DYNAMICS IN EDUCATION AND THEIR EFFECT ON DIGITAL LEARNING IN PUBLIC UNIVERSITIES DURING THE POST COVID 19 ERA IN UASIN GISHU COUNTY, KENYA.

BY

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DECLARATION

Declaration by the Student

This thesis is my original work and has not been submitted for any other award in this or any other university or institution and shall not be reproduced in part or full, or in any format without prior written permission from the author and/or University of Eldoret.

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DEDICATION

This thesis is dedicated to my beloved parents who unfortunately passed on while I was a toddler. To my grandmother Tabitha Kipyab who took care of me until I was through with my university education, also special dedication goes to my husband Emmanuel Tanui, my children Ellys Kiplimo, Ella Jerop not forgetting my parent's in-law Dr Joseph Tanui and Lilian Tanui for their support and understanding throughout this thesis stage.

ABSTRACT

Kenya supports lifelong learning to create a globally competitive and adaptable workforce to meet the needs of a rapidly industrializing economy, even during pandemics like Coronavirus disease (COVID-19), which led to the closure of several schools and colleges. The main aim of this study was to investigate the dynamics in education and their effect on digital learning during the post-COVID-19 Era in Public universities in Uasin Gishu County, Kenya. The following specific objectives guided the study; to determine the availability of infrastructure to support digital learning, to examine the perception of learners towards digital learning in public universities, to establish the competence of facilitators on digital learning in public universities, and to evaluate the challenges on the use of digital learning in public universities during the post COVID 19 Era in Uasin Gishu County, Kenya. The Classical Liberal Theory of Equal Opportunities guided the study. The study targeted selected public universities in Uasin Gishu County, a unit of the population being head of the department, lecturers, and students. This study targeted 3586 comprising 2 deans, 23 heads of department, 151 lecturers, and 3410 students. The study adopted the use of descriptive research design. The study used questionnaires and interview schedules as the tools for data collection. The researcher obtained sample size using Yamane formulae. Descriptive statistics were used to analyse the data with the Statistical Package for Social Sciences (SPSS) version 25. Descriptive statistics include percentages, frequencies, mean, and standard deviation. Inferential statistics involves the use of correlation and regression analysis. The qualitative data were analysed using thematic analysis. The research was significant in enhancing the effectiveness of implementing digital learning after COVID-19 in Kenyan Universities. The study finding would be helpful in adapting to dynamics in education of digital learning. The study findings revealed that infrastructure positively and significantly influenced digital learning in public universities during the post-COVID-19 Era in Uasin Gishu County, Kenya (β_1=0.300, p=0.000). It was also established that the perception of learners had a positive and significant influence on digital learning in public universities during the post-COVID-19 Era in Uasin Gishu County, Kenya (β_2=.395, p=0.000). It was further established that the competence of facilitators was found to have a positive and significant influence on digital learning in public universities during the post-COVID-19 Era in Uasin Gishu County, Kenya (β_3=.368, p=0.000). Finally, challenges negatively and significantly influenced digital learning in public universities during the post-COVID-19 Era in Uasin Gishu County, Kenya. The study concluded that public universities in Uasin Gishu County are not only still faced with challenges on poor network access in some places but pose a challenge to the learning process. Further, facilitators' and students' attitudes undermine the digital learning process. Public universities during the post-COVID-19 Era had enough computers, and students could easily access the internet. The study further concluded that most students fear online due to the nature and content of the courses. The study recommends The Universities Management should train personnel in order to ensure proper and full implementation of digital learning. Further, they should ensure proper network and internet installation to ensure proper digital learning. The study also recommends that students be trained in digital learning and encouraged to change their negative attitude towards it. Further, the study recommends that facilitators be trained in implementing and facilitating digital learning.

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LIST OF ABBREVIATIONS

ACGME   Accreditation Council for Graduate Medical Education

ANOVA   Analysis of Variance

CDC   Centers for Disease Control and Prevention

COVID-19   Corona Virus Disease

CPT   Current Procedural Terminology

DSM-5   Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition,

GIGA   German Institute for Global and Area Studies

HE   Higher Education

HOD   Head of Department

ICT   Information And Communication Technologies

LCME   Liaison Committee on Medical Education

MOOC   Massive Open Online Course

NACOSTI   National Commission for Science Technology and Innovation

NIGCOMSAT Nigerian Communications Satellite Limited

PCK   Pedagogical Content Knowledge

SPSS   Statistical Package for Social Sciences

STEM   Science, Technology, Engineering, and Mathematics

TETFund   Tertiary Education Trust Fund

UNICEF   United Nations Children's Fund

UTAUT   Unified Theory of Acceptance and Usage of Technology

VIF   Variance Inflation Factor

WHO   World Health Organization

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CHAPTER ONE

INTRODUCTION

1.1 Introduction

This chapter examines the background, statement of the problem, objectives, hypotheses, justification, significance, scope, assumptions, limitations, theoretical framework, conceptual framework and operation definition of terms.

1.2 Background of the Study

The Corona Virus Disease (COVID-19) pandemic has left education in an uncertain state, and institutions of higher learning have turned to digital learning as a means of preserving the educational experience (Peimani & Kamalipour, 2021). Student and educator perspectives on this rapid shift to digital and remote learning, including those of learning technologists, librarians, and publishers, can be found in the reflections of Higher Education (HE) practitioners. The COVID-19 crisis in 2020 will increase the severity and urgency of the disruption caused by online education. Almost all teachers were obliged to teach from a distance, and online learning was the medium of choice. Teachers have to learn new things and develop fresh insights into different methods of teaching and learning during the event (Pan, 2020).

Students are increasingly turning to digital learning to study and access university amenities during the COVID-19 countrywide lockout of online learning services. Having a smartphone or laptop is now considered a must for all students who plan to participate in graduate or doctorate research programs at colleges and institutions (Ali, 2020). By using Information and communication technologies (ICT) tools and media, students can benefit from digital libraries and gain widespread world knowledge in their specialties. Students are encouraged to use online journals in addition to the library's

collection of texts and references to stay up to date on the latest developments in their field. Student readiness and proficiency in the use of appropriate software and current technology on their devices, as well as familiarity with online resources, have been stressed repeatedly (Sasere & Makhasane, 2020).

In order for online learning to be a success, teachers and students must collaborate with each other in a way that is both cerebral and emotional in order to effectively communicate and practice their subjects (Schonert-Reichl, Kitil & Hanson-Peterson, 2017). It is possible for online education to stand the test of time if the school administration and parents are kept up to date on the students' development and involvement. To ensure that the curriculum is properly planned, implemented, and executed, the administration of the institution must provide guidance and provisions as judged appropriate for the completion of courses delivered online. It is critical that teachers reply quickly to students' questions and communicate course requirements in order to maintain students' morale of education even in a virtual environment (Moşteanu, 2021: Hennessy, Kirkpatrick, Smith, & Border, 2016: Collins, & Halverson, 2018: Barbour, LaBonte, Hodges, Moore, Lockee, Trust & Kelly, 2020). Stakeholders' confidence in quick interconnection via the internet, email and WhatsApp messages is essential for the success of online education (Liu & Nesbit, 2020).

A major shift in Malaysia's education system is unavoidable because of the rising usage of advanced technology in educational institutions. When it comes to teaching and learning in the digital age, the explosion of knowledge economy has been attributed to its ability to provide a dynamic and proactive teaching-learning environment (Moh, 2017). Consequently, traditional campus education has steadily shifted to a technology-based mode in the last two decades in order to improve the quality and flexibility of the

learning delivery system, which is widely appreciated by working-adult learners today." Managing the transformation process in open and distance schools is a key effort that must be carefully planned, structured, supervised, and monitored in order to improve university teaching and learning delivery speed and sophistication (Hansen & Lema, 2019).

Africa's national governments and educational sectors responded differently to the challenge of ensuring access to quality education for everyone. However, private school entrepreneurs were granted more leeway in operating their remote-teaching programs despite most governments taking over physical courses and administering public primary and secondary schools (Gyamera & Burke, 2018). There was no additional intervention at this level of education outside the need that tertiary educational institutions cease face-to-face teaching. As a result, universities and colleges were able to establish their own strategies for retaining students. More than only lack of digital skills, lack of planning and preparedness for digital delivery, and inability to use online platforms inhibited many institutions' rapid transition to the virtual world (de Wit & Altbach, 2021).

Lack of electricity and poor connectivity in Kenya's rural areas contributed to the digital alienation of rural Kenyan students, despite the government of Kenya's private-public collaboration with telecom service providers (Parsitau & Jepkemei 2020). In addition, interoperability and compatibility become a major issue in these groups. It takes a lot of skill to negotiate internet access. Many students lack access to smartphones and other technology. There will be fewer or no educational resources available to some youngsters as a result of the smartphone war. Children's unsupervised internet access is a concern in households where adults have cell phones. There is also a prohibitive cost

to the Internet if electricity and technology are available. When it comes to national exams, rural students find themselves in a vulnerable position (Ravi, 2019).

Digital learning skills will be part of the new Competency-Based Curriculum being implemented in Kenyan schools. To ensure that all students can access digital learning, the government has also committed to connecting every school to the Internet by 2030. (Amunga, Were, & Ashioya, 2020). The German Institute for Global and Area Studies (GIGA), the worldwide collaboration for school connection, has Kenya as a leading member, and The United Nations Children's Fund (UNICEF) has already linked 75 schools to the Internet, with a goal of connecting at least 1,085 more by the end of the year, benefiting over 360,000 children. When compared to the demands, it may seem like nothing, but lessons are being learned and new partners are desperately needed to extend this effort (Otieno, 2020).

1.3 Statement of the Problem

A rapidly industrializing economy requires an internationally competitive and adaptable workforce, and Kenya is dedicated to lifelong training and education to satisfy these needs. The Kenyan government's computer supply initiative, which involved assembling computers in local facilities, was unsuccessful. The difficulties arose as a result of a lack of necessary infrastructure, such as electricity and internet access. As a public health issue of worldwide significance, the world health organization (WHO) declared COVID-19 a pandemic in March 2020, which was confirmed by the Centers for Disease Control and Prevention (CDC). Several schools and institutions were forced to close because to the outbreak of COVID-19. Numerous institutions, colleges, and universities have phased out face-to-face instruction. Social distance is critical at this

level in education and this will have an adverse effect. Educators are looking for new strategies to deal with this challenging situation.

The problem at hand is the transformative shift in the landscape of education delivery, specifically the transition to digital learning platforms in Kenyan public universities. With the outbreak of the COVID-19 pandemic, educational institutions, including universities, faced unprecedented challenges in ensuring continued learning while safeguarding the health of students and educators. The abrupt closure of schools and the suspension of face-to-face instruction revealed the need for a robust digital learning infrastructure, digital pedagogical skills, and equitable access to online education resources.

While the Kenyan government has made commendable efforts to bolster the education sector's digitalization, significant challenges persist. The Ministry of Education, through the Department of ICT, has taken strides towards addressing the digital divide by introducing initiatives such as internet balloons, ICT policies, and the expansion of digital resources. However, these endeavours have yet to fully bridge the digital gap, particularly in public universities where issues such as limited digital pedagogical abilities among educators, insufficient industry experience, and inadequate continuous professional development have hampered the seamless adoption of digital learning. These gaps are exacerbated by the disparities in socioeconomic backgrounds among students, with those from lower socioeconomic status and part-time students facing more substantial hurdles in navigating the digital learning landscape.

Furthermore, the COVID-19 pandemic has brought about a profound transformation in higher education globally, accelerating the integration of technology and digital tools into teaching and learning. However, limited research has been conducted to investigate

the evolving dynamics of digital learning in Kenyan public universities in the post-COVID era. As such, this study seeks to comprehensively examine the challenges and opportunities presented by the digital learning shift and assess the impact of government initiatives, educational policies, and infrastructure improvements on the digital learning landscape in Kenyan public universities. By shedding light on these critical issues, this research aims to inform effective strategies for the successful implementation of digital learning initiatives, thereby enhancing the quality and accessibility of education in Kenya.

It was recently shown in a study by (Aristovnik et al., 2017) that a large cross-national sample of 30,383 students from 62 countries were satisfied with both the online teaching experience and the guidance they received from their professors. On the negative side, students complained about their lack of digital proficiency and the increased workload they felt they were experiencing. In addition, the survey found that students with lower socioeconomic status and those studying part-time or in the applied sciences were the most impacted by the changes brought on by COVID-19 (that is, students that can only afford their educational costs with the help of a scholarship, and also part-time students that lost their job as a consequence of the pandemic).

There is a shortage of digital pedagogical abilities, lack of industry experience, and a lack of continual professional development at most Kenyan universities, especially in public institutions. After Covid 19 and its consequences, fewer studies were conducted on digital learning as well. Therefore, this study was designed to address the gap in the current research by examining the dynamics in education of digital learning in Kenyan public universities during the post-Covid era.

1.4 Purpose of the Study

The main aim of this study was to investigate the dynamics in education and their effect on digital learning in public universities during the post COVID 19 Era in Uasin Gishu County, Kenya.

1.5 Objectives of the study

i. To determine the availability of infrastructure to support digital learning in public universities during the post COVID 19 Era in Uasin Gishu County, Kenya.

ii. To examine the technological perception of learners towards digital learning in public universities during the post COVID 19 Era in Uasin Gishu County, Kenya.

iii. To establish the competence of facilitators on digital learning in public universities in during the post COVID 19 Era in Uasin Gishu County, Kenya.

iv. To identify the challenges on use of digital learning in public universities during the post COVID 19 Era in Uasin Gishu County, Kenya.

1.6 Research Hypotheses

H_{01}: There is no significant relationship between availability infrastructure and digital learning in public universities during the post COVID 19 Era in Uasin Gishu County, Kenya.

H_{02}: There is no significant relationship between perception of learners and digital learning in public universities during the post COVID 19 Era in Uasin Gishu County, Kenya.

H_{03}: There is no significant relationship between facilitators competence and digital learning in public universities during the post COVID 19 Era in Uasin Gishu County, Kenya.

1.7 Research Questions

What are the challenges on use of digital learning in public universities during the post COVID 19 Era in Uasin Gishu County, Kenya?

1.8 Justification of the Study

Since educational institutions locked down their facilities and countries shut their borders in reaction to lockdown measures, higher education has been severely impacted by the COVID-19 epidemic. These closures had an impact on students' ability to study and take exams, as well as their security and legal standing in their host country, even though universities were fast to switch to online learning to compensate. However, not all universities have successfully adapted to the new paradigm of digital learning.

Learning is no different. Students from wealthy families who are motivated, have the support of their parents, and have access to resources may find ways to learn outside of traditional school settings. Those from impoverished communities were often left out once their schools were forced to close. The misalignment between available resources and actual student requirements, as well as the lack of access to the broadband and computers necessary for online education, have all been brought to light by this dilemma.

1.9 Significance of the Study

The research findings are of significance in enhancing the effectiveness of implementation of digital learning after the COVID 19 in Kenyan Universities. The study findings are helpful in adapting to dynamics in education of digital learning. The

study is also useful to the university management and its policy-making agencies as it will guide policy makers on the need to strengthen the adoption of digital learning in public universities. The stake holders and leaders will gain knowledge and a better understanding of the importance of implementing Digital Learning. Future researchers will also benefit from this study as it will provide literature for those who will wish to research on relate area.

1.10 Scope of the Study

The study aims at investigating the dynamics in education of digital learning during the post COVID era in public universities. The guiding variables and objectives included, challenges, availability of infrastructure and perception of learners in use of digital learning. The study targeted selected public universities in Kenya, unit of population being head of department, lecturers and students. The study make use of descriptive research design.

Throughout the Covid 19 period, children from well-off backgrounds who were motivated to learn and with the backing of their parents were able to bypass traditional educational barriers. Those from impoverished communities were often left out once their schools were forced to close. Access to broadband and computers for online education, and the supporting surroundings needed to focus on learning, up to the misalignment between resources and needs, are only a few of the inadequacies and injustices that have been brought to light by this situation. The current investigation and the need to conduct it arose out of the existence of these disparities. The study was carried out in public universities in Uasin Gishu County, Kenya from the month of January 2023 to September 2023.

1.11 Assumptions of the Study

The study was conducted under the following assumptions;

i.   That the sampled Universities were a representative of all public universities and information obtained cuts across all the public universities

ii. That the effects of Covid 19 were the same to all public universities Under Investigation and

iii. That all the respondents would cooperate and willingly participate in the Study

1.12 Limitations of The Study

The study was Subject to the following limitations, first, the respondents might fail to give correct responses or shy away from the study. To mitigate this, the researcher assured the respondents that the research is only for research purposes. The study was conducted in few selected Public universities and small sample, the researcher made sure that research was representative and that all public University had the same effect of Covid 19.

1.13 Theoretical Framework

The study was guided by Classical Liberal Theory of Equal Opportunities. Sherman and Wood, advocates of the Classical Liberal Theory of Equal Opportunities, were highlighted by Njeru and Orodho, (2003), who promote their perspective of the necessity for educational equity for all students. The classical liberal theory of equal opportunities states that each student is born with a certain amount of innate potential. Therefore, schools and other educational institutions should be designed such that able-bodied students from disadvantaged backgrounds can fully benefit from their inherent abilities and rapidly advance in social status.

In this study, the Classical Liberal Theory is relevant since equal educational opportunities would encourage social mobility. For this theory to work, educational systems and institutions must take into account the dynamics of the institutions themselves, as well as the inherent talents of the students they serve in order to eliminate any obstacles or challenges that might stand in the way of their success, whether they be social, cultural, economic, or environmental in nature. Education is a powerful equalizer, which is why it is important to reach out to students who are underserved and underrepresented in society.

The liberal school of thought believes in granting equal rights to all people and opposes any form of discrimination. People can follow their own vision of life within the framework of state law if they adhere to procedural liberalism. When it comes to classical liberalism's emphasis on the individual, it states society must be set up in such a way that each person can live the life he or she desires. As a result, society must take active steps to "organize education to be accessible for all learners, those with impairments included," as stated above.

Access to quality digital learning resources is essential for students in public universities. The COVID-19 pandemic has highlighted the need for a reliable and accessible digital infrastructure that can support remote learning. However, not all students have equal access to these resources. This is where classical liberal theory of equal opportunities comes into play. By applying this theory, the institution can help ensure that all students in Uasin Gishu County have access to quality digital learning resources (Nyangweso, 2022). Classical liberal theory emphasizes individualism and equality of opportunity as fundamental principles for achieving social justice. In education, this means providing every student with an equal chance to succeed

regardless of their background or circumstances. By ensuring that each student has access to quality digital learning resources, institution level the playing field and enable them to compete on an equal footing.

By applying Classical liberal theory to education, the researcher ensured that all students have access to high-quality education and resources regardless of their socio-economic background. The classical liberal theory of equal opportunities has the potential to alleviate the disparities in digital learning access among students in public universities in Uasin Gishu County post-COVID-19. The pandemic has highlighted these inequalities, with some students lacking reliable internet and devices at home, while others have better resources. According to Armstrong (2021), implementing this theory would ensure that every student is given an equal chance to access digital learning materials regardless of their socio-economic background. However, it is important to note that there are challenges when applying this theory practically. For instance, some argue that providing every student with equal opportunities may not necessarily lead to equitable outcomes since individuals have different needs and abilities. Despite its limitations, the classical liberal theory of equal opportunities provides a framework for addressing disparities in digital learning access among students in public universities effectively. By ensuring all learners can easily access online course materials and participate in virtual classes irrespective of their backgrounds or financial capability could level the playing field considerably (Armstrong, 2021). Ultimately bridging the gap between those who are more privileged than others whether by race or socioeconomic status which should be a priority for equity purposes.

Implementing Classical Liberal Theory-based Equal Opportunities principles can positively influence public university systems' inclusivity across various demographics by reducing the effects of socioeconomic backgrounds while providing necessary resources needed for success in these systems thereby creating an equitable landscape ultimately leading to positive outcomes amid challenging times like those experienced under COVID-19 conditions.

1.14 Conceptual Framework

The conceptual framework indicates the relationship between the dependent variables and the independent variable.

