUR WAY TO STADIA HOTEL
114	KAREN 'C' PRIMARY	KAREN	ALONG LANGATA RD.
115	NGONG FOREST PRIMARY	KAREN	NGONG ROAD WITHIN NGONG FOREST OPP. LENANA SCHOOL
116	ST. MARY'S KAREN PRIMARY	KAREN	KAREN SHOPPING CENTRE ALONG LANGATA RD.
117	AYANY PRIMARY	KAREN	SARANG'OMBE WARD
118	LANGATA ROAD PRIMARY	NAIROBI WEST	ALONG LANGATA RD.
119	RAILA EDUCATION CENTRE	KAREN	KISUMU NDOGO AREA ALONG RAILWAY LINE NEXT TO RAILA EDUCATIONAL CENTER
120	NGEI PRIMARY	NAIROBI WEST	KITENGELA RD. MUGUMU
121	KONGONI PRIMARY	NAIROBI WEST	SOUTH 'C'
122	LANGATA WEST PRIMARY	NAIROBI WEST	OTIENDE SHOPPING CENTRE NEXT TO LANGATA HEALTH CENTRE
123	UHURU GARDENS PRIMARY	NAIROBI WEST	LANGATA RD. OFF KITENGELA ROAD
124	MADARAKA PRIMARY SCHOOL	NAIROBI WEST	IN MADARAKA ESTATE
125	OLYMPIC PRIMARY	KAREN	KIBERA SLUMS, SARANG'OMBE NEXT TO RAILWAY LINE
126	LANGATA BARRACKS PRIMARY	NAIROBI WEST	INSIDE THE LANGATA BARRACKS MILLATRY CAMP
127	KIBERA PRIMARY	KAREN	KIBERA DRIVE - KARANJA ROAD
128	NAIROBI WEST DAY NUSERY	NAIROBI WEST	NAIROBI WEST SHOPPING CENTRE NEXT TO UCHUMI SUPERMARKET - SOUTH 'B'
129	RABAI ROAD PRIMARY	BURUBURU	RABAI RD. OPP. METROPOLITAN HOSPITAL JERICHO MARKET
130	BARAKA PRIMARY	BURUBURU	BTW. BURUBURU PHASE V & III MUMIAS RD. NEAR BLESSED SACRAMENT CATHOLIC CHURCH
131	HARAMBEE PRIMARY	BURUBURU	HARAMBEE ESTATE MUMBI RD. OFF RABAI ROAD
132	OFAFA JERICHO PRIMARY	BURUBURU	JERICHO ESTATE
133	ST. MICHAEL'S PRIMARY	BURUBURU	ALONG NILE ROAD OFF JOGOO RD.
134	ST. ANNE'S PRIMARY	BURUBURU	NEXT TO GOVERNMENT QUARTERS JOGOO RD.
135	DR. KRAPF PRIMARY	BURUBURU	MARINGO OFAFA ESTATE RUAKA STREET
136	JOGOO ROAD PRIMARY	BURUBURU	MAKADARA ALONG JOGOO ROAD

