ASSESSMENT OF EXPERIENCES WITH VIRTUAL LEARNING AMONG STUDENTS IN UNIVERSITIES IN NAIROBI, KENYA

DIANA ADHIAMBO OKUTO

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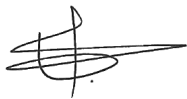
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Registration Number	T51/7914/2017
Faculty/School/Institute	DEPARTMENT OF ECONOMICS AND DEVELOPMENT STUDIES
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This research project paper has been submitted with my approval as the University supervisor.

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Dr. George Michuki
Institute for Development Studies
University of Nairobi

DEDICATION

I dedicate this project to my late dad Mr. Samuel Okeyo who would have been proud to see how far I have come and my mother Mildred Oyake who is tremendously proud of this huge milestone, also my extended family for showing me love, support and believing in me during this study.

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ABBREVIATIONS AND ACRONYMS

COVID-19   Coronavirus disease

E-Learning   Electronic learning

KU   Kenyatta University

RNG   Random Number Generator

SPSS   Statistical Package for the Social Sciences

TAM   Technology Acceptance Model

UK   United Kingdom

UNICEF   United Nations Children's Fund

UoN   University of Nairobi

UNDP   United Nations Development Programme

USA   United States of America

WHO   World Health Organization

OPERATIONAL DEFINITION OF TERMS

Students   Registered students of universities in Nairobi

Experiences   Refers to the benefits, challenges and opportunities identified by respondents

                in using Virtual learning

Virtual learning   Refers to using computers and the internet for education both inside

                and outside of a school's official classrooms.

ABSTRACT

This study sought to assess experiences of students in universities in Nairobi county with virtual learning. The objectives of the study were to explore the learning conditions prior-to introduction of virtual learning indicative of preparedness for online learning; investigate perceived benefits of virtual learning among students; and assess the challenges faced by students in universities in Nairobi in regard to virtual learning. The study adopted a mixed methods approach. Students in universities in Nairobi, Kenya were targeted. The study sampled 384 students from 8 universities, both public and private. Data for this study was collected using a questionnaire and interview schedule from the students. Quantitative data was analysed using descriptive statistics. Content analysis was used to analyse qualitative data. On the first objective, the findings show that majority (63.8%) of the students indicated that they did not believe their University was prepared for virtual learning. Majority (81.5%) of the respondents in the study indicated that they had ever used virtual learning. Slightly below half (47.6%) used zoom while 29.7% used Google Meet. Majority (66.8%) of the respondents agreed that virtual learning needs to be improved. On the second objective, 89.1% and 81.8% of the students, cited convenience and mobility as the main benefits associated with virtual learning respectively. Connectivity issues were the main challenge for thestudents in regard to virtual learning. The study concluded that preparedness for virtual learning among universities in Nairobi was poor. It was concluded that convenience, mobility and cost effectiveness were the perceived benefits on virtual learning while connectivity issueswere the main challenges. The researcher recommended that instead of using free applications, universities ought to use learning management systems which are tailored to the specific University's teaching needs.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Between 2020 and 2021, COVID-19 had spread all over the globe, with millions of verified cases and approximately six million fatalities documented in nearly 200 nations (WHO, 2022). At the height of COVID-19 pandemic between 2020 and 2021, USA, India, Brazil, France and UK were the most affected countries worldwide. In Africa, South Africa led in the number of infections and deaths followed by Morocco, Tunisia and Ethiopia. Kenya recorded 323,140 Coronavirus cases since the pandemic began, according to WHO (2022). In addition, Kenya reported 5,644 Coronavirus deaths (Ministry of Health [MoH], 2021).

The pandemic resulted in broad and unprecedented disruptions to worldwide schooling (WHO, 2020). Education was especially heavily struck by COVID-19 as demonstrated by over one billion students out of schools worldwide. In the United States, 43 states and territories ordered school cancellations, while the remaining seven states advised closures. More stringent precautions were taken in some countries, including school closures, as the fall and winter months saw an explosion of influenza and other respiratory illnesses. It resulted in school closures in most of Africa's nations, resulting in significant interruptions to education. UNICEF (2021) reported that approximately 32 million children were absent from school due to pandemic closures, on top of the estimated 37 million children who were absent before the epidemic.

On March 15, 2020, the Kenyan government immediately shut all schools and universities throughout the country in reaction to COVID-19, affecting almost 17 million students. When schools were closed, an unforeseen shift from traditional schooling to one focused exclusively on digital teaching and learning took place (Khalil et al., 2020). These learning opportunities occur in multiple communication environments through various internet-connected technological gadgets (Zalat et al., 2021). Khalil et al. (2020) posits that virtual learning may be classed as synchronous or asynchronous. The former enables "live" contact between the teacher and pupils, while the latter delays considerable time between teaching and reception.