Independent Variables   **Dependent Variable**

Infrastructure
- Availability of computers
- Internet systems
- Modern classes

Perception of Learners
- Attitude
- Self-efficacy

Digital Learning
- Flexible learning system
- Faster learning process
- Vast coverage

Competencies of the Facilitators
- Pedagogical knowledge and ICT skills
- Knowledge uptake
- Flexibility

Challenges
- Network system
- Students and teacher's attitude
- Insufficient resources
- Lack of skilled personnel

Intervening Variables
- Government policies

Figure 1.1 Conceptual Framework

If there is not enough infrastructure to support digital learning, then it will be difficult for learners to access digital learning resources and for facilitators to use digital learning tools.

Learners' perception of digital learning can be influenced by the availability of infrastructure and the competence of facilitators. If learners have a positive perception of digital learning, they are more likely to use it and to learn effectively.

Facilitators who are competent in digital learning are able to use digital tools effectively to teach and to support learners. This can have a positive impact on learners' technological perception of digital learning and their ability to learn effectively.

1.15 Operation Definition of Terms

Competence of Facilitators are the abilities one uses to provide opportunities and resources to a group of people that enable them ito imake progress and succeed.

Digital Learning is a learning method based on the use of new digital tools to enable learners to learn in a different way, whether it be face-to-face, distance learning or blended learning.

Dynamics in education is a variety of situations, including interruption of education program due to COVID-19 pandemic.

Effect a change which is a result or consequence of an action or other cause.

Infrastructure refers to the digital technologies that provide the foundation for an organization's information technology and operations.

Pedagogical knowledge refers to ithe specialized knowledge of teachers for creating effective teaching and learning environments for all students.

Perception of Learners is the process of preferential treatment of students toward information they get from an object, in this study is teachers' classroom questions.

Post-COVID-19 Era is the period after the global health and socioeconomic crisis of the COVID-19 pandemic.

Technological perception is how technology affects students' perception of the digital learning.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviewed the literature related to digital learning during post COVID 19 Era in public universities. The chapter also reviewed related theories, summary of reviewed literature and conceptual framework.

2.2 The Concept of Dynamics in education in Learning

Education has always been impacted by the socio-economic dynamics. With a heavy share of technology in the economic designs of the country, it is no wonder that the extended arms of technology are reaching out to education to redefine its purposes and strategies (Breman, 2021). The sector of education has been left in awe by the rapid pace of technological advancements. Educators are having a hard time keeping up with the rapid changes in technology, but they are doing everything they can to find a way to bridge the gap. Although the basics that determine education's method and outcome would largely remain unchanged in this scenario, the future of education appears incredibly unpredictable and unknown (Palvia, Baqir & Nemati, 2018).

Both external and internal forces are at work when it comes to psychiatry education program adjustments. Changes that arise outside of an organization are known as external. The Accreditation Council for Graduate Medical Education (ACGME) and Liaison Committee on Medical Education (LCME) mandated changes, healthcare reforms like the Affordable Care Act, new Current Procedural Terminology (CPT) codes, and the deployment of Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, (DSM-5) are among the many factors that have led to these changes. Hospital and practice group mergers, the introduction of electronic medical records, and

alterations to a facility's leadership or mission are all examples of internal changes. It does not matter where a change comes from; it is always upsetting. Although many people believe that internal change is easier to deal with than external change, this is not always the case (Brown, Peterson & Yao, 2016).

As a result, university campuses were shuttered and face-to-face instruction was switched to an online format as a result of the Covid-19 pandemic. With the inclusion of remote and open education models, the higher education industry has become more competitive (Dhawan, 2020). Many colleges and universities have already put in place policies and procedures aimed at improving the adaptability and accessibility of their educational offerings to students. While the hybrid model incorporates both online and face-to-face delivery, all students must participate in all modes of instruction in order to benefit from blended learning (Heng & Sol, 2021).

In the past, online education was considered an option, especially for working adults in need of postsecondary education. COVID-19 has necessitated that all educators and students at all levels of school immediately adopt virtual courses in response to this pandemic (Lee, 2017). In some situations, training was moved online, then back to the classroom, and then back online again due to an increase in the rate of infection. In other circumstances, students might choose between online or in-person training, which combined remote delivery with face-to-face interaction. Instructional designers only had a few options to work with when creating learning experiences that were both realistic and successful, so they had to do some creative problem solving (Sun & Chen, 2016).

2.3 Availability of Infrastructure to Support Digital Learning

For the Nigerian Communications Satellite Limited (NIGCOMSAT) Limited, the Federal Ministry of Communication Technology's subsidiary, distance education enhancement is one of the services they provide (Agbaje, 2018). NIGCOMSAT and NITDA collaborated on a project named "Easy Learning" (Nigerian Information Technology Development Agency). It is possible for students to take IT, desktop, and professional development courses at a fraction of the expense of traditional classroom instruction by using Easy Learning's online delivery system, which offers more than 1500 cheap, certification-level courses. The National e-Library project of NIGCOMSAT also enhances access to education by making educational materials available to 78 Nigerian universities. As part of the Covid 19 (Robinson, Kupková & Martnek, 2020), the Federal Government introduced the Nigerian Universities Electronic Teaching and Learning Platform with funding from the Tertiary Education Trust Fund (TETFund).

Most public universities in Kenya are using ICT infrastructure development money as a tactic to deal with the issues of Covid-19. The Kenyan government has devised a strategy for funding the country's information technology infrastructure. Having to close universities has led in a move to online learning without a well-established information technology infrastructure (Ngwacho, 2020). Reductions in funding from the federal government and a drop in enrollment are plaguing many colleges and universities, especially public ones. As a result, the university's financial resources are being squeezed to develop on infrastructure. A similar strategy should be taken to funding ICT in universities, they said, because the Kenyan government had been involved in the successful upgrade of technical institutions (Adarkwah, 2021).

Significant changes in who is learning and when and where they are studying over the last two decades have led to a mismatch between traditional college views of residential colleges as the optimum educational setting, and what students actually require today. Along with this, a new generation of learning technologies is challenging long-held views on how and what students should learn throughout their undergraduate years due to the exponential growth of information available to them (Altbach, Reisberg & Rumbley, 2019). In addition, our growing understanding of how individuals learn suggests that increasing individualization of the learning process is the best way to address the different learning styles presented by our students as they join and re-enter the realm of higher education.

Students at public institutions are compelled to use virtual technology because of COVID-19, despite the fact that ICT infrastructure and assistance are not readily available (Patra, Sundaray & Mahapatra, 2021). Students and lecturers are forced to use virtual learning regardless of surrounding factors and current infrastructure because to pandemics like COVID-19. Students and teachers both benefit from Google Classroom's many features. Interactivity is one of the primary benefits of using chatbots and contextualized virtual Educational Humanoid robots. A new Unified Theory of Acceptance and Usage of Technology (UTAUT) model must be examined if pandemics are a perfect fit. The development of a successful blended learning paradigm during and following COVID-19 is also necessary (Rahman, 2021).

The gap in the context of this survey theme lies in the challenges and disparities related to the adoption and integration of information and communication technology (ICT) in higher education institutions, particularly in the face of external disruptions like the COVID-19 pandemic. While there are notable initiatives and collaborations aimed at

enhancing digital learning infrastructure and access to education, such as those mentioned involving NIGCOMSAT in Nigeria and the Kenyan government's strategies, the practical implementation of these plans and the readiness of universities to effectively utilize ICT resources remain areas of concern. Additionally, the survey suggests a need for further research into the development of a successful blended learning paradigm, considering the evolving learning styles and the increasing reliance on virtual technology forced by circumstances like pandemics.

The gap in this survey theme revolves around the alignment between the intentions and investments in ICT infrastructure development and the actual readiness of educational institutions, as well as the pedagogical approaches that can best serve the changing learning needs of students in an increasingly digital world.

2.4 Perception of Learners Towards Digital Learning in Public universities

India is the second-largest country in the world in terms of population size. COVID-19 lockdown and the Indian Government's digital initiatives in general had resulted in a dramatic shift toward online learning. Students' opinions of online learning are critical because unfavourable attitudes about online learning in general are a major contributor to students' lack of motivation and persistence (Raj & Khare, 2020). Students' perceptions of quality in digital learning are influenced by a variety of factors, including whether or not they have access to a computer at home, their gender, the frequency and quality of teacher instructions and feedback, their sense of community in the learning community, their family's support and their ability to manage their own time. The retention rate of Massive Open Online Course (MOOC) the percentage of students who register and complete the course-is influenced by all of these elements, as student perception is the key determinant of drop-outs (Aruga, Islam & Jannat, 2020).

As a result of their prior knowledge and skills, students' ability to effectively use digital technology to engage in a wide range of educational activities in a certain subject is a direct result (Sailer, Schultz-Pernice & Fischer, 2021). Students' ability to self-regulate their learning, which includes being able to work toward learning goals over multiple weeks, talking about open questions with classmates, and seeking out more academic support, when necessary, is crucial to their success in the classroom. In the end, successful involvement in education is believed to be critically dependent on learners' interests in getting material from the Internet, communicating, cooperating, and solving problems and using (or not using) certain technology for their own learning (Caena & Redecker, 2019).

A substantial association was discovered between the degree to which students feel comfortable utilizing the Internet and their overall level of happiness with the online experience (Chatterjee & Correia, 2020). Self-efficacy in general is a key feature of student satisfaction, an online student must believe in his/her potential to achieve the results within a nontraditional delivery system. An 18-item anxiety tool with domains in computer, Internet, and online learning was delivered in the first and last weeks of an educational research course. A 24-item satisfaction questionnaire with domains covering the instructor, technology, setup, interaction, outcomes, and overall satisfaction was employed at the end of the course (Choy & Quek, 2016).

Studies conducted in Kenya have highlighted several key aspects of learners' perceptions towards digital learning. One recurring theme has been the rapid adoption of digital learning technologies, particularly in response to the COVID-19 pandemic. Learners in Kenya, like in many other parts of the world, had to transition to online and remote learning due to the closure of schools and universities. Early studies suggested

that learners had mixed perceptions of this transition, with challenges related to internet access, device availability, and digital literacy being significant concerns. These challenges were particularly pronounced in rural and underserved areas, where access to technology and reliable internet connectivity was limited.

Furthermore, while some learners appreciated the flexibility and convenience that digital learning offered, others expressed concerns about the quality of education in online formats. Issues related to engagement, interaction with instructors, and the sense of community that traditional classroom settings provide were raised. Studies indicated that students missed the physical classroom experience and the face-to-face interactions with their peers and teachers.

The gap highlights the multifaceted nature of students' perceptions and experiences with online learning, encompassing factors like digital literacy, self-regulation, self-efficacy, and satisfaction. While there is an understanding that these elements influence students' engagement and success in online education, the specific interplay and relative importance of these factors remain underexplored. Additionally, the gap lies in the need for a more comprehensive assessment of the digital learning environment's impact on students' well-being, including their happiness and anxiety levels, to better inform strategies for enhancing online learning experiences.

2.5 Competence of Facilitators and Digital Learning in Public universities

Online education is a relatively new phenomenon in South African educational institutions. South Africa's higher education is under increasing pressure to raising competent facilitators in order to fulfill the demands of the new South Africa and to enhance its performance delivery policies (Shahjahan, 2016). It is becoming increasingly necessary for colleges and universities to utilize technology as an

alternative method of instruction and learning. Human action requires a fresh mindset and reorganization of one's thinking in order to implement new ideas and techniques. People with a variety of talents are needed to promote online learning in computer-mediated, web-based learning environments. It has been a challenge for our online tutors, who are called Teaching Assistants (TAs), to find a balance between their work with students and their work with the university. Because of their responsibilities, they must possess additional skills beyond those learned in a traditional classroom setting if they are to do their jobs well (Zheng, 2017).

Distant learning and instruction took a momentary step back during the outbreak of COVID-19 Teaching methods such as emergency remote instruction or online inverted classrooms have been developed as a result of this (Stewart & Lowenthal, 2019). Because of the COVID-19 epidemic, colleges and universities have had to put their digital teaching and learning capabilities to the test, which they failed. Teachers and students in higher education must be able to plan and implement digital teaching, and both need an infrastructural, institutional, and organizational environment that is conducive to digital teaching and learning (Shin & Hickey, 2021).

Teachers in the Covid-19 crisis have been thrust into the role of both designers and tutors, utilizing tools that few have a working knowledge of. As a result, teachers of all ages and backgrounds have had to deal with the practical and technical difficulties that come with teaching from home, and sometimes without the right assistance (Lorenza & Carter, 2021). On top of that, university lecturers have struggled to acquire the Pedagogical Content Knowledge (PCK) necessary to teach online. An example of PCK in this context would be online course administration and technical components. More importantly, it provides the pedagogical underpinnings and knowledge of principles

necessary to develop and facilitate meaningful online learning experiences (Mukhter & Chowdhary, 2020).

In order to effectively deploy and carry out digital technology use in teaching, whether face-to-face or via distance learning (Hofer, Nistor, & Scheibenzuber, 2021) teachers in higher education must acquire a set of skills, competencies, and attitudes. College professors that are tech savvy have a firm grasp on a wide range of skills, from the most fundamental to the most complex. It is crucial for teaching to take into account not only various forms of professional knowledge and abilities based on models of teachers' capabilities, but also diverse motivational components. This suggests that instructors' perspectives on the value of technology may play a role in whether or not they choose to incorporate it into their courses (Bürgener & Barth, 2018).

The key gap highlighted in this context is the need to understand the intricate interplay between teachers' digital competencies, their motivations, and their perspectives on technology adoption in higher education. While it is recognized that tech-savvy professors possess a wide range of skills, the specific motivational factors that influence their decisions to integrate technology into teaching and how these factors align with their competency levels require further exploration to inform effective technology implementation strategies.

2.6 Challenges on Use of Digital Learning in Public universities

While the globe has been going through a lot of hardship recently, the influence of online learning has been particularly noticeable on instructors and students alike. There are many advantages to online teaching and learning, but there are also some drawbacks. Because classes may be attended at times that are convenient for students, the learning process is made more enjoyable for them (Almahasees, Mohsen & Amin,

2021). However, students are less likely to participate in class activities while they are learning online. Additionally, students are unable to benefit from the influence of peer education. Students' personalities are also affected by these challenges, which prevents them from taking their turn. Aside from teaching and monitoring, faculty members are also responsible for providing students with guidance on a variety of topics, including academics and life. Internet and technology have an important part in all aspects of life, including education, in the present COVID-19 dilemma. Understanding how professors and students view online classes in the wake of the pandemic is critical, as it has demonstrated their value in coping with sudden crises (Stanistreet, Elfert & Atchoarena, 2020).

When it comes to university e-learning, there are a lot of obstacles to overcome. It is merely the first step to success, according to Almaiah, al-Khasawneh, and Althunibat, (2020): training for pedagogical modifications is what's really important. Students and instructors must be able to use e-learning tools effectively in order for digital learning to be a success. In most Kenyan public universities, e-learning is still in its infancy due to numerous implementation issues. Technological, organizational, and educational issues are all on the list.

Students are unable to fit online learning into their schedules since it offers so much time and flexibility. The lack of one-on-one attention in online education is also a major problem. In order to meet the expectations of today's students, two-way communication must be made possible. Students can't get the most out of their education unless they put what they've learned into practice. In some cases, students are unable to apply what they've learned via online resources because they lack hands-on learning opportunities. The quality of the course material is also a serious problem. A lack of community,

technical issues as well as difficulties in comprehending educational objectives are the main reasons students do not want to learn online (Nartiningrum & Nugroho, 2020).

Teaching staff in public universities face a barrier in implementing digital learning because they lack the necessary technical capabilities in e-learning and e-content development (Al-Azawei, Parslow & Lundqvist, 2016). This is due to a lack of e-learning competence training among the teaching staff as a whole. Most of the time, only a few members of the teaching staff have received proper e-learning training, and even those who have been designated as "e-learning champions" and tasked with passing on those abilities to other instructors have failed to do so. It is vital for public institutions to devote significant resources to e-learning implementation efforts, such as the development of e-learning skills for lecturers and relevant e-content (Hadullo, Oboko & Omwenga, 2018).

Studies on digital learning in Kenyan public universities have shown that one of the significant challenges is the limited engagement of students in online classes. While the flexibility of online learning is advantageous, it can lead to decreased participation and interaction among students. The absence of physical presence and face-to-face interactions with instructors and peers often results in reduced motivation and attentiveness. This challenge highlights the importance of implementing strategies to maintain active engagement, such as interactive online activities, peer collaboration, and effective communication platforms (Smith & Kariuki, 2019).

A notable challenge in the context of Kenyan public universities is the difficulty in providing hands-on learning experiences through digital means. Some academic disciplines, particularly those in science and engineering, require practical, real-world applications of knowledge. Replicating these experiences effectively in virtual settings

can be challenging. As a result, students in such programs may miss out on critical hands-on learning opportunities. Addressing this challenge may involve innovative approaches, such as virtual labs and simulations, to bridge the gap between theory and practice (Kamau & Ogutu, 2020).

Research conducted in Kenya underscores the significance of technical and infrastructure challenges in digital learning. Many students, especially those in rural and underserved areas, encounter obstacles related to internet access and the availability of suitable devices. The lack of reliable internet connections and access to technology can hinder their ability to fully participate in online classes. To mitigate this challenge, there is a need for substantial investments in improving digital infrastructure and ensuring equitable access to online education resources (Wanjiru & Mwangi, 2018). Studies have pointed out that faculty members in Kenyan public universities face challenges in adapting to digital learning due to inadequate training and e-learning competence. Many instructors lack the necessary skills to effectively utilize e-learning tools and develop digital content. This situation is further exacerbated by the limited availability of comprehensive e-learning training programs. To address this issue, institutions need to prioritize faculty development and provide tailored training to equip instructors with the skills needed for successful digital education delivery (Ndung'u & Njoroge, 2017).

A significant challenge highlighted in the literature is the quality and comprehensibility of online course materials. In some instances, students struggle to grasp educational objectives and navigate course content effectively. This emphasizes the importance of clear, well-structured online course design that considers the unique needs and learning styles of students. It also underscores the need for continuous improvement and

assessment of digital course materials to enhance their effectiveness (Achieng & Omondi, 2019).

2.7 Digital Learning

With digital learning, students are able to choose their own parameters for how, where, when, and how fast they study. There is a lot more to digital learning than simply giving students a laptop. Instruction and technology must be integrated into digital learning in order to achieve its full potential (Kashada, Li & Koshadah 2018). Digital classrooms of the future appear to be composed of a number of interconnected, modular components. Components have capabilities that enable a specific educational task to be successfully completed. Components that fall under these umbrellas include collaboration and testing. Components can be upgraded and replaced as needed, allowing the learning environment to evolve with the times (Simamora, 2020).

Personal and professional lives are growing increasingly reliant on digital tools and platforms. Access to education and knowledge is made easier through digital learning, and students are given the mentality and skills they need to succeed now and, in the future, (Vari, Sharma & Ventä-Olkkonen, 2020). A growing body of evidence shows that just providing students with gadgets does not guarantee better outcomes; rather, effective integration and the adoption of a digital mindset are required if digital learning is to improve student satisfaction and achievement. In order to get the most out of digital learning, it is best to include numerous digital tools into a single project or notion. Keeping in mind that digital learning is meant to improve rather than complicate the learning process is essential (Kamberidou, 2020).

Teacher practice can be transformed through the use of digital technologies, and digital learning can be realized as a result. Vygotskian mediating tools like digital technology

are used in schools to improve standards and allow personalized learning, according to the theory (Blundell, Lee & Nykvist, 2016). The curriculum demands and the advancement of Science, Technology, Engineering, and Mathematics (STEM) education need its inclusion as well. The transformative and reformative potential of digital technologies has not been widely realized despite substantial financing for the supply of digital technology for schools in Australia and abroad (Grabosky, Smith & Wright, 2018).