137	ST. PAUL'S PRIMARY	BURUBURU	MBOTELA ESTATE
138	MARTIN LUTHER PRIMARY	BURUBURU	MAKADARA HAMZA
139	MARIAKANI PRIMARY	VIWANDA	MARIAKANI ESTATE SOUTH 'B'
140	STAR OF HOPE LUNGA LUNGA	VIWANDA	LUNGA LUNGA
141	JOSEPH APUDO PRIMARY	VIWANDA	MAKONGENI RAILWAY QUARTERS
142	MAKONGENI PRIMARY	VIWANDA	ALONG JOGOO RD. WITHIN MAKONGENI RAILWAY QUARTERS
143	OUR LADY OF MERCY SOUTH 'B'	VIWANDA	SOUTH 'B' NEAR QUEEN OF PEACE CHURCH
144	PLAINSVIEW PRIMARY	VIWANDA	SOUTH 'B'
145	ST. ELIZABETH LUNGA LUNGA	VIWANDA	ALONG LUNGA LUNGA RD. NEAR MAREBA COMPANY IN LUNGA LUNGA SLUM
146	ST. BAKHITA PRIMARY	VIWANDA	INDUSTRIAL AREA - OPP. EXPRESS
147	MUKURU PRIMARY	VIWANDA	INDUSTRIAL AREA - KAYABA VILLAGE
148	NAIROBI SOUTH PRIMARY	VIWANDA	SOUTH 'B' OPP. MARIAKANI COTTAGE NEXT TO O.L.M. PRIMARY SCHOOL
149	NILE ROAD SPECIAL SCHOOL	BURUBURU	MARINGO ESTATE ALONG NILE RD - ON JOGOO ROAD
150	ST. JOHN'S PRIMARY	VIWANDA	ALONG JOGOO RD. MAZIWA STAGE OPP. KOBIL PETROLS STATION OFF KILIMA MBOGO STREET
151	BIDII PRIMARY	BURUBURU	BURUBURU SHOPPING CENTRE ALONG MUMIAS ROAD
152	KALOLENI PRIMARY	VIWANDA	KALOLENI ESTATE
153	ST. PATRICK'S PRIMARY SCHOOL	BURUBURU	MARINGO ESTATE 200m EAST OF MAKADARA D.Cs OFFICE
154	TANA DAY NURSERY	BURUBURU	JERICHO - LUMUMBA
155	NJORO CLOSE DAY NURSERY SCHOOL	BURUBURU	JERICHO
156	OFAFA DAY NURSERY	BURUBURU	MARINGO
157	KALOLENI DAY NURSERY	VIWANDA	KALOLENI ESTATE - JOGOO ROAD
158	MBOTELA DAY NURSERY	BURUBURU	MBOTELA ESTATE- BEHIND THE HALL, FROM JOGOO ROAD
159	ST. CATHERINE'S PRIMARY	VIWANDA	ON DUNGA ROAD NEAR KENYA INSTITUTE OF MASS COMMUNICATION
160	CANON APOLO PRIMARY	BURUBURU	ON DUNGA ROAD OPPOSITE MATER HOSPITAL
161	RIVER BANK PRIMARY	CENTRAL	GAUTAMA RAMESH RD. IN NGARA OFF. MURANG'A RD. BTW. NGARA SECONDARY AND MURANG'A RD. PRY.
162	PUMWANI PRIMARY	CENTRAL	PUMWANI NEAR MUSLIM PRY. & PUMWANI BOYS HIGH
163	S.S.D. PRIMARY	CENTRAL	CITY CENTRE
164	MURANG'A ROAD PRIMARY	CENTRAL	MURANG'A RD
165	PARKLANDS PRIMARY	CENTRAL	BTW. FOREST RD. & KOLOBOT RD. NEAR STIMA PLAZA
166	DR. AGGREY PRIMARY	CENTRAL	GENERAL WAURINGE
167	MATHARI PRIMARY	CENTRAL	MATHARI MENTAL HOSPITAL
168	NDURURUNO PRIMARY	JUJA ROAD	HURUMA KIAMAIKO WARD
169	AINSWOTH STREET PRIMARY	JUJA ROAD	EASTLEIGH OFF MURATINA ROAD
170	ARYA PRIMARY	JUJA ROAD	MURANG'A RD OFF TAITA RD NEAR GLORY PALACE HOTEL NGARA
171	KIBORO PRIMARY	JUJA ROAD	ALONG JUJA ROAD
172	NG'ETHU WATER WORKS	JUJA ROAD	NGETHU TREATMENT PLANT
173	RACECOURSE PRIMARY	JUJA ROAD	PANGANI ESTATE - ATHUMANI ROAD
174	VALLEY BRIDGE PRIMARY	JUJA ROAD	KIAMAIKO NEXT TO SUNFLOWER ACADEMY ALONG OUTERING ROAD
175	SALAMA PRIMARY	JUJA ROAD	BEHIND HURUMA FLATS ON HURUMA SERVICE ROAD
176	MUSLIM PRIMARY	JUJA ROAD	PUMWANI AREA
177	ST. TERESA'S GIRLS PRIMARY	JUJA ROAD	ALONG JUJA ROAD OPP. ST. TERESA'S CHURCH
178	ISLAMIA PRIMARY	CENTRAL	PUMWANI ROAD OPP. KAMUKUNJI POLICE STATION
179	ST. BRIGIDS PRIMARY	CENTRAL	ALONG GEN. WARUINGE RD. NEXT TO STAREHE BOYS CENTRE
180	PANGANI PRIMARY	JUJA ROAD	KARIOKOR - NEAR PUMWANI BOYS SEC. SCHOOL
181	HURUMA PRIMARY	JUJA ROAD	HURUMA ESTATE OFF JUJA ROAD BEHIND HURUMA FLATS
182	MOI AVENUE PRIMARY	CENTRAL	TOWN CENTRE -MOI AVENUE
183	ST. PETER CLAVERS PRIMARY	CENTRAL	ALONG RACECOURSE ROAD NAIROBI