2.8 Summary of Literature and Gaps

From the literature review and in the post-COVID- 19 Era, it is notable that the education sector has experienced rapid and complex technological changes in education (Agbaje, 2018, Robinson, Kupková & Martnek, 2020; Ngwacho, 2020 Adarkwah, 2021). The knowledge explosion is challenging long-held views about what students should learn throughout their college years, while new means for accessing, creating and showing information are redefining how students learn (Altbach et al., 2019: Lasisi, Dongjun, & Chris, 2021; Ajiboye, Yusuf & Ajayi 2019: Lawal & Chatwin, 2011; Abubakar, Lam, & Din, 2016; Abdullahi, Zubair, & Sheriff, 2017; Akoma, Sheriff, & Abdullahi, 2015). Regarding infrastructure development, these previous surveys hardly reveal the full extent of progress. The current study, therefore, looked into the availability of infrastructure to support digital learning in public universities during the post-COVID-19 Era in Uasin Gishu County, Kenya.

From the reviewed literature, it was revealed that the perception of online learning affects digital learning among students (Raj & Khare, 2020; Aruga et al., 2020; Sailer et al., 2021; Caena & Redecker, 2019; Chatterjee & Correia, 2020). For students, having a computer at home is one factor that influences digital learning, as well as gender, the

frequency and quality of their teachers' instructions and feedback, their sense of connection to their educational community, their parents' support, their ability to manage their time, the course's content and design, and their overall impression of its quality (Aruga et al., 2020; Cakır, & Solak, 2015; Rhema, & Miliszewska, 2014; Prior, Mazanov, Meacheam, Heaslip, & Hanson, 2016; Abbasi et al., 2020; Abbasi et al., 2020; Khan et al., 2020; Sephania et al., 2017). Using this information, researchers could better understand how students perceive digital learning. Therefore, the current study examined the technological perception of learners towards digital learning in public universities during the post-COVID-19 Era in Uasin Gishu County, Kenya.

From reviewed literature, it was noted that facilitators need to possess additional skills in computers in order to teach learners. Teachers must be able to plan and implement digital teaching, and both need an infrastructural, institutional, and organizational environment that is conducive to digital teaching and learning (Shahjahan, 2016; Zheng, 2017; Stewart & Lowenthal, 2019; Shin & Hickey, 2021; Lorenza & Carter, 2021 and Mukhtar & Chowdhary, 2020). Teachers and students in higher education need the skills to design and implement digital instruction; students need the resources to make the most of digital learning opportunities; and all parties require an institutional, pedagogical, and technological setting that supports technology integration into the classroom. Training for pedagogical modifications is what is really important. Instructors must be able to use e-learning tools effectively in order for digital learning to be a success (Almaiah et al., 2020; Jalinus et al., 2017; Luna Scott, 2015; Chigona, 2018; Hall et al., 2020; Daniel, 2016; Rojo et al., 2018). In most Kenyan public universities, e-learning is still in its infancy due to numerous implementation issues. Therefore, the current study established the competence of facilitators in digital learning in public universities during the post-COVID-19 Era in Uasin Gishu County, Kenya.

While the globe has been going through much hardship recently, the influence of online learning has been particularly noticeable on instructors and students alike. Online teaching and learning have many advantages and drawbacks (Stanistreet et al., 2020). Students cannot fit online learning into their schedules since it offers so much time and flexibility. The lack of one-on-one attention in online education is also a major problem. A lack of community, technical issues as well as difficulties in comprehending educational objectives are the main reasons students do not want to learn online (Almahasees et al., 2021, Stanistreet, Elfert & Atchoarena, 2020; Almaiah, al-Khasawneh, and Althunibat, 2020; Nartiningrum & Nugroho, 2020; Al-Azawei et al., 2016; Hadullo et al., 2018). Therefore, the current study evaluated the challenges of using digital learning in public universities during the post-COVID-19 Era in Uasin Gishu County, Kenya.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter covers the research design, study area, target population, sampling design, types of data and collection instruments and procedure, reliability and validity of research instruments, data processing, analysis, presentation and ethical consideration.

3.2 Research Paradigm

A research paradigm is a set of procedures that establishes a connection between research methods and findings. The researchers in this study adopted a pragmatic paradigm approach since it allowed them to combine qualitative and quantitative methods at various points in the investigation process (Molina-Azorin, 2016). The what and the how of the research challenge are the primary foci of the pragmatist. The pragmatist paradigm is seen as providing the primary theoretical underpinnings for mixed research approaches (Rezaee, 2017). This paradigm was used for the investigation since it incorporated both qualitative and quantitative techniques.

3.3 Research Design

The research design is the strategy for gathering and analyzing data that will yield reliable results. The research method was descriptive. Rather of focusing on the "why" behind an observed phenomena, descriptive research seeks to provide a detailed account of the members of a target population. Thus, it "describes" the research issue without providing an explanation for its occurrence. The major purpose of the study necessitated the use of this design in order to establish a connection between the independent variables (availability of infrastructure, technological perception, competence of facilitators and challenges) and the dependent variable (digital learning). The researcher

was able to learn a great deal thanks to this methodological approach (Creswell & Creswell, 2017).

3.4 Area of Study

The study was conducted in Moi University and University of Eldoret Main Campus. Uasin Gishu County is located in the mid-west of Kenya's Rift Valley and covers an area of 2,955.3 km². It lies between longitudes 34 degrees 50' east and 35 degrees 37' West and latitudes 0 degrees 03' South and 0 degrees 55' North. The county borders Trans-Nzoia County to the north, Elgeyo-Marakwet and Baringo counties to the east, Kericho county to the south, and Nandi county to the south-west. The county is situated on a plateau and has a cool and temperate climate, with annual temperatures ranging between 7°C and 29°C. Moi University and the University of Eldoret was chosen because they are two of the largest public universities in Kenya, with a combined student population of over 20,000. Their experiences with digital learning during the post-COVID-19 era are likely to be relevant to other public universities in Kenya and other developing countries. Conducting a study on two universities is more feasible than conducting a study on all public universities in Kenya, especially given the financial and logistical constraints that often exist in developing countries. Focusing on two universities allows for a more in-depth analysis of the dynamics in education and effects of digital learning. This is because researchers can collect more data and conduct more interviews with students, faculty, and administrators at each university.

3.5 Target Population

The target population refers to the group of people or study subjects who are similar in one or more ways and which forms the subject of the study in a particular survey. The study targeted school of education and agricultural science. The School of Education and Agricultural Science at Moi University and University of Eldoret is a well-respected institution with a long history of providing high-quality education and research. The schools have a strong focus on using technology to improve teaching and learning, and it is well-positioned to conduct a study on the dynamics in education and effects of digital learning in public universities during the post-COVID-19 era. The school has a number of faculty members with expertise in digital learning and educational technology. These faculty members have published extensively on these topics and have conducted research on the use of digital learning in a variety of educational settings. The school has access to state-of-the-art technology and facilities, including computer labs, smart classrooms, and a distance learning center. These facilities will allow the researchers to collect data and conduct interviews with students, faculty, and administrators in a comfortable and supportive environment. This study targeted 3586 comprising of 2 deans, 23 head of department, 151 lecturers and 3410 students. The choice of Year 4, Year 3 and Postgraduate was because they have been in the university before, within and post COVID-19 period.

Table 3.1 Target Population

	Category	Target Population
School of Education	Dean	1
	Head of Department	12
	Lecturers	89
	Year 4	1205
	Year 3	1632
	Postgraduate	177
	Sub totals	**3116**
Agricultural science	Dean	1
	Head of Department	11
	Lecturers	62
	Year 4	136
	Year 3	129
	Postgraduate	131
	Sub totals	**467**
Total		**3586**

3.6 Sample Size and Sampling Technique

The number of observations or samples that should be used in a statistical study is known as the sample size (Orodho, 2003). To draw conclusions about a larger population from a smaller subset of that population, the sample size is a crucial aspect of any empirical investigation. Sampling technique is the process of selecting a subset of a population to study in order to draw conclusions about that subset that are representative of the whole population. The researcher used Yamane's formulas (1967) to determine the appropriate sample size.

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

Where in is the sample size required

 N is the population size =3586

e is the level of precision =0.05

n=$\frac{3586}{1+3586(0.05)2}$

n=360

3.7 Sampling Procedure

The research included a combination of purposive and simple random sampling techniques to select respondents. Purposive sampling was used to select dean and head of department. Simple random sampling techniques was to select lecturers and students. To ensure that study items are selected with equal probability for representative learning and replication of lessons and methods to aid industry, simple random sampling is used.

Table 3.2 Sample Size

	Category	Sample size
School of Education	Dean	2
	Head of Department	2
	Lecturers	9
	Year 4	119
	Year 3	163
	Postgraduate	18
	Sub totals	313
Agricultural science	Dean	2
	Head of Department	2
	Lecturers	6
	Year 4	13
	Year 3	13
	Postgraduate	11
	Sub totals	47
Total		**360**

3.8 Research Instruments

This study used primary sources of data to produce quantitative information. A primary source gives the researcher direct evidence about digital leaning in public universities after COVID 19. Since primary sources are the most reliable and provide authentic data and proof. The objectives of the study served as a road map for the formulation of the questionnaire used in this research. The study employed a questionnaire (Appendix and I) designed to elicit respondents' opinions in order to achieve the aims of the research. Questions were not left open for interpretation. The questionnaire method was selected since it required minimal setup and analysis time. The researcher was required to be physically present when the respondents were filling the questionnaires hence providing

the respondents with free conducive atmosphere to fill the questionnaires and it could elicit information from respondents. The interview schedule was used to collect data from head of department and dean (Appendix IV).

3.9 Pilot Study Results

The researcher conducted a pilot test of the study's instruments on 36 students from Koitalel Samoei University College, representing 10% of the total sample. This helped establish the instruments' validity and reliability. The researcher was able to determine the reliability of respondents' responses and make necessary adjustments to the items by analyzing the data from the piloted research instruments.

3.9.1 Validity of the Research Instruments

Validity and reliability increase transparency and decreases opportunities for research bias in qualitative research Singh (2014). To test validity, the research instruments was availed to the supervisor and other specialized lecturers in this field of study in the university to review the test items. There are different types of validity in research instruments.

Face Validity: This type of validity refers to whether a test or scale appears to measure what it is intended to measure. Ensure that the measure is clearly relevant for what it is measuring (Mohajan, 2017). Make sure that the measure is appropriate for the participants. Ensure that the measure is adequate for its purpose. Use qualified individuals to evaluate the measure, such as persons who take the test, university administrators, or members of the general public who have an interest in the test. Test face validity at an early stage in the research process or anytime you're applying an existing test in new conditions or with different populations. Ensure that there is strong agreement between different groups of people to have a good understanding of face

validity in your test. Use simple and easy-to-understand language in the questions or items of the measure. Ensure that the questions or items of the measure are directly related to the construct or quality it is intended to measure.

The term face validity is often used to describe how a test looks, but it does not imply that the test's actual effectiveness has been shown (Kimberlin & Winterstein, 2008). However, establishing the test's face validity is essential since doing so paves the way for assessing the test's criterion and content validity, both of which are more sophisticated forms of validity.

Content Validity: Measurement completeness validity looks at whether or not a test or scale collects data on every aspect of a construct (Sürücü & Maslakci, 2020). One way to guarantee that questionnaires have face validity is to have a supervisor or other research professionals review them to make sure the questions actually test or measure the variables of interest. The content validity of quantitative and qualitative research instruments is crucial in establishing their reliability as measuring tools. It is common practice to evaluate tests of knowledge in a certain area by looking at their content validity.

Construct Validity: This type of validity refers to whether a test measures the concept that it is intended to measure (Bull, Byrnes, Hettiarachchi & Downes, 2019). To achieve construct validity in research, it is important to ensure that the test or measure accurately assesses the concept it is supposed to. This can be done by operationalizing constructs into concrete and measurable characteristics based on your idea of the construct and its dimensions. To ensure that the measurement tool matches the construct you want to measure, you need to develop a questionnaire that includes only relevant questions that measure known indicators of the construct. It is also important to have

multiple observable or measurable indicators to measure constructs that cannot be measured or observed directly. This was to ascertain that they are based on the content area before commencing data collection. Further, validity was achieved through a pilot study and also formulate hypotheses about the relationships between the construct being measured and other variables. Training of the research assistant on administration of questionnaires to be used in data collection.

The research adopted a content validity. The research instrument's validity was established through expert judgment. The content validity was achieved by subjecting the data collection instruments to an evaluation group of experts who provided their comments and relevance of each item of the instruments. The validity of the instrument also reflects on the items which are structured in simple language to enable the respondents to respond to the questions with ease and cover the research objectives.

3.9.2 Reliability of the Research Instruments

Reliability is the degree to which the same results are obtained when the same instrument is used on the same subjects under the same conditions. The internal consistency of the responses was used to determine the research instrument's reliability in this study. Cronbach's Alpha was utilized to quantify the internal consistency, where alpha values run from 0 to 1, with higher alphas indicating greater reliability. Kothari (2014) states that a dependability coefficient more than or equal to 0.8 is considered to be excellent. Cronbach's Alpha values greater than 0.7 were considered reliable in this analysis. The reliability results are presented in Table 3.3.

Table 3.3 Reliability Test Results

Constructs		Lectures		Students	Deduction
	Items	Cronbach alpha	items	Cronbach alpha	
Challenges	4	.971	4	.724	Reliable
Infrastructure	4	.918	4	.716	Reliable
Perception of Learners	4	.942	4	.726	Reliable
Competence of Facilitators	4	.932	4	.767	Reliable
Digital learning	4	.869	4	.761	Reliable
Average		**.927**		**.739**	

Alpha value threshold at 0.7, Gliem and Gliem (2003) thus forming the study's benchmark. Cronbach alpha was established for every objective which formed a scale. The Table 3.3 shows that challenges had a reliability of (α=0.971) for lectures while challenges had a reliability of (α=0.724) for students, infrastructure had a reliability of (α=0.918) for lectures while infrastructure had a reliability of (α=0.716) for students, perception of learners (α=0.942) for lectures while (α=0.726) for students, competence of facilitators (α=0.932) for lectures while (α=0.767) for students and digital learning (α=0.869) for lectures while (α=0.761) for students. All of the Variables were trustworthy because their reliability values were higher than the required 0.7. The Cronbach's Alpha for each of the study's variables was greater than 0.7, indicating the reliability of the survey used in the study (Castillio, 2009).

3.10 Data Collection Procedure

The researcher first sought for letter from the University which was used to sought a permit from the National Commission for Science, Technology, and Innovation (NACOSTI). The researcher then proceeded to getting permission from the respective University to collect data. The researcher also sought permission from county

commissionaire and ministry of education Uasin Gishu County. On the set date, questionnaires were administered directly to the respondent using drop and pick method and a follow up was conducted by the researcher to ensure the questionnaires are filled in accordance with the research. The respondents were given researchable time to complete the copies of the questionnaire before picking them for analysis. The researcher prepared an introductory letter to the respondents.

3.11 Data Analysis and Procedures

Data gathered in the field might be overwhelming, thus data analysis is necessary to make sense of it all (Jafari & Ahmadi Safa, 2022). The data was cleaned and sorted to get rid of any duplications, mistakes, or other problems that might arise during analysis. In order to better understand the data, SPSS version 25 was utilized to run descriptive statistics on it. Percentages, frequencies, means, medians, and standard deviations were all examples of descriptive statistics. The study tested hypotheses using inferential statistics such as multiple regression and correlation analysis. Thematic analysis was used to analyze qualitative data collected using interview schedule and open ended questions.

Table 3.4 Summary of Data Analysis Techniques

Objectives	Descriptive analysis	Inferential analysis
To determine the availability of infrastructure to support digital learning in public universities during the post COVID 19 Era in Uasin Gishu County, Kenya.	• Frequency • Percentages • Mean • Standard deviation • Thematic analysis	• Regression Analysis • Correlation
To examine the technological perception of learners towards digital learning in public universities during the post COVID 19 Era in Uasin Gishu County, Kenya.	• Frequency • Percentages • Mean • Standard deviation • Thematic analysis	• Regression Analysis • Correlation
To establish the competence of facilitators on digital learning in public universities in during the post COVID 19 Era in Uasin Gishu County, Kenya.	• Frequency • Percentages • Mean • Standard deviation • Thematic analysis	• Regression Analysis • Correlation
To evaluate the challenges on use of digital learning in public universities during the post COVID 19 Era in Uasin Gishu County, Kenya	• Frequency • Percentages • Mean • Standard deviation • Thematic analysis	• Regression Analysis • Correlation

3.12 Ethical Consideration

The University of Eldoret provided the researcher with an introduction letter, which was then delivered to the National Commission for Science, Technology, and Innovation (NACOSTI). Throughout the duration of the study and after the results were published, the confidentiality of the respondents was protected at all times. The researcher used a consent form that included language explaining the study's purpose, how participants would be selected, what they could expect to gain from participating, what risks might be involved, and how those risks would be mitigated. Participants were asked to sign an informed consent form after they had read and understood the document, indicating that they were participating in the study voluntarily.

CHAPTER FOUR

DATA PRESENTATION ANALYSIS AND INTERPRETATION.

4.1 Introduction

The analysis of the data collected was presented in this chapter. Descriptive statistics that included frequency, percentages, means and standard deviations were employed to analyze the data, and the emerging findings were presented using tables and figures and tables.

4.2 Response Rate

Response rate is the number of people who answered the survey divided by the number of people in the sample. The study response rate for this study is presented in Table 4.1.

Table 4.1 Response Rate

Categories	Response rate	Frequency	Percentage
Dean/Head of Department	Interviewed	4	100
Lecturers	Questionnaires Administered	15	100
	Questionnaires Responded	13	86.7
	Questionnaires Not responded	2	13.3
Students	Questionnaires Administered	341	100.0
	Questionnaires Responded	311	91.2
	Questionnaires Not responded	30	9.3
	Total Respondents	**328**	**91**

Referring to Table 4.1, out of 15 questionnaires administered to lectures, 13 were correctly and fully filled thus giving a response rate of 86.7%. Further out of 341 questionnaires administered to students, 311 were correctly and fully filled thus giving a

response rate of 91.2%. Finally, all 4 Dean/head of department were interviewed responded. A response rate of 50% is considered sufficient for analysis and reporting, while a rate of 60% is considered good, and a rate of 70% or higher is considered exceptional, per Mugenda and Mugenda (2003). Based on the assertion, the response rates were excellent. The high percentage of response rate was achieved through follow up calls on contact person and using research assistant.

4.3 Demographic Information

The study established the demographic information from the respondents.

4.3.1 Gender Distribution of the Respondents

The study sought to determine the gender distribution of the respondents in the survey. The findings are presented in Figure 4.1.
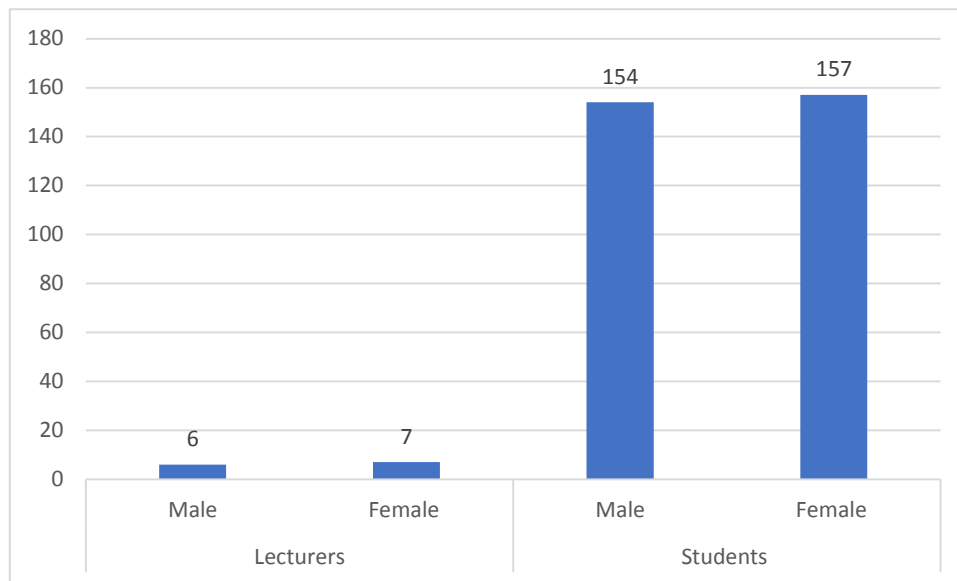
Figure 4.1 Gender of the Respondents

Figure 4.1 showed that 7(53.8%) were female respondents, while 6 (46.2%) were male respondents. Further the findings show that, the majority, 157(50.5%), were male participants, while 154(49.5%) of the respondents were female participants. The

findings reveal that most lecturers were females. On the other hand, male and female students had equal opportunities to be included in the study meaning the gender were equally distributed from both lecturers and students

4.3.2 Age Brackets Respondents

The established age brackets of the respondents and results are presented in Table 4.2 and Figure 4.2:

Table 4.2 Age Brackets of the Lectures

Age Brackets	Frequency	Percentage
Less than 30 years	2	15.4
31-40 years	3	23.1
41 - 50 Years	4	30.8
Over 50 years	4	30.8
Total	13	100

According to Table 4.2, 4 (30.8%) of respondents were over 50, while 4 (30.8%) were between the ages of 41 and 50. In addition, 3(23.1%) of the respondents were found to be between the ages of 31 and 40, while 2(15.4%) were 30 years and below. This implies that majority of the respondent lectures were over the age of 41 years having 8(61.6%) of the total respondents. The findings showed that most of the lecturers were in a position to give information on the dynamics in education and their effects on digital learning.
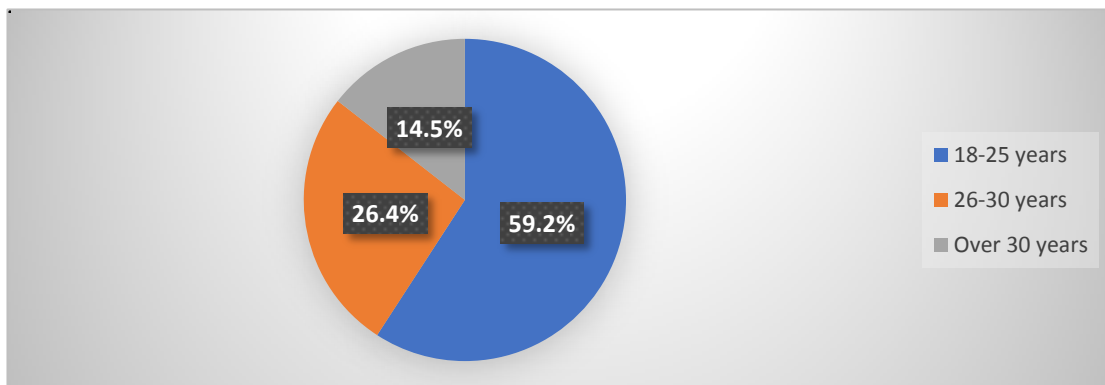
Figure 4.2 Age Bracket of the Students

Figure 4.2 indicates that the majority of the respondents, 184(59.2%), were aged between 18 – 25 years, while 82(26.4%) were between 26-30 years of age. Further, 45(14.5) of the respondents were 30 years and above

4.3.3 Education Level of the Respondents

The study determined the education level of the respondents and the results are presented in Table 4.3 and Table 4.4.

Table 4.3 Education Level of Lecturers

Education Level	Frequency	Percent
Master's degree	2	15.4
Doctorate/Ph.D. level	11	84.6
Total	**13**	**100.0**

The results in Table 4.3 indicates that the majority of the respondents, 11(84.6%), had attained a Doctorate/Ph.D. level of education. However, 2(15.4%) accounted for the respondents who had attained a master's degree. This implied that most lecturers were Doctorate/Ph.D. holders.

Table 4.4 Years of the Study of Students

Education Level	Frequency	Percentage
Bachelors	282	90.7
Masters	29	9.3
Total	**311**	**100**

From Table 4.4 majority of 282(90.7%) were doing bachelor's degree, while 29(9.3%) accounted for the respondents who had a master's degree.

4.3.4 Years of Experience

The study established the number of years the lecturers have been lecturing. Figure 4.3 presents the study results.
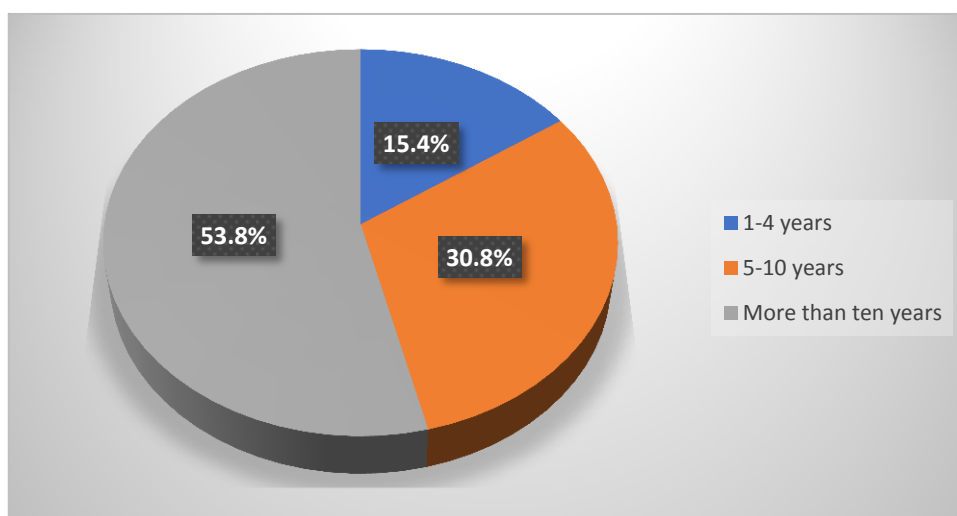
Figure 4.3 Years of Experience for Lectures

Figure 4.3 revealed that most 7(53.8%) of the respondents had more than ten years of experience while 4(30.8%) had between 5-10 years of experience in service. However, 2(15.4%) of the respondents and between 1-4 years of experience. This suggests that most of the lecturers had worked for more than a decade, indicating that most of the employees are experienced enough to help the business achieve its goals.

4.4 Availability of Infrastructure to Support Digital Learning in Public universities

The study sought to evaluate availability of infrastructure to support digital learning in Public universities in Uasin Gishu county. The participants were asked to rate their agreement with various statements using a Likert scale that ranged from 1 (strongly disagree) to 5 (strongly agree). The average responses were analyzed using a five-point scale: less than 1.5 for strongly disagree, 1.5–2.5 for disagree, 2.5–3.5 for moderately agree, 3.5–4.5 for agree, and >4.5 for strongly agree.

4.4.1 Lecturers' Response on Availability of Infrastructure to Support Digital Learning

Table 4.5 presented the results of a Likert-scale survey given to lecturers, in which they were asked to rate their level of agreement with four statements about the availability of technological resources for online education.

Table 4.5 Lecturers response on Availability of Infrastructure to Support Digital Learning

Statements		SD	D	N	A	SA	Total	Mean	Std
1. Our university has adequate computers and students can easily access the internet	F	2	1	1	7	2	13	3.69	1.65
	%	15.4	7.7	7.7	53.8	15.4	100		
2. The university operates with an updated system to facilitate an online learning management system	F	2	1	2	7	1	13	3.92	1.44
	%	15.4	7.7	15.4	53.8	7.7	100		
3. Both remotely and within the institution, all learners are access to electricity.	F	5	1	2	3	2	13	2.92	1.50
	%	38.5	7.7	15.4	23.1	15.3	100		
4. The University has modern classrooms and lecture halls to support digital learning	F	1	1	2	7	2	13	3.85	1.57
	%	7.7	7.7	15.4	53.8	15.4			

The study results in Table 4.5 showed that the majority, 9(69.2%) of the respondents, agreed that the University has adequate computers and students can easily access the internet. On the contrary, 3(23.1%) of the respondents disagreed that the University has adequate computers and students can easily access the internet. Further, the study results also showed, in terms of mean and standard deviation, that the respondents agreed with the statement that the University has adequate computers and students can easily access the internet (Mean=3.69, standard deviation=1.33). The study findings agreed with Juszkiewicz (2020) reports that public and private 4-year colleges and universities had computer labs on campus in. Additionally, institutions had wireless internet access available to students. Hartley and Andújar (2022) reports that college students have a laptop computer, and have a smartphone. Additionally, 93% of college students use the internet for academic purposes. A study by the Sharaievska et al.

(2022) found that college students believe that having access to technology is important for their success in college.

This implies that most universities have adequate computers and students can easily access the internet. However, it is important to note that there may be some variation in the level of access and resources available across different institutions. For example, some institutions may have more computer labs or faster internet speeds than others. Additionally, some students may have their own personal computers or smartphones, while others may rely on the resources available on campus.

According to the results, 264 (84.9% of the sample) of the respondents agreed with the statement that the University operates with an updated information digital system to facilitate online learning, while 45 (14.4%) of the sample disagreed. Further, the study results also showed, in terms of mean and standard deviation, that the respondents agreed the University operates with an updated information digital system to facilitate online learning (Mean=3.92, standard deviation=1.44). The study findings agreed with the Keith, Cozma, Keith and Cozma (2022) reports that colleges and universities offer some form of online learning. Additionally, these institutions offer at least one fully online degree program. Schultz and Longnecker (2022) found that college students have taken at least one online course. Additionally, college students have taken at least one fully online course. A study by the Stewart and Lowenthal (2022) found that online learning can be as effective as traditional face-to-face instruction. Additionally, the study found that online learning can be more convenient and flexible for students.

This implies that the universities are increasingly using technology to facilitate online learning. This is likely due to the growing demand for online courses and the increasing availability of technology. Online learning can be a valuable tool for students who are

unable to attend traditional classes or who prefer to learn at their own pace. The study further revealed that 278(89.4%) of the participants agreed that all learners are access to electricity both remotely and within the institution. On the contrary,25(8%) of the respondents disagreed that both remotely and within the institution, all learners are access to electricity. Further, the study results also showed, in terms of mean and standard deviation, that the respondents disagreed with the statement that both remotely and within the institution, all learners are access to electricity (Mean=2.92, standard deviation=1.50). However, these findings agree with Teo, Kim and Jiang, (2020) that digital learning has the potential to transform public education. Based on a theoretical framework that integrates effectiveness and social legitimacy perspectives. According to Rizvi and Nabi, (2021) is that the public universities need persistent access to high-speed Internet in and out of school, access to devices that connect learners and educators to the vast resources of the internet and facilitate collaboration and finally digital learning content and tools that can be used to design and deliver engaging and relevant learning experiences.

Finally, the study showed that 237(35.4%) participants agreed that the University has modern classrooms and lecture halls to support digital learning. Contrary to those findings, 60(19.3%) respondents disagreed that the University has modern classrooms and lecture halls to support digital learning. Further, the study results also showed, in terms of mean and standard deviation, that the respondents agreed the University has modern classrooms and lecture halls to support digital learning (Mean=3.85, standard deviation=1.57). These findings concur with Simamora, (2020) that during the COVID 19 pandemic forced education systems worldwide to find alternatives to face-to-face instruction. As a result, online teaching and learning have been used by lecturers and students on an unprecedented scale to facilitate continuous learning progress.

4.4.2 Students Response on Availability of Infrastructure to Support Digital Learning

A total of 4 statements were used to determine the students' response on infrastructure to support digital learning and the responses elicited on a 5-point Likert scale are shown in Table 4.6.

Table 4.6 Students Response on Availability of Infrastructure to Support Digital Learning

Statements		SD	D	N	A	SA	Total	Mean	Std
1. Our university has enough computers and students can easily access the internet	F	27	55	19	106	104	311	3.66	1.33
	%	8.7	17.7	6.1	34.1	33.4	100.0		
2. The University operates with an updated system to facilitate an online learning management system	F	6	39	2	116	148	311	4.16	1.07
	%	1.9	12.5	.6	37.3	47.6	100.0		
3. Both remotely and within the institution, all learners are access to electricity.	F	14	11	8	159	119	311	4.15	0.97
	%	4.5	3.5	2.6	51.1	38.3	100.0		
4. The University has modern classrooms and lecture halls to support digital learning	F	7	53	14	96	141	311	4.00	1.18
	%	2.3	17.0	4.5	30.9	45.3	100.0		

The study results in Table 4.6 showed that the majority, 210(67.5%) of the respondents, agreed that the University has enough computers and students can easily access the internet. On the contrary, 82(26.4%) of the respondents disagreed that the University has enough computers and that students can easily access the internet. Further, the study results also showed, in terms of mean and standard deviation, that the respondents agreed with the statement that the University has enough computers and students can easily access the internet (Mean=3.66, standard deviation=1.33).

The study findings agreed with the Kibuku, Ochieng and Wausi (2020) indicated that all public universities in Kenya have computer labs with computers for students. Additionally, all public universities have wireless internet access available to students. A study by the Sayaf, Alamri, Alqahtani and Alrahmi (2022) found that college students in Kenya use computers for academic purposes. This implies that most Kenyan universities have adequate computers and students can easily access the internet. However, it is important to note that there may be some variation in the level of access and resources available across different institutions. For example, some institutions may have more computer labs or faster internet speeds than others. Additionally, some students may have their own personal computers or smartphones, while others may rely on the resources available on campus.

Also, the study findings noted that 264(84.9%) of the respondents agreed and 45(14.4%) disagreed that the University operates with an updated system to facilitate online learning. Further, the study results also showed, in terms of mean and standard deviation, that the respondents agreed the University operates with an updated system to facilitate online learning (Mean=4.16, standard deviation=1.07). The study findings concurred with Marasi, Jones and Parker (2022) who found that college students have taken at least one online course. A study by the Aboagye (2021) found that online learning can be as effective as traditional face-to-face instruction. Additionally, the study found that online learning can be more convenient and flexible for students. This implies that online learning can be a valuable tool for students. However, it is important to note that not all online courses are created equal. Some online courses are well-designed and effective, while others are not. It is important for students to do their research and choose online courses that are offered by reputable institutions and that are taught by qualified instructors.

The study further revealed that 278(89.4%) of the participants agreed that all learners are access to electricity both remotely and within the institution. On the contrary, 25(8%) of the respondents disagreed that both remotely and within the institution, all learners are access to electricity. Further, the study results also showed, in terms of mean and standard deviation, that the respondents agreed that all learners are access to electricity both remotely and within the institution (Mean=4.15, standard deviation=0.97).

The study findings concurred with Sovacool and Vera (2014) who noted that access to electricity is crucial for learners both remotely and within the institution. Lack of access to electricity is a barrier to availability of digital devices and broadband for learners and their families/caregivers. School electrification programs provide access to schools, but rarely to households, meaning students' and teachers' homes remain without access. Electricity in schools can be used for educational purposes such as computer classes and night classes, which can be helpful in areas with a shortage of classrooms. This implies that access to electricity is essential for learners both remotely and within the institution, and lack of access can be a significant barrier to education. Efforts to increase access to electricity in schools and households can help to improve educational outcomes.

Finally, the study showed that 237(35.4%) participants agreed that the University has modern classrooms and lecture halls to support digital learning. Contrary to those findings, 60(19.3%) respondents disagreed that the University has modern classrooms and lecture halls to support digital learning. Further, the study results also showed, in terms of mean and standard deviation, that the respondents agreed the University has modern classrooms and lecture halls to support digital learning (Mean=4.00, standard deviation=1.18).

From the findings of the study, it was evident that responses to the 4 statements used to explain the students' response on the infrastructure to support digital learning had an overall mean of 3.9 and a standard deviation of 1.1. This shows that majority of the respondents agreed on the statements of infrastructure to support digital learning in public universities in Uasin Gishu county. These findings agree with Al-Azawei, Parslow and Lundqvist, (2016) who states that the rapid growth of Information and Communication Technologies (ICTs) in the last decades has reshaped the forms of teaching and learning in Higher Education and although many forms of ICT innovations have been used for educational purposes comprising "computers, the Internet, broadcasting technologies.

4.4.3 Hypothesis Testing

In order to test hypothesis H_{01}: There is no significant relationship between availability infrastructure and digital learning in public universities during the post COVID 19 Era in Uasin Gishu County, Kenya simple linear regression was used. The linear regression analysis models the relationship between the dependent variable digital learning and independent variable infrastructure. The results are shown in sections that follows.

Table 4.7 Model Summary of Infrastructure to Support Digital Learning.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.354[a]	.125	.122	.66189

a. Predictors: (Constant), Infrastructure.

The coefficient of determination (R^2) and correlation coefficient (R) shows the degree of association between infrastructure and digital learning in public universities. The results of the linear regression in Table 4.7 indicate that R^2 =0.125 and R = 0.354. R value indicates that there is a strong linear relationship between infrastructure and

digital learning in public universities. The R^2 indicates that explanatory power of the independent variables is 0.125.

Adjusted R^2 is a modified version of R^2 that has been adjusted for the number of predictors in the model by less than chance, the adjusted R^2 of 0.122 which is slightly lower than the R^2 value is an exact indicator of the relationship between the independent and the dependent variable because it is sensitive to the addition of irrelevant variables. The adjusted R^2 indicates that 12.2% of the changes in strategy implementation are explained by the model while 87.8% is not explained by the model.

This implies that infrastructures had an effect on digital learning in public universities. These results are consistent with the findings by Hadullo, Oboko and Omwenga (2017) who noted a model for evaluating e-learning systems quality in higher education in developing countries. On contrary to this maintenance of a good infrastructure provides a room for better digital learning.

The study used Analysis of variance to check whether the model could forecast the result better than the mean, as seen in Table 4.8.

Table 4.8 ANOVA of Availability of Infrastructure to support digital learning

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	19.357	1	19.357	44.185	.000[b]
	Residual	135.371	309	.438		
	Total	154.729	310			

a. Dependent Variable: digital learning

b. Predictors: (Constant), infrastructure

From Table 4.8 the F test provides an overall test of significance of the fitted regression model. The F value indicates that all the variables in the equation are important hence the overall regression is significant. The F-statistics produced (F = 44.185.) was significant at p=0.000 thus confirming the fitness of the model and therefore, there is statistically significant relationship between infrastructure and digital learning in public universities. Table 4.9 shows the estimates of β-value and gives contribution of the predictor to the model.

Table 4.9 Availability of Infrastructure to Support Digital Learning

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.910	.184		15.855	.000
	Availability Infrastructure	.300	.045	.354	6.647	.000

The Table 4.9 indicates there was positive linear relationship between infrastructure and digital learning. Infrastructure was significant (p=0.000) in digital learning contributing 30%. This implies that infrastructure has an influence in supporting digital learning in public universities.

Since the (β_1=0.300, p<0.05) the study rejected the null hypothesis (**Ho1**) and concluded that availability of infrastructure support has significant effect on digital learning in public universities during the post COVID 19 Era in Uasin Gishu County, Kenya. This study is consistent with the findings by Marlena, Dwijayanti and Patrikha (2022) who noted that the availability of infrastructure support affects digital learning in public universities. If students do not have reliable internet access, they may not be able to access course materials or participate in online discussions. This can lead to missed learning opportunities and can make it difficult for students to keep up with the course.

If students do not have adequate hardware and software, they may not be able to use the digital learning platform effectively. This can lead to frustration and can make it difficult for students to learn the material. If students do not have access to technical support, they may not be able to troubleshoot problems with the digital learning platform. This can lead to lost time and can make it difficult for students to learn the material. By addressing these infrastructure challenges, institutions can improve the effectiveness of digital learning.

4.4.4 Interviews Results

The study findings from interviews revealed that the COVID-19 pandemic has drastically altered the traditional way of learning, forcing educational institutions to adopt remote learning practices. This shift has highlighted the importance of digital infrastructure in public universities in supporting online education. Online learning opportunities can improve the skills of lecturers and students in accessing the internet, proficient in using online learning media/applications such as zoom, google meet, classroom, proficient in using e-learning applications and other digital technologies. The ability to access reliable technology is crucial for students to participate actively and engage with course materials effectively. Furthermore, it is also essential for educators to be equipped with digital tools that enable them to deliver high-quality instruction remotely while maintaining student engagement.

Dean [2] indicated that:

> "*I recognize the importance of infrastructure to support digital learning in the post-COVID 19 era.*"

This implies that digital learning is most obtainable and sustainable with a well-planned and well-maintained infrastructure of EdTech, tools, resources, and access to support teachers and students.