184	CITY PRIMARY	JUJA ROAD	MURANG'A ROAD-LIMURU ROAD JUNCTION, NGARA
185	PARKROAD PRIMARY	JUJA ROAD	RACECOURSE ROAD - 100M FROM PANGANI POLICE STATION
186	C.G.H.U. PRIMARY	CENTRAL	TOWN CENTRE - RONALD NGALA STREET AND VYOMA STREET
187	JUJA ROAD PRIMARY	JUJA ROAD	PANGANI - HOMBE ROAD
188	PUMWANI PRIMARY SCHOOL	CENTRAL	PUMWANI
189	CENTRAL DAY CURSERY	CENTRAL	CITY CENTRE NEAR CASINO CLINIC, NDUBERI LANE
190	PARKLANDS DAY NURSERY	CENTRAL	PARKLANDS ALONG FOREST ROAD
191	NGARA EAST DAY NURSERY	CENTRAL	PARKROAD BETWEEN NGARA HEALTH CLINIC AND RAILWAY QUARTERS
192	STAREHE DAY NURSERY	JUJA ROAD	KARIOKOR MARKET TO GIKOMBA MARKET-KINYANJUI ROAD
193	ZIWANI DAY NURSERY	ZIWANI	ZIWANI ESTATE OPPOSITE ZIWANI WARD OFFICE
194	DAIMA PRIMARY	JUJA ROAD	NEAR KENYA ASSEMBLY OF GOD CHURCH HURUMA ALONG JUJA ROAD
195	MATHARE TECHNICAL SPECIAL	JUJA ROAD	ALONG JUJA ROAD AFTER EASTLEIGH SECOND AVENUE BEFORE REACHINF THE WATER KIOSK
196	KABETE VET LAB PRIMARY	KILIMANI	UTHIRU NEXT TO KABETE POLICE STATION OPP. ST. JOSEPH ACK CHURCH
197	KIHUMBUINI PRIMARY	KILIMANI	KANGEMI
198	NAIROBI PRIMARY	KILIMANI	MAMLAKA OFF NYERERE RD.
199	MILIMANI PRIMARY	KILIMANI	KILIMANI ON KIRICHWA ROAD
200	LAVINGTON PRIMARY SCHOOL	KILIMANI	LAVINGTON MUGUMO ROAD
201	STATE HOUSE PRIMARY	KILIMANI	KILIMANI AREA ABORETUM ROAD
202	KILELESHWA PRIMARY	KILIMANI	ALONG MANDERA RD. NEXT TO KILELESHWA POLICE STATION GICHURU RD.
203	MUTHANGARI PRIMARY	KILIMANI	JAMES GICHURU RD. MBAMBANE RD LAVINGTON
204	NEW KIHUMBUINI PRIMARY	KILIMANI	KANGEMI SHOPPING CENTRE ALONG WAIYAKI WAY
205	KILIMANI PRIMARY	KILIMANI	KILIMANI - ARKWING KHODEK ROAD
206	AGA KHAN PRIMARY	PARKLANDS	5TH PARKLANDS ALONG LIMURU RD. OPP. CITY PARK HAWKERS MKT
207	FARASI LANE PRIMARY	PARKLANDS	ALONG LOWER KABETE ROAD
208	VISA OSHWAL PRIMARY - NAIROBI	PARKLANDS	WESTLANDS MPAKA ROAD
209	BOHRA PRIMARY SCHOOL	PARKLANDS	WESTLANDS BROOKESIDE DRIVE
210	KABETE REHABILITATION SCHOOL	PARKLANDS	LOWER KABETE RD. 1KM IMMEDIATELY AFTER LOWER KABETE CAMPUS FROM TOWN / OR ON LOWER KABETE ROAD 200 METRES AFTER K.I.A. FROM NAIROBI TOWARDS WANGIGE
211	HOSPITAL HILL PRIMARY	PARKLANDS	PARKLANDS ROAD
212	HIGHRIDGE PRIMARY	PARKLANDS	4TH PARKLANDS AVENUE OPP. DIAMOND PLAZA
213	JACARANDA SPECIAL SCHOOL	PARKLANDS	KILELESHWA - KISII RD. OFF SIAYA RD. OFF OTHAYA RD NEXT TO KENTON COLLEGE
214	NORTH HIGHRIDGE PRIMARY	PARKLANDS	6TH PARKLANDS NEAR KESI COLLEGE
215	MUGUGA GREEN PRIMARY	PARKLANDS	WAIYAKI WAY
216	WESTLANDS PRIMARY	PARKLANDS	WESTLANDS - SCHOOL LANE NEAR SARIT CENTRE
217	KARURA FOREST PRIMARY	PARKLANDS	KARURUA FOREST HEAD OFFICES - KIAMBU ROAD
218	CHELETA PRIMARY	PARKLANDS	RUNDA ESTATE
219	LOWER KABETE PRIMARY	PARKLANDS	LOWER KABETE RD. NEXT TO K.I.A.
220	KANGEMI PRIMARY	KILIMANI	KANGEMI, GICHAGI ALONG THIONG'O ROAD
221	ST. GEORGE'S PRIMARY	KILIMANI	DENIS PRITT ROAD AFTER STATE HOUSE
222	LORESHO PRIMARY	PARKLANDS	LORESHO RIDGE -KITSURU WARD
223	STATE HOUSE DAY NURSERY	KILIMANI	STATE HOUSE ROAD, NEXT TO STATE HOUSE PRIMARY SCHOOL
224	KILELESHWA DAY NURSERY	KILIMANI	KEILELSHWA ESTATE NEAR KILELESHWA POLICE STATION
225	LADY NORTHEY DAY NURSERY	KILIMANI	NEXT TO MILIMANI A.I.C. CHURCH ALONG STATE HOUSE ROAD