Dean [1] noted that:

> *"Availability of infrastructure for digital learning makes learning easier and convenient."*

This implies that the availability of infrastructure for digital learning makes learning easier and convenient. Students can learn at their own pace and in their own time, regardless of their location. This can be especially beneficial for students who have busy schedules or who live in rural areas. Students can access digital learning materials from anywhere with an internet connection. This means that they do not have to travel to a physical classroom, which can save them time and money.

Digital learning platforms often offer a wider range of educational resources than traditional classrooms. This can include videos, interactive exercises, and simulations. Digital learning platforms can facilitate collaboration between students and faculty. This can help students to learn from each other and to get feedback on their work. Digital learning can be more cost-effective for institutions than traditional classroom instruction. This is because institutions do not have to pay for the construction and maintenance of physical classrooms.

HOD [2] stated that:

> *"Infrastructure is a prerequisite to implementation of digital learning without which digital learning cannot be possible."*

This implies that without these key infrastructure components, digital learning cannot be implemented effectively. The key infrastructure components that are needed for digital learning are: Students and instructors need reliable internet access in order to access digital learning materials and to participate in online discussions and activities. Students and instructors need computers or laptops with sufficient processing power and memory to run the required software. Digital learning platforms and applications are

needed to deliver content, facilitate communication, and track student progress. Technical support staff are needed to troubleshoot problems and to provide training on how to use the digital learning platform and applications.

Dean [3] noted that:

> *"With proper infrastructure the learners and lecturers are in a position to get access to internet without fail."*

This implies that by investing in a proper infrastructure, institutions can ensure that their students and lecturers have the resources they need to succeed in a digital learning environment. This is essential for digital learning, as it allows students to access course materials, participate in online discussions, and collaborate with their peers. The key components of a proper infrastructure for digital learning: Reliable internet access which is the most important component, as it allows students and lecturers to access course materials and participate in online activities. Sufficient bandwidth which is important to ensure that students and lecturers can access the internet without experiencing lag or buffering. Secured network which is important to protect the privacy of students and lecturers, as well as the integrity of the data. Adequate support staff which is important to troubleshoot problems and provide technical support to students and lecturers.

The HOD [1] said:

> *"Lack of infrastructure affect the effectiveness of presentation and content coverage in the digit learning."*

This implies that lack of infrastructure can affect the effectiveness of presentation and content coverage in digital learning. The ways in which this can happen are: Lack of reliable internet access: If students do not have reliable internet access, they may not be able to access course materials or participate in online discussions. This can lead to

missed learning opportunities and can make it difficult for students to keep up with the course. Lack of adequate hardware and software: If students do not have adequate hardware and software, they may not be able to use the digital learning platform effectively. This can lead to frustration and can make it difficult for students to learn the material. Lack of technical support: If students do not have access to technical support, they may not be able to troubleshoot problems with the digital learning platform. This can lead to lost time and can make it difficult for students to learn the material.

The HOD [1] said:

> "*The COVID-19 pandemic has forced public universities to rapidly adopt digital learning platforms and technologies. While many institutions were able to make this transition successfully, others struggled to provide adequate support for their students.*"

Further, Dean [1] revealed that:

> "*One of the biggest challenges has been ensuring that all students have access to the necessary technology and infrastructure. Many students do not have reliable internet access at home, and some do not have computers or laptops that are powerful enough to run the required software. This has created a digital divide, with some students at a significant disadvantage compared to others.*"

This implies that there are a number of factors that have contributed to the challenges faced by public universities in providing digital learning. One factor is the lack of access to technology and infrastructure among students. Many students do not have reliable internet access at home, and some do not have computers or laptops that are powerful enough to run the required software. This has created a digital divide, with some students at a significant disadvantage compared to others.

Another factor that has contributed to the challenges faced by public universities is the lack of training for faculty and staff on how to use the new technologies. Many faculty members are not comfortable using technology in the classroom, and they may not have

the time or resources to learn how to use new platforms and software. This has led to some students falling behind in their studies.

Despite these challenges, public universities have made significant progress in developing the infrastructure needed to support digital learning. Many institutions have invested in new technology, and they have developed training programs for faculty and staff. As a result, digital learning is now a viable option for many students.

In the post-COVID-19 era, digital learning will continue to play an important role in higher education. However, it is important to ensure that all students have access to the necessary technology and infrastructure. This will require continued investment from public universities and policymakers.

4.5 Technological Perception Of Learners Towards Digital Learning In Public Universities.

The study evaluated the technological perception of learners towards digital learning in public universities during the post COVID 19 Era from the respondents. Responses iwere elicited on a 5-point Likert scale of 1-5 where: 1–strongly disagree; 2–disagree; 3-moderately agree; 4-agree; 5-strongly agree. Analysis of the response mean scores was conducted on the continuous scale <1.5 represents strongly disagree; with 1.5-2.5 disagree; while 2.5-3.5 given moderately agree; with 3.5- 4.5 being agree and finally >4.5 represented strongly agree.

4.5.1 Lecturers' Response On Technological Perception Of Learners Towards Digital Learning

A total of 4 statements were used to determine the lecturers' response on the perception of learners towards digital learning and responses elicited on a 5-point Likert scale as shown in Table 4.10.

Table 4.10 Lecturers Response on Technological Perception Of Learners Towards Digital Learning

Statements		SD	D	N	A	SA	Total	Mean	Std
1. Most students fear online due to the nature and content of the courses	F	1	1	1	6	4	13	3.85	1.21
	%	7.7	7.7	7.7	46.2	30.8	100.0		
2. Some students have a negative attitude toward digital learning	F	1	1	1	7	3	13	3.77	1.17
	%	7.7	7.7	7.7	53.8	23.1	100.0		
3. Available materials are insufficient, making some students not appreciate digital learning.	F	1	1	1	10	0	13	3.54	0.97
	%	7.7	7.7	7.7	76.9	0.0	100.0		
4. Poor self-efficacy and management among the learners make them not appreciate digital learning	F	1	2	1	2	7	13	3.92	1.44
	%	7.7	15.4	7.7	15.4	53.8	100.0		

Table 4.10 shows that of the respondents, 10(77.0%) agreed that most students fear online due to the nature and content of the courses. On the contrary, 2(15.4%) disagreed that most students fear online due to the nature and content of the courses. Additionally, the study's findings demonstrated that, based on the mean and standard deviation, the respondents agreed most students fear online due to the nature and content of the courses (Mean=3.85, standard deviation=1.21). The study findings agreed with Gunga and Ricketts (2007) who found that students in Africa are afraid of online learning. The main reasons for this fear are the lack of access to technology, the lack of confidence in using technology, and the fear of not being able to interact with the instructor or other students. This implies that there is a significant fear of online learning among students in Africa. This fear is likely due to a number of factors, including the lack of access to technology, the lack of confidence in using technology, and the fear of not being able to interact with the instructor or other students. Online courses often require students to be

more self-directed in their learning. If the course content is complex or difficult to understand, students may feel overwhelmed without the immediate guidance of an instructor. This can lead to fear and apprehension. This implies that Online courses typically demand a higher level of self-direction from students. They are expected to manage their time, set their study schedules, and take the initiative to engage with the course materials.

Also, 10(76.9%) of the respondents agreed that some students have a negative attitude toward digital learning. However, 2(15.4%) of the respondents disagreed that some students have a negative attitude toward digital learning. Additionally, the study's findings demonstrated that, based on the mean and standard deviation, the respondents agreed that some students have a negative attitude towards digital learning (Mean=3.77, standard deviation=1.17). These findings agree with Unger and Meiran, (2020) which states that undergraduate student attitudes towards rapidly shifting to an entirely online learning environment were assessed due to COVID-19 pandemic that course the shutdown of universities nearly worldwide. Also, according to Dawood, Ghazali, & Samat, (2019) stated that the negative attitudes towards learning was due to some of reasons like poor network coverage in some remote areas mostly rural areas.

Further, 10(76.9%) of respondents agreed that available materials need to be improved, making some students not appreciate digital learning. However, 2(15.4%) of the respondents disagreed that available materials are insufficient, making some students not appreciate digital learning. Additionally, the study's findings demonstrated that, based on the mean and standard deviation, the respondents agreed that available materials need to be sufficient, making some students not appreciate digital learning. (Mean=3.54, standard deviation=0.97). This finding agreed with Gustiani, (2020) who

aimed to reveal both students' intrinsic and extrinsic factors toward their motivation in online learning during the Covid-19 Pandemic era. Also, the findings done by Almaiah., Hajjej, Lutfi, Al-Khasawneh, Shehab, Al-Otaibi and Alrawad, (2022) explaining the factors affecting students' attitudes to using online learning including infrastructure to support on their daily basis.

Lastly, from the study, 9(69.2%) of the participants agreed, and 3(23.1%) disagreed that poor self-efficacy and management among the learners make them not appreciate digital learning. Additionally, the study's findings demonstrated that, based on the mean and standard deviation, the respondents agreed with the statement that poor self-efficacy and management amongst the learners make them not appreciate digital learning (Mean=3.92, standard deviation=1.44). This study findings agree with Zwart, Noroozi, Van Luit, Goei and Nieuwenhuis, (2020) who stated that digital learning materials have had a positive effect on student's and self-efficacy.

4.5.2 Students response on Technological Perception of Learners Towards Digital Learning

A total of 4 statements were used to determine the students' response on perception of learners towards digital learning in public universities and the responses elicited on a 5-point Likert scale are shown in Table 4.11.

Table 4.11 Students response on Perception of Learners towards Digital Learning in Public universities.

Statements		SD	D	N	A	SA	Total	Mean	Std
1. Most students fear online due to the nature and content of the courses	F	21	56	7	162	65	311	3.62	1.19
	%	6.8	18.0	2.3	52.1	20.9	100.0		
2. Some students have a negative attitude toward digital learning	F	14	15	12	165	105	311	4.07	0.99
	%	4.5	4.8	3.9	53.1	33.8	100.0		
3. Available materials must be sufficient, making some students not appreciate digital learning.	F	8	38	12	189	64	311	3.85	0.97
	%	2.6	12.2	3.9	60.8	20.6	100.0		
4. Poor self-efficacy and management among the learners make them not appreciate digital learning	F	7	44	22	95	143	311	4.04	1.14
	%	2.3	14.1	7.1	30.5	46.0	100.0		

Table 4.11 shows that of the respondents, 227(70%) agreed that most students fear online due to the nature and content of the courses. On the contrary, 77(24.5%) disagreed that most students fear online due to the nature and content of the courses. Additionally, the study's findings demonstrated that, based on the mean and standard deviation, the respondents agreed most students fear online due to the nature and content of the courses (Mean=3.62, standard deviation=1.19). The study agreed with a study by the Moll (2010) found that students in South Africa are afraid of online learning. The study found that the main reasons for this fear are the lack of access to technology, the lack of confidence in using technology, and the fear of not being able to interact with the instructor or other students. By addressing the fear of online learning, we can help to make it a more viable option for students in Africa. This will help to increase access to education and to improve the quality of education for all students.

Also, 270(86.9%) of the respondents agreed that some students have a negative attitude toward digital learning. However, 29(9.3%) respondents disagreed that some students have a negative attitude toward digital learning. Additionally, the study's findings demonstrated that, based on the mean and standard deviation, the respondents agreed that some students have a negative attitude towards digital learning (Mean=4.07, standard deviation=0.99). The study findings agreed with Belousova, Mochalova and Tushnova (2022) who found that college students have a negative attitude towards online learning. The main reasons for this negative attitude are the lack of interaction with the instructor and other students, the difficulty of learning online, and the lack of motivation to learn online. This negative attitude are the lack of interaction with the instructor and other students, the difficulty of learning online, and the lack of motivation to learn online.

This implies that a significant number of students have a negative attitude towards online learning. This negative attitude is likely due to a number of factors, including the lack of interaction with the instructor and other students, the difficulty of learning online, and the lack of motivation to learn online.

Further, 253(81.4%) of respondents agreed that available materials need to be increased, making some students not appreciate digital learning. However, 46(14.8%) of the respondents disagreed that available materials needed to be increased, making some students not appreciate digital learning. Additionally, the study's findings demonstrated that, based on the mean and standard deviation, the respondents agreed that available materials need to be increased, making some students not appreciate digital learning (Mean=3.85, standard deviation=0.97). the study findings agreed with Mutisya and Makokha (2016) who noted that in Kenya, there is a limited availability of digital

learning materials. This can make it difficult for students to find the resources they need to succeed in digital learning environments. Additionally, the quality of some digital learning materials in Kenya is not always high. This can lead to students becoming frustrated and disengaged with digital learning.

Lastly, from the study, 238(76.5%) of the participants agreed, and 51(16.4%) disagreed that poor self-efficacy and management among the learners make them not appreciate digital learning. Additionally, the study's findings demonstrated that, based on the mean and standard deviation, the respondents agreed with the statement that poor self-efficacy and management among the learners make them not appreciate digital learning (Mean=4.04, standard deviation=1.14)

From the findings of the study, it was evident that responses to the 4 statements used to explain the students' response on the infrastructure to support digital learning had an overall mean of 3.9 and a standard deviation of 1.1. This shows that majority of the respondents agreed on the statements perception of learners towards digital learning in public universities in Uasin Gishu county. Similarly, these findings concur with Khan, Nabi, Khojah and Tahir, (2020) students' positive perception towards digital learning and thus acceptance of new learning system.

4.5.3 Hypothesis Testing

In order to test the hypothesis H_{02}: There is no significant relationship between perception of learners and digital learning in public universities during the post COVID 19 Era in Uasin Gishu County, Kenya simple linear regression was used. The simple linear regression Analysis models the relationship between the dependent variable digital learning and independent variable perception of learners. The results are shown in sections that follows;

Table 4.12 Model Summary on Technological Perception Of Learners Towards Digital Learning

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.479[a]	.229	.227	.62124

a. Predictors: (Constant), perception of learners.

The coefficient of determination (R^2) and correlation coefficient (R) shows the degree of association between perception of learners and digital learning in public universities. The results of the linear regression in Table 4.12 indicate that R^2 =0.229 and R = 0.479. R value indicates that there is a strong linear relationship between perception of learners and digital learning in public universities Uasin Gishu county.

Adjusted R^2 is a modified version of R^2 that has been adjusted for the number of predictors in the model by less than chance. The R^2 of 0.229 which is slightly lower than the R^2 value is an exact indicator of the relationship between the independent and the dependent variable because it is sensitive to the addition of irrelevant variables. The adjusted R^2 indicates that 22.9% of the changes in digital learning are explained by the model while 77.1% is not explained by the model.

This implies that level of perception of learning has a strong influence on digital learning in Uasin Gishu county. This study relates to the findings of Sarkar, Das, Rahman and Zobaer (2021) who noted that perceptions of public university students towards online classes during COVID-19 pandemic in Bangladesh.

The study used Analysis of variance to check whether the model could forecast the result better than the mean, as seen in Table 4.13.

Table 4.13 ANOVA on Technological Perception of Learners Towards Digital Learning

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	35.473	1	35.473	92.912	.000[b]
1	Residual	119.256	309	.386		
	Total	154.729	310			

From Table 4.13 the F test provides an overall test of significance of the fitted regression model. The F value indicates that all the variables in the equation are important hence the overall regression is significant. The F-statistics produced (F = 92.912) was significant at p=0.000 thus confirming the fitness of the model and therefore, there is statistically significant relationship between perception of learners and digital learning in Uasin Gishu.

Table 4.14 shows the estimates of β-value and gives contribution of the predictor to the model.

Table 4.14 Technological Perception Of Learners Towards Digital Learning

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	(Constant)	2.530	.168		15.069	.000
1	Perception of learners	.395	.041	.479	9.587	.000

The Table 4.14 indicates there was positive linear relationship between perception of learners and digital learning which reveals that an increase in perception of learners to increased digital learning in public universities. Perception was significant (p=0.000) in digital learning at 39.5%. This implies perception of learners has an influence on digital learning in Uasin Gishu. This results are consistent with the finding of Ozkan and

Koseler (2009) who noted that the analytical results strongly support the appropriateness of the proposed model in evaluating LMSs through learners' satisfaction to promote educations system in public universities. Since (β_2=.395, p<0.05) the study rejected the null hypothesis (**Ho2**) and concluded that technological perception of learners towards digital learning in public universities during the post COVID 19 Era in Uasin Gishu County, Kenya.

4.5.4 Interviews Results

The study results from interviews revealed that as technology continues to evolve, the perception of learners towards digital learning in public universities has become a pressing concern. It is clear that there is a growing need for public universities to invest in digital infrastructure and resources in order to cater to the evolving technological needs of learners. Digital learning provides students with access to resources beyond traditional classroom materials. It enables them to learn at their own pace and gives them more control over their education. However, not all students have equal access to technology, which may result in challenges for those who do not have adequate access or training required for online courses. When it comes to academic performance, the use of digital tools should be purposeful rather than excessive since its effects are still under investigation. While some research indicates that there might be potential benefits from using educational technologies such as improved retention rates or better grades; other studies suggest that each individual's academic outcomes vary based on factors like age group or how they perceive digital learning overall.

Dean 1:

> *"I think that students are generally positive about digital learning. They see it as a way to learn at their own pace and to access information from anywhere. However, there are still some students who are hesitant about digital learning. They may be concerned about not being able to interact with the instructor or other students, or they may not be confident in their ability to use technology"*

This implies that it is important for universities to provide students with support for digital learning. This could include providing access to technology, training on how to use technology, and creating online learning environments that are designed to facilitate interaction between students and instructors. By providing this support, the university can help to ensure that all students have the opportunity to succeed in a digital learning environment.

HOD 2:

> *"I believe that students are increasingly embracing digital learning. They are more comfortable using technology and they see it as a way to learn more effectively. However, there are still some challenges that need to be addressed. For example, not all students have access to the same level of technology, and some students may not be comfortable interacting with others online."*

This implies that universities need to do more to support digital learning. This includes providing students with access to technology, training on how to use technology, and creating online learning environments that are designed to facilitate interaction between students and instructors. By addressing these challenges, universities can help to ensure that all students have the opportunity to succeed in a digital learning environment."

Dean 2:

> *""Learners are positive about digital learning but are affected by insufficient infrastructure."*

The deans interviewed believe that students are generally positive about digital learning. However, there are still some challenges that need to be addressed, such as providing students with access to technology, training on how to use technology, and creating online learning environments that are designed to facilitate interaction between students and instructors.

4.6 Competence of Facilitators and Digital Learning in Public universities

The study evaluated the competence of facilitators and digital learning in Public universities from the respondents. Responses were elicited on a 5-point Likert scale of 1-5 where: 1–strongly disagree; 2–disagree; 3-moderately agree; 4-agree; 5-strongly agree.

4.6.1 Lecturers Response on Competence of Facilitators and Digital Learning

A total of 4 statements were used to determine the lecturers' response on the Competence of Facilitators and digital learning and responses elicited on a 5-point Likert scale as shown in Table 4.15.

Table 4.15 Lecturers Response on Competence of Facilitators and Digital Learning in Public universities

Statements		SD	D	N	A	SA	Total	Mean	Std
1. Most facilitators lack the necessary skills to implement and facilitate digital learning	F	1	3	1	2	6	13	3.69	1.49
	%	7.7	23.1	7.7	15.4	46.2	100.0		
2. Pedagogical Knowledge among the facilitators is not up to satisfactory	F	1	2	1	3	6	13	3.85	1.41
	%	7.7	15.4	7.7	23.1	46.2	100.0		
3. The knowledge uptake among the facilitators is the determinant factor of competence level	F	1	1	1	4	6	13	4.00	1.29
	%	7.7	7.7	7.7	30.8	46.2	100.0		
4. Most facilitators are flexible and ready to learn the digital process	F	1	1	1	9	1	13	3.62	1.04
	%	7.7	7.7	7.7	69.2	7.7	100.0		

Table 4.15 showed that 8(61.6%) respondents agreed that most facilitators need more skills to implement and facilitate digital learning. On the contrary, 4(30.8%) disagreed

that most facilitators lack the necessary skills to implement and facilitate digital learning. In addition, the data's mean and standard deviation showed that respondents agreed that most facilitators lack the skills to implement and facilitate digital learning (Mean=3.69, standard deviation=1.49). The study findings agreed with a study by the Omariba (2022) who found that facilitators in Kenya lack the skills to implement and facilitate digital learning. The main reasons for this lack of skills are the lack of training, the lack of access to technology, and the lack of confidence in using technology.

This implies that there is a significant lack of skills among facilitators in Kenya to implement and facilitate digital learning. This lack of skills is likely due to a number of factors, including the lack of training, the lack of access to technology, and the lack of confidence in using technology.

Also, 9(69.3%) of the respondents agreed that pedagogical Knowledge among the facilitators needs to be more satisfactory. However, 3(23.1%) of the respondents disagreed that pedagogical Knowledge among the facilitators needs to be revised. Further, the study results also showed, in terms of mean and standard deviation, that the respondents agreed with the statement that pedagogical Knowledge amongst the facilitators is not up to satisfactory (Mean=3.85, standard deviation=1.41). The study findings agreed with Chan and Hume (2019) who noted that pedagogical knowledge is the knowledge that teachers have about how to teach topics in ways that learners can understand. Pedagogical content knowledge (PCK) is a concept in teacher education that requires additional focus and attention by pre-tertiary teachers to improve teaching and learning and learners' performance. It is important for teachers to have strong subject knowledge, as well as general pedagogical skills, in order to effectively teach topics in ways that learners can understand.

Further, 10(76.9%) of respondents agreed that knowledge uptake among the facilitators is the determinant factor of competence level. However, 2(15.4%) of the respondents disagreed that knowledge uptake among the facilitators is the determinant factor of competence level. Mean and standard deviation data from the survey also revealed that respondents agreed with the statement that facilitators' Knowledge is the determinant of competence level (Mean=4.00, standard deviation=1.29). The study findings agreed with Andyani, Setyosari, Wiyono and Djatmika (2020) who noted that if the pedagogical knowledge amongst the facilitators is not up to satisfactory, it may be necessary to provide additional training or resources to help them improve their teaching skills. This could include workshops or courses on pedagogical content knowledge, as well as opportunities for teachers to collaborate and share best practices with one another. It is also important to ensure that teachers have access to up-to-date information and resources related to the topics they are teaching, so that they can effectively convey this information to their students. By investing in the professional development of teachers and providing them with the resources they need to succeed, it is possible to improve the quality of education and ensure that learners are receiving the best possible instruction.

Finally, 10(76.9%) respondents agreed that most facilitators are flexible and ready to learn the digital process. However, 2(15.4%) of the respondents disagreed most facilitators are flexible and ready to learn the digital process. Furthermore, the study found that most facilitators are flexible and ready to learn the digital process, as measured by respondents' mean and standard deviation. (Mean=3.62, standard deviation=1.04). The study findings agreed with Thomas and Thorpe (2019) who noted facilitation is the process of guiding a group towards a common goal or objective. Facilitation skills are a set of competencies and soft skills that enable professionals to

design and facilitate group processes effectively. Digital facilitation is a type of facilitation that uses digital tools to help a group of people reach their common goals. Good facilitators are adaptable to any and all changes. They are comfortable course-correcting as needed during the gathering. Good facilitators are genuinely interested in their client's problems, product, or challenge and are excited to learn more about it so they can help guide. Digital facilitation requires technical skills and the ability to learn and adjust to new digital tools.

Facilitation styles are either direct or indirect, and the role that a facilitator chooses directly dictates the style of facilitation used. Ability to create a climate for learning and development: A good facilitator builds a climate for learning and development, emphasizing desired outcomes or learning. Facilitation is an applied learning model that requires facilitators to know what the real world is about. Experience is a good supplemental teacher, and professional facilitators develop an extensive toolkit of proven-to-work processes, activities, and templates for this purpose.

4.6.2 Students Response on Competence of Facilitators and Digital Learning

A total of 4 statements were used to determine the students' response on the Competence of Facilitators and digital learning and responses elicited on a 5-point Likert scale as shown in Table 4.16.

Table 4.16 Students Response on Competence of Facilitators and Digital Learning in Public universities

Statements		SD	D	N	A	SA	Total	Mean	Std.
1. Most facilitators lack the necessary skills to implement and facilitate digital learning	F	1	67	1	141	101	311	3.88	1.10
	%	.3	21.5	.3	45.3	32.5	100.0		
2. Pedagogical Knowledge among the facilitators is not up to satisfactory	F	17	46	7	111	130	311	3.94	1.23
	%	5.5	14.8	2.3	35.7	41.8	100.0		
3. The knowledge uptake among the facilitators is the determinant factor of competence level	F	21	51	8	70	161	311	3.96	1.35
	%	6.8	16.4	2.6	22.5	51.8	100.0		
4. Most facilitators are flexible and ready to learn the digital process	F	22	49	1	145	94	311	3.77	1.23
	%	7.1	15.8	.3	46.6	30.2	100.0		

Table 4.16 shows that of the respondents, 242(77.8%) agreed that most facilitators need more skills to implement and facilitate digital learning. On the contrary, 68(21.5%) disagreed that most facilitators need more skills to implement and facilitate digital learning. In addition, the findings of the research demonstrated, in terms of mean and standard deviation, that the individuals who participated in the study agreed most facilitators lack the necessary skills to implement and facilitate digital learning (Mean=3.88, standard deviation=1.10). A study by the Odoyo and Olala (2020) who found that facilitators in Kenya lack the skills to implement and facilitate digital learning. The study found that the main reasons for this lack of skills are the lack of training, the lack of access to technology, and the lack of confidence in using technology.

Also, 241(77.5%) of the respondents agreed that pedagogical Knowledge among the facilitators could be more satisfactory. However, 63(20.6%) of the respondents

disagreed that pedagogical knowledge among the facilitators could be more satisfactory. In addition, the findings of the research demonstrated, in terms of mean and standard deviation, that the individuals who participated in the study agreed on pedagogical Knowledge amongst the facilitators needs to be revised (Mean=3.94, standard deviation=1.24). The study findings agreed with Martin, Budhrani, Kumar and Ritzhaupt (2019) who noted that pedagogical knowledge is important for facilitators to effectively support learning processes. Facilitators need to have strong content knowledge. Facilitators need to develop pedagogical knowledge and instructional and facilitation skills. Pedagogical facilitation strategies include having clear objectives, encouraging participation, promoting conversations, making the course material relevant. Facilitators can help healthcare professionals to identify gaps between knowledge and practice and acknowledge the need for improvement. Novice facilitators may possess both profound mathematics content knowledge and pedagogical content knowledge, but often struggle with effectively supporting teacher learning. The pedagogy of facilitation should encourage respectful relationships among participants, build trust and confidence, provide a balance of autonomy and guidance, etc. Based on these findings, it is important for facilitators to have both strong content knowledge and pedagogical knowledge. Pedagogical facilitation strategies can help facilitate learning processes, and facilitators should encourage respectful relationships among participants and provide a balance of autonomy and guidance.

Further, 231(74.3%) of respondents agreed that knowledge uptake among the facilitators is the determinant factor of competence level. However, 72(23.2%) of the respondents disagreed that knowledge uptake among the facilitators is the determinant factor of competence level. In addition, the findings of the research demonstrated, in terms of mean and standard deviation, that the individuals who participated in the study

agreed that the knowledge uptake among the facilitators is the determinant factor of competence level (Mean=3.96, standard deviation=1.35). the study findings agreed with İpek and Bıçakcıoğlu-Peynirci (2020) who noted the knowledge uptake among facilitators is an important determinant of their competence level, and several factors can influence this uptake, including the level of experience and skill of the facilitator, familiarity with the knowledge being translated, and institutional support for knowledge translation activities.

The study further noted that 239(76.8%) of the participants agreed, and 71(22.9%) disagreed that most facilitators are flexible and ready to learn the digital process. In addition, the findings of the research demonstrated, in terms of mean and standard deviation, that the individuals who participated in the study agreed with the statement that most facilitators are flexible and ready to learn the digital process (Mean=3.77, standard deviation=1.23). The study findings agreed with Lawrence, Williams, Nanz and Renn (2022) who noted that facilitation is the process of guiding a group towards a common goal or objective. Facilitation skills are a set of competencies and soft skills that enable professionals to design and facilitate group processes effectively. Digital facilitation is a type of facilitation that uses digital tools to help a group of people reach their common goals

Good facilitators are adaptable to any and all changes. They are comfortable course-correcting as needed during the gathering. Good facilitators are genuinely interested in their client's problems, product, or challenge and are excited to learn more about it so they can help guide. Digital facilitation requires technical skills and the ability to learn and adjust to new digital tools. Facilitation styles are either direct or indirect, and the role that a facilitator chooses directly dictates the style of facilitation used. Ability to

create a climate for learning and development: A good facilitator builds a climate for learning and development, emphasizing desired outcomes or learning. Facilitation is an applied learning model that requires facilitators to know what the real world is about. Experience is a good supplemental teacher, and professional facilitators develop an extensive toolkit of proven-to-work processes, activities, and templates for this purpose.

4.6.3 Hypothesis Testing

The linear regression analysis models the relationship between the dependent variable digital learning and independent variable competence of facilitators. The results are shown in sections that follows.

Table 4.17 Model Summary on the competence of facilitators and digital learning

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.388[a]	.150	.148	.65227

a. Predictors: (Constant), competence of facilitators.

The coefficient of determination (R^2) and correlation coefficient (R) shows the degree of association between competence of facilitators and digital learning in public universities. The results of the linear regression in Table 4.17 indicate that R^2 =0.150 and R = 0.388. R value indicates that there is a strong linear relationship between competence of facilitators and digital learning in public universities Uasin Gishu county.

Adjusted R^2 is a modified version of R^2 that has been adjusted for the number of predictors in the model by less than chance. The adjusted R^2 of 0.148 which is slightly lower than the R^2 of 0.150 value is an exact indicator of the relationship between the independent and the dependent variable because it is sensitive to the addition of

irrelevant variables. The adjusted R^2 indicates that 14.8% of the changes in digital learning are explained by the model while 85.2% is not explained by the model.

This implies that competence of facilitators had an effect on digital learning in public universities. These results are consistent with the findings by Chu, Liu, So and Lam (2021) who noted and examined factors that affect students' attitude toward online teaching and learning during the COVID-19 pandemic. The study found that students' attitude toward online learning and their interest in learning should be considered because online classes may replace classroom learning for a long period of time.

The study used Analysis of variance to check whether the model could forecast the result better than the mean, as seen in Table 4.18.

Table 4.18 ANOVA on the Competence of Facilitators on Digital Learning

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	23.262	1	23.262	54.675	.000[b]
1	Residual	131.467	309	.425		
	Total	154.729	310			

From Table 4.18 the F test provides an overall test of significance of the fitted regression model. The F value indicates that all the variables in the equation are important hence the overall regression is significant. The F-statistics produced (F = 54.675) was significant at p=0.000 thus confirming the fitness of the model and therefore, there is statistically significant relationship between competence of facilitators and digital learning in Uasin Gishu.

Table 4.19 shows the estimates of β-value and gives contribution of the predictor to the model.

Table 4.19 Coefficients on the competence of facilitators on digital learning

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.643	.201		13.139	.000
	Competence of facilitators	.368	.050	.388	7.394	.000

The Table 4.19 indicates there was positive linear relationship between competence of facilitators and digital learning which reveals that an increase in competence of facilitators to increased digital learning in public universities. Competence of facilitators was significant (p=0.000) in digital learning at 36.8%. This implies competence of facilitators has an influence on digital learning in Uasin Gishu. This results are consistent with the finding of Regmi and Jones, (2020) who stated and identified the factors which impact on e-learning, interaction and collaboration between learners and facilitators, considering learners' motivation and expectations.

The study hypothesized that: There is no significant relationship between facilitators competence on digital learning in public universities during the post COVID 19 Era in Uasin Gishu County, Kenya. Since (β_3=.368, p<0.05) the rejected the null hypothesis (**Ho3**) and concluded that facilitators competence has significant effect on digital learning in public universities during the post COVID 19 Era in Uasin Gishu County, Kenya.

4.6.4 Interviews Results

The study findings from interviews revealed that in today's digital age, the competence of facilitators and the role of digital learning in public universities have become increasingly important. As online education is becoming more prevalent, it is crucial for educators to be competent in delivering effective digital learning experiences. However, this can be a challenging task as it requires a shift in teaching methods and technological proficiency. The COVID-19 pandemic has further highlighted the need for educators to possess these competencies. The sudden shift towards remote learning has forced many public universities to adopt new technologies and adapt their teaching methodologies to meet students' needs effectively.

Head of Department (HOD) 1 stated that:

> *"Facilitators competence will influence their decisions as it provides an option to traditional method of learning."*

This implies that the facilitators who are competent in digital learning are more likely to see it as a viable option for students. They will be able to identify the benefits of digital learning, such as flexibility, accessibility, and cost-effectiveness. Facilitators who are competent in digital learning are more likely to be able to deliver effective online courses. They will be able to use the right tools and techniques to engage students and ensure that they are learning effectively. Facilitators who are competent in digital learning are more likely to be able to support students who are struggling with online learning. They will be able to provide guidance and assistance to help students overcome challenges and succeed in their studies.

Therefore, facilitators who are competent in digital learning are more likely to make the decision to offer digital learning options to their students. This is because they believe

that digital learning can provide a valuable alternative to traditional methods of learning.

HOD 2 noted that:

> *"With competence of facilitators it will boost the morel of the students hence develop positive attitude towards digital learning."*

This implies that when facilitators are competent in digital learning, it can boost the morale of students and help them develop a positive attitude towards digital learning. Students are more likely to be engaged in learning when they feel that their facilitators are competent. This is because they believe that their facilitators know what they are doing and that they can help them learn effectively. Students are more likely to feel confident in their own abilities when they have competent facilitators. This is because they know that their facilitators are there to support them and to help them overcome challenges. Students are more likely to enjoy learning when they have competent facilitators. This is because they are more likely to find the learning process to be enjoyable and rewarding.

Dean 2 stated that:

> *"Lecturers cannot appropriately make learners grasp skills required."*

However, this might not be true that lecturers cannot appropriately make learners grasp skills required. There are many factors that can contribute to a learner's ability to grasp skills, and lecturers can play a significant role in helping learners succeed. Lecturers can do the following to help learners grasp skills. Provide clear and concise instructions. Learners need to be able to understand what they are supposed to do in order to be successful. Lecturers should provide clear and concise instructions that are easy to follow. Use a variety of teaching methods. Not all learners learn in the same

way. Some learners learn best by listening to lectures, while others learn best by doing hands-on activities. Lecturers should use a variety of teaching methods to reach all learners. Provide opportunities for practice. Learners need to practice what they are learning in order to master it. Lecturers should provide opportunities for learners to practice skills in a safe and supportive environment. Learners need feedback on their progress in order to know how they are doing and how they can improve. Lecturers should provide regular feedback to learners so that they can track their progress and make adjustments as needed. Be supportive and encouraging. Learners need to feel supported and encouraged in order to be successful. Lecturers should create a positive and supportive learning environment where learners feel comfortable asking questions and taking risks.

4.7 Challenges in the Use of Digital Learning in Public universities

The study evaluated the challenges in the use of digital learning in Public universities from the respondents. Responses were elicited on a 5-point Likert scale of 1-5 where: 1–strongly disagree; 2–disagree; 3-moderately agree; 4-agree; 5-strongly agree. Analysis of the response mean scores was conducted on the continuous scale <1.5 represents strongly disagree; with 1.5-2.5 disagree; while 2.5-3.5 given moderately agree; with 3.5- 4.5 being agree and finally >4.5 represented strongly agree.

4.7.1 Lectures Response on Challenges in the Use of Digital Learning in Public universities

 A total of 4 statements were used to determine the lecturers' response on the challenges in the use of digital learning and responses elicited on a 5-point Likert scale as shown in Table 4.20.

Table 4.20 Lectures Response on Challenges in the Use of Digital Learning

Statements		SD	D	N	A	SA	Total	Mean	Std
1. Poor access to the network in some areas in the most areas poses a challenge to the learning process	F	1	1	2	5	4	13	3.77	1.24
	%	7.7	7.7	15.4	38.5	30.8	100.0		
2. Facilitators' and student's attitude undermines the digital learning process	F	1	1	2	4	5	13	3.85	1.28
	%	7.7	7.7	15.4	30.8	38.5	100.0		
3. Insufficient resources hinder the full implementation of digital learning	F	1	1	2	6	3	13	3.69	1.18
	%	7.7	7.7	15.4	46.2	23.1	100.0		
4. Skilled personnel in the University are less hence low implementation of digital learning	F	1	1	2	2	7	13	4.00	1.35
	%	7.7	7.7	15.4	15.4	53.8	100.0		

According to Table 4.20, 9 (69.3%) of respondents agreed that poor network access in some places poses a challenge to the learning process. However, 2(15.4%) of respondents disagreed that poor network access in some areas challenges the learning process. Furthermore, the survey results revealed, in terms of mean and standard deviation, that respondents agreed that poor network access in some areas poses a challenge to the learning process (Mean=3.77, standard deviation=1.24). From the above statements on the response of lecturers it implies that there are more challenges in the use of digital learning in public universities. This findings agree with Adnan and Anwar (2020) that COVID 19 outbreak leads to compulsory digital and distance learning in universities.

Also, 9(69.3%) of the respondents agreed, and 2(15.6%) disagreed that facilitators' and students' attitudes undermine the digital learning process. Further, results also showed

that in terms of mean and standard deviation, the respondents agreed that facilitators' and students' attitudes undermine the digital learning process (Mean=3.85, standard deviation=1.28). These findings agree with Phirangee (2016) digital transformation has been adopted in several education organizations to facilitate the learning process regarding its ability to overcome different challenges.

Further, 9(69.3%) participants agreed more resources would help fully implement digital learning. However, 2(15.6%) of the respondents disagreed that more resources hinder the full implementation of digital learning. Further, the study results also showed mean and standard deviation; the respondents agreed insufficient resources hinder the full implementation of digital learning (Mean=3.69, standard deviation=1.18). These findings agree with Subekti (2021) that Covid-19-triggered online learning implementation the resources available on the internet are equally available to all schools with the same internet access and internet access costs the same for all schools in the same area.

Finally, it was noted that 9(69.3%) of the participants agreed that skilled personnel in the University are less hence low implementation of digital learning. On the contrary, it was noted that 2(15.6%) disagreed that Skilled personnel in the University are less hence low implementation of digital learning. Further, results also showed, in terms of mean and standard deviation, that the respondents agreed with the statement that skilled personnel in the University are less hence the low implementation of digital learning (Mean=4.00, standard deviation=1.35). These findings agree with Ferri, Grifoni and Guzzo (2020) who stated that the technological challenges are mainly related to the unreliability of internet connections and many students' lack of necessary electronic devices. The pedagogical challenges are principally associated with teachers' and

learners' lack of digital skills, the lack of structured content versus the abundance of online resources, learners' lack of interactivity and motivation and teachers' lack of social and cognitive presence. The social challenges are mainly related to the lack of human interaction between teachers and students as well as among the latter, the lack of physical spaces at home to receive lessons and the lack of support of parents who are frequently working remotely in the same spaces.

4.7.2 Students Response on Challenges of Digital Learning in Public universities.

A total of 4 statements were used to determine the students' response on the challenges in the use of digital learning and responses elicited on a 5-point Likert scale as shown in Table 4.21.

Table 4.21 Students Response on Challenges of Digital Learning

Statements		SD	D	N	A	SA	Total	Mean	Std
1. Poor access to the network in some areas in the most areas poses a challenge to the learning process	F	15	17	10	168	101	311	4.04	1.01
	%	4.8	5.5	3.2	54.0	32.5	100.0		
2. Facilitators' and student's attitude undermines the digital learning process	F	8	45	14	87	157	311	4.09	1.16
	%	2.6	14.5	4.5	28.0	50.5	100.0		
3. Insufficient resources hinder the full implementation of digital learning	F	15	33	12	142	109	311	3.95	1.12
	%	4.8	10.6	3.9	45.7	35.0	100.0		
4. Skilled personnel in the University are less hence low implementation of digital learning	F	3	24	14	185	85	311	4.05	0.85
	%	1.0	7.7	4.5	59.5	27.3	100.0		

According to Table 4.21, 269(86.5%) of respondents agreed that poor access to the network in some areas in most areas poses a challenge to the learning process. In contrast, 32 (10.3%) disagreed and agreed that poor access to the network in some areas most areas pose a challenge to the learning process. In terms of mean and standard deviation, the survey also found that respondents agreed that poor access to the network

in some areas in most areas poses a challenge to the learning process (Mean=4.04, standard deviation=1.01).

Furthermore, 244 (78.5%) of respondents agreed that facilitators' and students' attitudes undermine the digital learning process. However, 53 (17.1%) of respondents disagreed that facilitators' and students' attitudes undermine the digital learning process. Furthermore, the survey findings revealed that, in terms of mean and standard deviation, respondents agreed that facilitators' and students' attitudes undermine the digital learning process (Mean=4.09, standard deviation=1.16).

The study further noted that 251(80.7%) of the participants agreed, and 48(15.4%) disagreed that insufficient resources hinder the full implementation of digital learning. Further, the study results also showed, in terms of mean and standard deviation, that the respondents agreed with the statement that insufficient resources hinder the full implementation of digital learning (Mean=3.95, standard deviation=1.12).

Finally, the majority of the respondents, 270(86.8%), agreed that skilled personnel in the University are less hence low implementation of digital learning. However, 27(8.7%) of the respondents disagreed skilled personnel in the University is less hence the low implementation of digital learning. Further, the study results also showed, in terms of mean and standard deviation, that the respondents agreed with the statement that skilled personnel in the University are less hence low implementation of digital learning (Mean=4.05, standard deviation=0.85. However, this finding concur with the findings done by Makokha and Mutisya, (2016) who revealed that e-learning is at its infant stage in universities in Kenya. Majority of universities lacked senate approved e-learning policies to guide structured implementations.

4.7.3 Interview Schedules Results

Dean 1 stated that:

> *"In sufficient resources and facilities and availability of network is the main challenge in implementation of the digital learning."*

This implies that inadequate resources, facilities, and network availability are some of the main challenges in implementing digital learning. Digital learning requires a number of resources, including computers, tablets, internet access, and software. In many schools, these resources are not available or are in short supply. This can make it difficult for students to access digital learning materials and participate in online classes.

In addition to resources, schools also need to have adequate facilities to support digital learning. This includes classrooms that are wired for internet access, as well as space for students to work on computers and tablets. Many schools do not have the necessary facilities, which can make it difficult to implement digital learning effectively.

Even if schools have the necessary resources and facilities, digital learning can be disrupted by poor network availability. This can happen due to factors such as outages, congestion, or slow speeds. When network availability is poor, students may not be able to access digital learning materials or participate in online classes.

These are just some of the challenges that schools face when implementing digital learning. There are a number of other challenges, such as the need for teacher training, the need for high-quality content, and the need to address equity issues. However, despite these challenges, digital learning has the potential to improve education for all students.

HOD [1] said that:

"There is no exposure to students and lecturers on digital learning"

This implies the lack of exposure to digital learning for students and lecturers is a major challenge in implementing digital learning. This is because digital learning requires a different set of skills and knowledge than traditional face-to-face learning.

Here are some of the challenges that students face when learning digitally: Lack of access to technology: Not all students have access to computers or tablets, and even those who do may not have reliable internet access. This can make it difficult for students to participate in online classes or access digital learning materials. Lack of digital skills: Not all students are familiar with using technology for learning. This can make it difficult for students to navigate online learning platforms or complete digital assignments. Lack of motivation: Some students may not be motivated to learn online. This can be due to a number of factors, such as the lack of social interaction or the lack of structure.

HOD 1 stated that:

> *"Unreliable network affects all students and lecturers' attitude towards digital learning. Lack of training for both lecturers and students on digital learning. Further insufficient resources to support digital learning. Also, high cost of maintaining and accessing digital learning platforms is among the challenges."*

This implies that the challenges that institutions face when implementing digital learning. Unreliable network: An unreliable network can make it difficult for students and lecturers to access digital learning materials and participate in online classes. This can be frustrating and can lead to students and lecturers losing interest in digital learning. Lack of training: Not all students and lecturers are trained in how to use digital learning platforms effectively. This can lead to students and lecturers feeling lost and frustrated when trying to use these platforms. Insufficient resources: Institutions may

not have the resources they need to support digital learning. This can include things like computers, tablets, internet access, and software. High cost: Maintaining and accessing digital learning platforms can be expensive. This can be a challenge for institutions that are on a tight budget.

Dean [2] said:

> *"Lectures have challenges when the network is un available sometimes low connectivity"*

This implies that lecturers face a number of challenges when the network is unavailable or has low connectivity. Disruption of classes: When the network is unavailable, lecturers may not be able to deliver their lectures or students may not be able to access the materials they need to learn. This can lead to disruptions in the learning process and can make it difficult for students to keep up with the material. Frustration: Lecturers and students may become frustrated when the network is unavailable or has low connectivity. This can lead to a decrease in motivation and a decline in the quality of learning. Increased workload: Lecturers may have to put in extra work to make up for lost time when the network is unavailable. This can lead to burnout and can make it difficult for lecturers to provide quality instruction.

Dean [1] noted that:

> *"It is difficult to keep learners engaged in digital learning. In addition, majority of students or lecturers do not have gadget to use"*

This implies that it can be difficult to keep learners engaged in digital learning. Make it interactive: Use activities and exercises that require students to think and participate. This could include things like quizzes, group discussions, or simulations.

HOD [1] stated that:

> *"Sometimes students lack data bundles and most of them do not own laptops. Also, there is no incentives for staff to switch to digital learning"*

These are some of the challenges that students and staff face when it comes to digital learning. Data bundles can be expensive, and not all students have the means to afford them. This can make it difficult for students to access digital learning materials and participate in online classes. Not all students have laptops, and even those who do may not have access to reliable internet. This can make it difficult for students to complete assignments and participate in online classes. There may not be any incentives for staff to switch to digital learning. This could be due to a lack of training, a lack of resources, or a lack of support from the institution.

The HOD [2] said:

> *"The major challenge public universities encounter during the use of digital learning mainly is lack of internet, lack of resources by the learners to acquire smart phones and laptops. Also lack of sufficient knowledge on the use of ICT materials by both teachers and lectures"*

This implies these are some of the challenges that public universities face when implementing digital learning. Not all public universities have reliable internet access, which can make it difficult for students and lecturers to access digital learning materials and participate in online classes. Not all students have the resources to acquire smart phones and laptops, which can make it difficult for them to participate in online classes and access digital learning materials. Not all lecturers and teachers are familiar with using ICT materials, which can make it difficult for them to create and deliver engaging online lessons.

4.7 Digital Learning in Public universities

The research also established digital learning in public universities, and the results are presented in Table 4.22 and Table 4.23.

4.8.1 Lectures Response on Digital Learning in Public universities

A total of 4 statements were used to determine the lecturers' response on the digital

learning and responses elicited on a 5-point Likert scale as shown in Table 4.22.

Table 4.22 Lecturers Response on Digital Learning in Public universities

Statements		SD	D	N	A	SA	Total	MEAN	S.T.D
1. Learning processes in the University have successfully blended to face to face and online learning	F	1	1	2	5	4	13	3.77	1.24
	%	7.7	7.7	15.4	38.5	30.8	100.0		
2. The learning process has become more flexible	F	1	1	1	1	9	13	4.23	1.36
	%	7.7	7.7	7.7	7.7	69.2	100.0		
3. Learning speed has been increased and becomes more efficient	F	1	3	1	4	4	13	3.54	1.39
	%	7.7	23.1	7.7	30.8	30.8	100.0		
4. With digital learning, vast coverage of syllabus can be done in a short period	F	1	1	2	4	5	13	3.85	1.28
	%	7.7	7.7	15.4	30.8	38.5	100.0		

According to Table 4.22, findings indicate that 9(69.3%) of the respondents agreed and

2(15.4%) disagreed that the university's learning process has successfully blended face-

to-face and online learning. More, the study's findings revealed that in terms of mean

and standard deviations, the learning process at the University had been successfully

blended with face-to-face and online learning (mean=3.77 standard deviation=1.24).

Furthermore, 10(76.9%) agreed, and 2(15.4%) disagreed that the learning process has

become more flexible. In terms of mean and standard deviations, they agreed that the

learning process has become more flexible (mean=4.23, standard deviation=1.36).

Further, 8(61.6%) of the respondents agreed, and those who disagreed, 4(30.8%), that

learning speed has increased and become more efficient. Furthermore, the study's

findings revealed that participants who agreed to learning speed have increased and become more efficient. Regular reviews were done on collection policies to improve the state of credit (mean=3.54, standard deviation=1.39).

However, these findings are consistent with Montacute, (2020) who stated that the closure of schools due to the COVID-19 pandemic has caused unprecedented challenges for everyone involved, from the students themselves, to their teachers and their parents. Similarly, time away from school risks further widening this attainment gap, with an extensive body of research showing that poorer students fall further behind during breaks from school, such as the summer holidays.

Finally, 9(69.3%) of the respondents agreed that with digital learning, extensive syllabus coverage can be done in a short period. However, 2(15.4%) of the respondents disagreed that digital learning's extensive coverage of syllabi could be done in a short period. Additionally, the study results on mean and standard deviation revealed the respondents agreed that digital learning's extensive syllabus coverage could be done in a short period. (Mean=3.85, standard deviation=1.28). This finding agree with Octaberlina and Muslimin, (2020) who stated that the students had to be creatives to find any solutions and innovations regarding learning barriers including maintaining good communication with teacher and understanding the best learning styles individually.

4.8.2 Students Response on Digital Learning in Public universities

A total of 4 statements were used to determine the students' response on digital learning and responses elicited on a 5-point Likert scale as shown in Table 4.23.

Table 4.23 Students Response on Digital Learning in Public universities

Statements		SD	D	N	A	SA	Total	Mean	Std
1. Learning processes in the University have successfully blended to face to face and online learning	F	3	28	10	175	95	311	4.06	0.88
	%	1.0	9.0	3.2	56.3	30.5	100.0		
2. The learning process has become more flexible	F	2	34	16	111	148	311	4.19	1.00
	%	.6	10.9	5.1	35.7	47.6	100.0		
3. Learning speed has been increased and becomes more efficient	F	3	32	17	161	98	311	4.03	0.93
	%	1.0	10.3	5.5	51.8	31.5	100.0		
4. With digital learning, vast coverage of syllabus can be done in a short period	F	10	33	10	130	128	311	4.07	1.08
	%	3.2	10.6	3.2	41.8	41.2	100.0		

According to Table 4.23, findings indicate that 270(86.8%) of the respondents agreed and 31(10.0%) disagreed that the learning process at the University had been successfully blended with face-to-face and online learning. More, the study's findings revealed that in terms of mean and standard deviations, the learning process at the University had been successfully blended with face-to-face and online learning (mean=4.06 standard deviation=0.88). These findings agree with Singh, Steele, & Singh, (2021) who examine different instructional approaches including online, hybrid, and blended learning methods. This descriptive study provides an in-depth review of the history of blended learning, evolution of hybrid model of instruction, preparedness of faculty with minimal or no experience in online teaching, and lessons learned.

Furthermore, 257(83.3%) agreed, and 36(16.9%) disagreed that the learning process has become more flexible. In terms of mean and standard deviations, they agreed that the learning process has become more flexible (mean=4.19, standard deviation=1.00). However, this finding agree with Liiand Wong, (2018) who revealed that most of

computer-based technologies had a positive influence on multiple indicators of student engagement to enhance behavioural engagement of students, there are various efforts to implement dimensions and features of flexible learning to online course and learning design through e-learning technologies.

Further, 259(83.3%) of the respondents agreed, and those disagreed 35(11.3%) that learning speed has increased and become more efficient. Furthermore, the study's findings revealed that participants agreed that learning speed has been increased and become more efficient regular reviews have been done on collection policies to improve the state of credit (mean=4.03, standard deviation=0.93).

Finally, the majority, 258(83.0%) of the respondents, agreed that extensive syllabus coverage could be done in a short period with digital learning. However,43(13.8%) of the respondents disagreed that digital learning's extensive coverage of syllabi could be done quickly. Additionally, the study results on mean and standard deviation revealed the respondents agreed that digital learning's extensive syllabus coverage could be done in a short period. (Mean=4.07, standard deviation=1.08).

This finding agree with Zhang, Wang, Yang and Wang, (2020) who initiated against the backdrop of the COVID-19 outbreak, an emergency policy initiative called suspending classes without stopping learning was launched by the Chinese government to continue teaching activities as schools across the country were closed to contain the virus. However, there is ambiguity and disagreement about what to teach, how to teach, the workload of teachers and students, the teaching environment, and the implications for education equity

4.8.3 Interviews Schedules Results

The study findings from interviews revealed that digital learning in public universities is a growing trend, accelerated by the COVID-19 pandemic. Digital technologies can be used in various instructional modalities to engage learners. Instructors can use these technologies to build a digital infrastructure that supports teaching and learning. The pandemic has pushed universities to adopt online learning, but the approach most colleges are employing is simple "remote learning" via live Zoom classes, a model that is not sustainable in the long term. Public universities are increasingly moving into online education, with some institutions planning aggressive moves into online education. Digital learning is becoming an increasingly important part of higher education, and public universities are adapting to meet the needs of students in the digital age.

The HOD 1 said that:

> *"There gaps between physical and online learning should be closed. also, online examinations and assessments is still not well covered but it can be better."*

This implies that there are a number of gaps between physical and online learning that need to be closed. In physical learning, students can interact with their peers and lecturers in real-time, which can help them to learn more effectively. In online learning, this interaction is often limited to asynchronous communication, such as email or discussion forums. This can make it difficult for students to get help when they need it and to build relationships with their peers and lecturers. In physical learning, students have access to a variety of resources, such as libraries, laboratories, and workshops. In online learning, these resources may not be available, or they may be more difficult to access. This can make it difficult for students to complete assignments and to learn effectively. In physical learning, students are often motivated to learn by the social

environment of the classroom and by the presence of their peers and lecturers. In online learning, this motivation can be lacking, as students may not feel as connected to their peers and lecturers. This can make it difficult for students to stay on track and to complete assignments.

Lecturer 14 stated that:

> *"Mixing physical and online learning would easily increase rate of teaching. However online examination and assessments is still faced with challenges."*

This implies that mixing physical and online learning can be a great way to improve the learning experience for students. It can help to close the gaps between physical and online learning, and it can provide students with a more flexible learning experience. However, there are still some challenges associated with online examinations and assessments. It can be more difficult to prevent cheating in online examinations and assessments. This is because students can easily access resources, such as notes, textbooks, and the internet, during the examination. Online examinations and assessments can be more vulnerable to security breaches. This is because the data is stored on a server, which can be hacked. Technical problems can occur during online examinations and assessments. This can disrupt the examination and make it difficult for students to complete the assessment.

HOD 2 noted that:

> *"Online examinations and assessments have not yet to take off since both the lecturers and students have not yet embraced it. It may require a lot of facilitation on the part of students."*

This implies that online examinations and assessments have not yet taken off as much as they could because both lecturers and students are not yet comfortable with them. There are a number of reasons for this, including: Many lecturers and students are not

familiar with online examinations and assessments. This can make them hesitant to use them, as they may not be sure how they work or how to administer them. Some lecturers and students may be concerned about the security of online examinations and assessments. They may worry that students will cheat or that the data will be hacked. There is always the potential for technical problems with online examinations and assessments. This can be a major concern for lecturers and students, as it can disrupt the examination and make it difficult for students to complete it.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This section summarized study findings, conclude and make recommendations. It further suggested areas for further research in the following sub sections.

5.2 Summary of the Study Findings

This section presents the summary of the study findings based on the research objectives.

The study first objective was to determine the availability of infrastructure to support digital learning in Uasin Gishu County, Kenya. The study findings showed that Infrastructure has a positive and significant influence on digital learning in public universities during the post COVID 19 Era in Uasin Gishu County, Kenya. The study results show that majority of both lectures and students agreed that the University has enough computers and students can easily access the internet. Also, the study findings noted that University operates with an updated system to facilitate online. The study further revealed that majority of both lecturers and students disagreed with the statement that both remotely and within the institution, all learners are access to electricity. Finally, the study findings showed that majority of lecturers and agreed that the University has modern classrooms and lecture halls to support digital learning.

The study findings point to several positive effects of the availability of infrastructure to support digital learning in Uasin Gishu County, Kenya. Firstly, the presence of sufficient computers and easy access to the internet within the university environment greatly enhance the digital learning experience. This accessibility ensures that both instructors and students can effectively engage with online materials and resources,

fostering a conducive environment for remote education. Additionally, the presence of an updated system to facilitate online learning reflects a commitment to staying current with technology trends, which can lead to improved efficiency and effectiveness in the delivery of digital courses.

Furthermore, the existence of modern classrooms and lecture halls dedicated to digital learning underscores the institution's investment in creating an enriched educational environment. These facilities can provide students with access to advanced teaching tools and technology, making the learning process more engaging and interactive. Overall, the positive effects of infrastructure availability in Uasin Gishu County include increased accessibility to digital resources, enhanced technological capabilities, and improved learning environments, all of which contribute to a more effective and efficient digital learning experience for both students and instructors.

The second study objective was to examine the perception of learners towards digital learning in public universities during the post COVID 19 Era in Uasin Gishu County, Kenya. The study findings showed that majority of both lectures agreed that most students fear online due to the nature and content of the courses. Also, they further agreed that some students have a negative attitude towards digital learning Further the findings show that majority of lectures and students agreed that available materials need to be sufficient, making some students not appreciate digital learning. Lastly, majority of both the lectures and students agreed that poor self-efficacy and management amongst the learners make them not appreciate digital learning.

The third study objective was to establish the competence of facilitators on digital learning in public universities during the post COVID 19 Era in Uasin Gishu County, Kenya. The study findings showed that Competence of Facilitators was found to have a

negative and significant influence on digital learning in public universities during the post COVID 19 Era in Uasin Gishu County, Kenya. showed that majority of both lecturers and students agreed that most facilitators lack the skills to implement and facilitate digital learning. Also, majority of the lecturers and students agreed that pedagogical Knowledge amongst the facilitators is not up to satisfactory. Further, majority agreed that facilitators' Knowledge is the determinant of competence level. Finally, the study found that majority agreed that most facilitators are flexible and ready to learn the digital process.

The study last objective was to evaluate the challenges on use of digital learning in public universities during the post COVID 19 Era in Uasin Gishu County, Kenya. The study findings showed that that challenges have a positive and significant impact on digital learning in public universities during the post COVID 19 Era in Uasin Gishu County, Kenya. The study results reveal that both the lecturers and students agreed that poor network access in some places poses a challenge to the learning process. Further, results also showed that facilitators' and students' attitudes undermine the digital learning process. Furthermore, more resources would help fully implement digital learning. Finally, it was noted that skilled personnel in the University are less hence low implementation of digital learning.

The findings of this study, which reveal that challenges, including network access limitations, negative attitudes from facilitators and students, resource constraints, and a lack of skilled personnel, have a significant impact on digital learning in public universities in Uasin Gishu County during the post-COVID-19 era, are closely related to the Classical Liberal Theory of Equal Opportunities. The theory emphasizes the importance of providing each student with an equal chance to succeed, regardless of

their background or circumstances, and seeks to eliminate obstacles that hinder social mobility. In this context, the challenges identified in the study, such as limited access to digital resources and skilled personnel, represent significant barriers to equal educational opportunities. Addressing these challenges aligns with the theory's goal of creating a level playing field and ensuring that all students have equitable access to quality digital learning resources, ultimately fostering inclusivity and positive outcomes amid the challenging conditions brought about by the COVID-19 pandemic.

5.3 Conclusions of the Study

The study concluded that public universities during the post COVID 19 Era in Uasin Gishu County, Kenya has adequate computers and students can easily access the internet. In addition, the Universities operates with an updated system to facilitate online. However, both remotely and within the institution, all learners do not have access to electricity. However, the universities have modern classrooms and lecture halls to support digital learning.

The study further concluded that most students fear online due to the nature and content of the courses. Also, some students have a negative attitude towards digital learning. Further students agreed that available materials need to be sufficient, making some students not appreciate digital learning.

Poor self-efficacy and management amongst the learners make them not appreciate digital learning. The study finally concluded that most facilitators lack the skills to implement and facilitate digital learning. Also, pedagogical Knowledge amongst the facilitators is not up to satisfactory. Further, facilitators' Knowledge is the determinant of competence level. Finally, most facilitators are flexible and ready to learn the digital process.

The study concluded that public universities in Uasin Gishu County are not only still faced with challenges on poor network access in some places poses a challenge to the learning process. Also, they still have less skilled personnel in the University hence low implementation of digital learning. Further facilitators' and students' attitudes undermine the digital learning process. However, more resources would help fully implement digital learning.

5.4 Recommendations of the Study

The study recommended that county governments should increase the number of internet-connected devices: This includes laptops, tablets, and smartphones. Students should be able to access the internet from anywhere on campus, not just in the library or computer labs. Improve the quality of internet access: The internet connection should be fast and reliable enough to support online learning. Provide training on how to use digital learning tools: This includes training on how to use online learning platforms, such as well as how to use software for video conferencing, such as Zoom and Google Meet. Create a dedicated space for digital learning: This could be a computer lab or a learning commons. The space should be equipped with computers, internet access, and other digital learning tools. Parents to provide support for students who do not have access to digital devices or internet access: This could include providing laptops or tablets to students who need them, or subsidizing internet access for students who cannot afford it. By taking these steps, public universities in Uasin Gishu County can ensure that all students have access to the digital infrastructure they need to succeed in a post-COVID-19 world.

The study recommended on how to improve the technological perception of learners towards digital learning in public universities during the post COVID-19 Era in Uasin

Gishu County, Kenya: Provide support for students who do not have access to digital devices or internet access: This could include providing laptops or tablets to students who need them, or subsidizing internet access for students who cannot afford it. Make sure that the digital learning materials are engaging and relevant to the students' needs: This means using a variety of formats, such as videos, interactive exercises, and quizzes. By taking these steps, public universities in Uasin Gishu County can improve the technological perception of learners towards digital learning and ensure that all students have access to a high-quality education.

Recommendations on how to improve the competence of facilitators on digital learning in public universities in Uasin Gishu County, Kenya during the post COVID-19 Era: Provide support for facilitators who do not have access to digital devices or internet access: This could include providing laptops or tablets to facilitators who need them, or subsidizing internet access for facilitators who cannot afford it. By taking these steps, public universities in Uasin Gishu County can improve the competence of facilitators on digital learning and ensure that all students have access to a high-quality education.

Recommendations on how to address the challenges of using digital learning in public universities during the post COVID-19 Era in Uasin Gishu County, Kenya: Address the digital divide: The digital divide is the gap between those who have access to technology and those who do not. This gap can be a challenge for digital learning, as it can make it difficult for some students to participate. Public universities in Uasin Gishu County can address the digital divide by providing laptops or tablets to students who need them, or by subsidizing internet access for students who cannot afford it. Public universities in Uasin Gishu County can provide training on how to use these tools to ensure that all students and facilitators have the skills they need to participate in digital

learning. By taking these steps, public universities in Uasin Gishu County can address the challenges of using digital learning and ensure that all students have access to a high-quality education.

5.5 Suggestions for Further Research

The main aim of this study was to investigate the dynamics in education and their effect on digital learning in public universities during the post COVID 19 Era in Uasin Gishu County, Kenya. The study suggests that:

i.   There is a need for a research on a digital transformation agenda on how universities will use digital technologies to change its teaching model, operations, and students experience. A successful digital transformation agenda can help universities to become more agile, efficient, and student-centric. such for Kenya universities.

ii. The quality of digital learning using technology and pedagogy.

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APPENDICES

Appendix I: Consent Letter

Kosgei Anita Jerono

University of Eldoret

To: Whom it may concern

Dear Sir/Madam,

RE: <u>ASSISTANCE TO FILL ACADEMIC SURVEY QUESTIONNAIRE</u>

I am a master's student at the University of Eldoret, conducting academic research titled '**Changing Dynamics and their effect on Digital learning In public universities during the post COVID 19 Era In Uasin Gishu County, Kenya**". I humbly request your assistance In filling in the attached questionnaire.

Your participation in this research survey is greatly appreciated and your confidentiality and anonymity are guaranteed. Information gathered from this survey will only be used for data collection and during the analysis of the results; you will not be individually identified with your questionnaire or response. All collected Data were aggregated and grouped.

Regards,

Kosgei Anita Jerono

0724 986 122

Appendix II : Questionnaire For Lecturers

Section A: Bio Data

1. What is your gender?

   Male   [ ]

   Female   [   ]

2. What is your age Bracket?

    Less than 30 years   [   ]

   31-40 years   [   ]

   41-50 years   [   ]

   Over 50 years   [   ]

3. What is your highest professional qualification?

    Certificate   [   ]

    Diploma   [   ]

    Bachelors   [   ]

    Masters   [   ]

     Others Specify

     …………………………………………………………………………………

4. For How Long have you been in this Institution?

      1-4 years   [   ]

      5-9 years   [   ]

      More than 10 years [   ]

SECTION B: Infrastructure to Support Digital Learning in Public universities

To what extent do you agree with the following statements in regard to the infrastructure to Support Digital Learning in Public universities?

SA – Strongly Agree A – Agree N – Neutral D – Disagree SD – Strongly Disagree

STATEMENTS	SA	A	N	D	SD
1. Our university has sufficient computers and students can easily access the internet					
2. The University operates with an updated system to facilitate online learning management system					
3. Both remotely and within the institution all learners are accessed to electricity.					
4. The University has modern classrooms and lecture halls to support digital learning					

SECTION C: Perception of Learners towards Digital Learning in Public universities

To what extent do you agree with the following statements in regard to Perception of Learners towards Digital Learning in Public universities?

SA – Strongly Agree A – Agree N – Neutral D – Disagree SD – Strongly Disagree

STATEMENTS	SA	A	N	D	SD
5. Most students fear online due to the nature and content of the courses					
6. Some students have negative attitude towards digital learning					
7. Available materials are insufficient making some of the students not to appreciate the digital learning.					
8. Poor self-efficacy and management amongst the learners makes them not to appreciate digital learning					

SECTION D: Competence of Facilitators and Digital Learning in Public universities

To what extent do you agree with the following statements in regard to Competence of Facilitators and Digital Learning in Public universities?

SA – Strongly Agree A – Agree N – Neutral D – Disagree SD – Strongly Disagree

STATEMENTS	SA	A	N	D	SD
9. Most facilitators have necessary skills to implement and facilitate digital learning					
10. Pedagogical Knowledge amongst the facilitators is up to satisfactory					
11. The knowledge uptake among the facilitators is the determinant factor to competence level					
12. Most facilitators are flexible and ready to learn the digital process					

SECTION E: Challenges on Use of Digital Learning in Public universities

To what extent do you agree with the following statements in regard to Challenges on Use of Digital Learning in Public universities?

SA – Strongly Agree A – Agree N – Neutral D – Disagree SD – Strongly Disagree

STATEMENTS	SA	A	N	D	SD
13. Poor access to network in some areas in the most areas pose a challenge to learning process					
14. Facilitators and student's attitude undermines the digital learning process					
15. Insufficient resources hinder a full implementation of digital learning					
16. Skilled personnel in the University are less hence low implementation of digital learning					

SECTION F: DIGITAL LEARNING IN PUBLIC UNIVERSITIES

To what extent do you agree with the following statements in regard to Digital Learning in Public universities?

SA – Strongly Agree A – Agree N – Neutral D – Disagree SD – Strongly Disagree

STATEMENTS	SA	A	N	D	SD
17. Learning process in the University have been successfully blended to face to face and online learning					
18. The learning process has become more flexible					
19. Learning speed has been increased and become more efficient					
20. With digital learning vast coverage of syllabus can be done in a short period					

Appendix III: Questionnaire for Students

Section A: Bio Data

5. What is your gender?

   Male   [   ]

   Female   [   ]

6. What is your age Bracket?

   18-25 years   [   ]

   26-30 years   [   ]

   Over 30 years   [   ]

7. What is your highest level of Education?

   Bachelors   [   ]

   Masters   [   ]

SECTION B: Challenges on Use of Digital Learning in Public Universities

To what extent do you agree with the following statements in regard to Challenges on Use of Digital Learning in Public Universities?

SA – Strongly Agree   A – Agree   N – Neutral   D – Disagree   SD – Strongly Disagree

STATEMENTS	SA	A	N	D	SD
21. Poor access to network in some areas in the most areas pose a challenge to learning process					
22. Facilitators and student's attitude undermines the digital learning process					
23. Insufficient resources hinder a full implementation of digital learning					
24. Skilled personnel in the University are less hence low implementation of digital learning					

SECTION C: Infrastructure to Support Digital Learning in Public Universities

To what extent do you agree with the following statements in regard to the infrastructure to Support Digital Learning in Public Universities?

SA – Strongly Agree   A – Agree   N – Neutral   D – Disagree   SD – Strongly Disagree

STATEMENTS	SA	A	N	D	SD
25. Our university have enough computers and students can easily access the internet					
26. The University operates with an updated system to facilitate online learning management system					
27. Both remotely and within the institution all learners are accessed to electricity.					
28. The University has modern classrooms and lecture halls to support digital learning					

SECTION D: Perception of Learners towards Digital Learning in Public Universities

To what extent do you agree with the following statements in regard to Perception of Learners towards Digital Learning in Public Universities?

SA – Strongly Agree   A – Agree   N – Neutral   D – Disagree   SD – Strongly Disagree

STATEMENTS	SA	A	N	D	SD
29. Most students fear online due to the nature and content of the courses					
30. Some students have negative attitude towards digital learning					
31. Available materials are insufficient making some of the students not to appreciate the digital learning.					
32. Poor self-efficacy and management amongst the learners makes them not to appreciate digital learning					

SECTION E: Competence of Facilitators and Digital Learning in Public Universities

To what extent do you agree with the following statements in regard to Competence of Facilitators and Digital Learning in Public Universities?

SA – Strongly Agree   A – Agree   N – Neutral   D – Disagree   SD – Strongly Disagree

STATEMENTS	SA	A	N	D	SD
33. Most facilitators lack necessary skills to implement and facilitate digital learning					
34. Pedagogical Knowledge amongst the facilitators is not up to satisfactory					
35. The knowledge uptake among the facilitators is the determinant factor to competence level					
36. Most facilitators are flexible and ready to learn the digital process					

SECTION F: DIGITAL LEARNING IN PUBLIC UNIVERSITIES

To what extent do you agree with the following statements in regard to Digital Learning in Public Universities?

SA – Strongly Agree   A – Agree   N – Neutral   D – Disagree   SD – Strongly Disagree

STATEMENTS	SA	A	N	D	SD
37. Learning process in the University have been successfully blended to face to face and online learning					
38. The learning process has become more flexible					
39. Learning speed has been increased and become more efficient					
40. With digital learning vast coverage of syllabus can be done in a short period					

Appendix IV: Interviews Schedule

   i.   What could be the possible solutions to the challenges mention above?

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……………….

   ii.   How is the status of the availability of infrastructure to support digital learning in the university?

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………………………………………………………………………………………….

   iii.   How does the availability of infrastructure influence the digital learning in the university?

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   iv.   What are some of the perceptions of learners towards digital learning in your institution?

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………………………………………………………………………………………….

   v.   In which way has learners' perception towards digital learning affected digital learning?

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vi.   What are the challenges public universities encounter during the use of digital learning in public universities during the post COVID 19 Era in Uasin Gishu County, Kenya?

…………………………………………………………………………………………

………………………………………………………………………………………….

vii.   Which competencies must be acquired by trainers in order to facilitate digital learning?

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………………………………………………………………………………………….

viii. How does these competence of facilitators influences digital learning in public universities?

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Appendix V: Research Letter from University of Eldoret

University of Eldoret
flame of knowledge and innovation

P.O. Box 1125-30100,

ELDORET, Kenya

Tel: 053-2063111 Ext. 242

Our Ref: UoE/EMP/POG/33

25thNovember, 2022

The Executive Secretary,
National Council for Science and Technology & Innovation
P.O. BOX 30623-00100,
NAIROBI.
Dear Sir/Madam,
RE: RESEARCH PERMIT REQUEST FOR KOSGEI ANITA JERONO SEDU/EMP/M/005/21
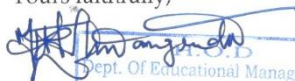
This is to confirm that the above named Post Graduate Student has completed Course work and has successfully defended her research proposal.

She is currently preparing for a field research work on her proposal entitled: *"Changing dynamics and their effect on digital learning during the post covid era in public Universities in Uasin Gishu County, Kenya"*. The proposal has been approved by this Institution.

Any assistance accorded her to facilitate successful conduct of the research and the publication will be highly appreciated.

Yours faithfully,

Dr. Lydia Kipkoech
HOD, EDUCATIONAL MANAGEMENT
Copy to: Permanent Secretary,
Ministry of Higher Education, Science & Technology,
P.O. Box 9583-00200 **NAIROBI**

University of Eldoret is ISO 9001:2015 Certified

Appendix VI: Research Permit from NACOSTI

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR
SCIENCE, TECHNOLOGY & INNOVATION

Ref No: 451602

Date of Issue: 08/December/2022

RESEARCH LICENSE

This is to Certify that Miss.. Anita Jerono Kosgei of University of Eldoret, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Uasin-Gishu on the topic: CHANGING DYNAMICS AND THEIR EFFECT ON DIGITAL LEARNING DURING THE POST COVID ERA IN PUBLIC UNIVERSITIES IN UASIN GISHU COUNTY, KENYA. for the period ending : 08/December/2023.

License No: NACOSTI/P/22/22539

451602

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR
SCIENCE, TECHNOLOGY &
INNOVATION

Verification QR Code

COUNTY COMMISSIONER
UASIN GISHU COUNTY

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 VII: Ministry of Education

REPUBLIC OF KENYA

MINISTRY OF EDUCATION

State Department for Early Learning and Basic Education

Email: cdeuasingishucounty@gmail.com
  : cdeuasingishucounty@yahoo.com
When replying please quote:

Ref: **No.** MOE/UGC/ACT/9/VOLL. III/190

County Director of Education,
Uasin Gishu County,
P.O. Box 9843-30100,
ELDORET.
6th January, 2023

KOSGEI ANITA JERONO
university of Eldoret
P.o Box 1125-30100
ELDORET

RE: RESEARCH AUTHORIZATION.

In reference to your Licence Ref no. **NACOSTI/P/22/22539** dated 8TH December,2022 from National Commission for Science, Technology and Innovation (NACOSTI), and your request letter dated 25th November, 2022 you are hereby granted the authority to carry out research on "*Changing dynamics and their effect on digital learning during the post Covid era in public Universities, Period Ending 8th December, 2023,*" Within Uasin Gishu County.

We take this opportunity to wish you well during this data collection.

FOR: COUNTY DIRECTOR OF EDUCATION
UASIN GISH…

0 6 JAN 2023

P.O. Box 9843

Mibei Andrew
For: County Director of Education
UASIN GISHU.
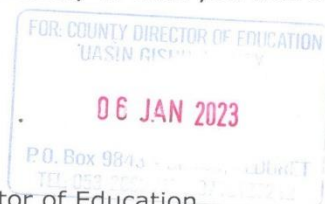
Appendix VIII: Map of Uasin Gishu County
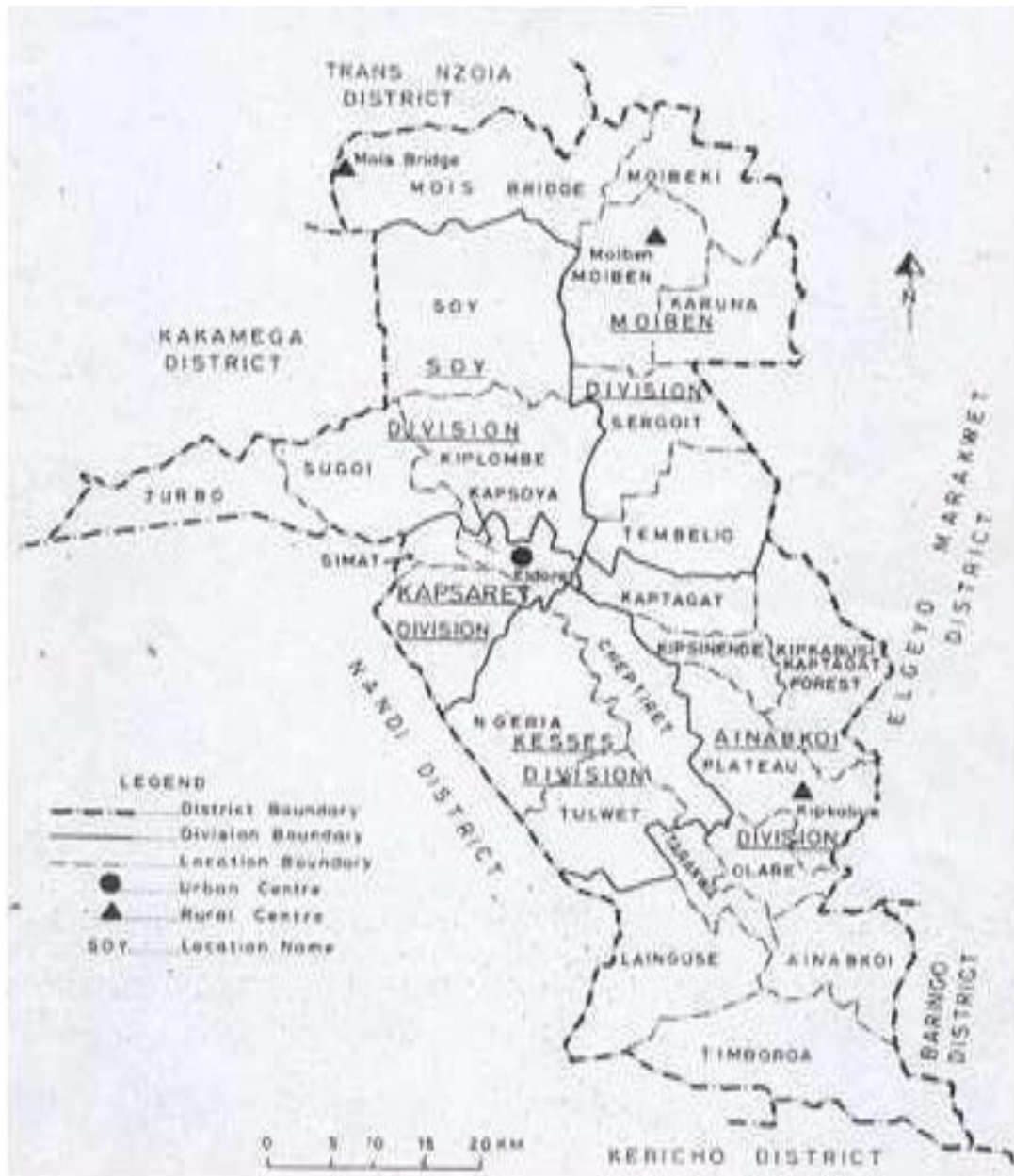
Appendix IX: Similarity Report

University of Eldoret
Certificate of Plagiarism Check for Synopsis

Author Name	Kosgei Anita Jerono SEDU/EMP/M/005/21
Course of Study	Type here...
Name of Guide	Type here...
Department	Type here...
Acceptable Maximum Limit	Type here...
Submitted By	titustoo@uoeld.ac.ke
Paper Title	DYNAMICS IN EDUCATION AND THEIR EFFECT ON DIGITAL LEARNING IN PUBLIC UNIVERSITIES DURING THE POST COVID 19 ERA IN UASIN GISHU COUNTY, KENYA.
Similarity	8%
Paper ID	995926
Submission Date	2023-10-03 08:37:33

Signature of Student   Signature of Guide

Head of the Department

* This report has been generated by DrillBit Anti-Plagiarism Software