Virtual learning allows students to attend class and complete assignments from anywhere with an internet connection (Rotas & Cahapay, 2020). Virtual learning can be a great option for students who need a flexible schedule or who live in remote areas. It can also be a good option for students who have a difficult time learning in a traditional classroom setting. Students who use virtual learning have an opportunity to improve their grades significantly because they aren't limited by time or location (García-Alberti et al., 2021). They can work at their own pace which is convenient for busy people who have limited free time like students who work full-time or parents with children at school age who need help with homework assignments during evenings or weekends. Students can learn from anywhere, anytime and at their own pace and there are no limits on physical distance. With virtual learning, students can easily access online courses without having to commute or leaving the comfort of their homes. They can also learn at their own pace and get access to different types of content that may not be available locally (Aldowah et al., 2020; Khalil et al., 2020).

Access, moderateness, adaptability, instructional method, long lasting learning, and strategy are only a couple of the defences for online instructional method. In addition to decreasing the expenses associated with physical teaching and learning infrastructure, virtual learning environments contribute to the digitalization of course content so that learning materials can be readily shared and adopted at any time and location (Kim et al., 2019). The utilization of virtual learning was likewise projected to advance commitment among instructor and understudy, since virtual learning empowers contact among teachers and students through sound and video, visit, record sharing, and conversation gatherings.

Despite the array of benefits offered, this type of technology is also associated with some challenges. The biggest challenge with virtual learning is that it's not as effective as face-to-face instruction (Rotas & Cahapay, 2020). Research shows that learners who use this technology tend to retain less information than those who learn in person, especially when they are learning new material. Another challenge is that it can be difficult to find an instructor who has expertise in a particular subject (Rotas & Cahapay, 2020). Instructors need to be well versed in teaching online courses, which requires them to have different skills than they would if they were teaching in person (Alqabbani et al., 2021).

Baczeck et al. (2021) assert that the usability of these systems is contingent upon several elements, including accessibility, the use of suitable methodologies, course content, and evaluation criteria. Baczeck et al. (2021) further add that these factors include subjective norms, perceived utility, usability, pleasure, and accessibility. An increasing worry for online course learning is how focused and self-regulated learners are when they are separated from their peers and instructors. Certain variables, most notably teacher attitude, competence, and

interaction, must also be addressed. Understanding students' experiences with virtual learning can aid instructors and developers in integrating it into future hybrid or online learning programs. This study therefore sought to assess students' experiences with virtual learning in Kenya.

1.2 Statement of the Problem

Traditional teaching methods dominated learning in universities in Kenya before 2020. Following the COVID-19 pandemic, virtual learning was given top priority as a way of sustaining academic activity and preventing dropouts from universities. Numerous colleges worldwide were obliged to adopt online teaching and learning due to lockdowns, social isolation, and other public health initiatives designed to restrict the new coronavirus's spread (Kaisara & Bwalya, 2021). Several new methods were used by universities in Kenya, including online course delivery using Google Classroom, Zoom, and Microsoft Teams. However, students' experiences with virtual learning strategy have not been assessed in Kenya.

With the increased adoption of virtual learning worldwide, several researchers conducted studies to find out the users' experiences, challenges and effectiveness of the new teaching mode. Almendingen et al. (2021) performed a similar examination among Norwegian university students. Khalil et al. (2020) investigated students' evaluations of the efficiency of synchronized virtual learning in Saudi Arabia. Zalat et al. (2021) conducted a research in Egypt to ascertain university medical staff perspectives. However, most of these studies have been carried out in countries where the education system and technology are more advanced than that of Kenya. This study therefore sought to assess virtual learning experiences among

university students in Kenya, with a focus on Nairobi.

1.3 Objectives

1.3.1 General Objective

This study sought to assess experiences with virtual learning among students in universities in Nairobi, Kenya.

1.3.2 Specific Objectives

i.) To explore the learning conditions prior to introduction of virtual learning indicative of preparedness for virtual learning in universities in Nairobi, Kenya.

ii.) To investigate perceived benefits on virtual learning among students in universities in Nairobi, Kenya.

iii.) To assess the challenges faced by students in universities in Nairobi, in regard to virtual learning.

1.4 Research Questions

i.) What were the learning conditions prior-to introduction of virtual learning indicative of preparedness for virtual learning in universities in Nairobi, Kenya?

ii.) What are the perceived benefits on virtual learning among students in universities in Nairobi, Kenya?

iii.) What are the challenges faced by students in universities in Nairobi, in regard to virtuallearning?

1.5 Justification of the Study

Universally, virtual learning was used as a substitute educating or learning method during the COVID-19 pandemic to cover the void created by the pandemic. Students' experiences with virtual learning at institutions of higher education are often combined with academic experiences for long-term learning enhancement, since they are significant to academic achievement and personal success via lifetime learning. By studying how university students are using these systems, the results of this study could help ensure the efficacy of ongoing systems development in support of virtual learning. Researchers involved in designing, developing, and implementing future virtual education systems may find this study helpful.

1.6 Scope and Limitations of the Study

This study was concerned with experiences with virtual learning among students in universities in Nairobi, Kenya. University students were the respondents in the study. Data was collected using online questionnaires. The study was descriptive, so causal inferences cannot be made. The study also relied on self-report data which had a limitation of self-report and social-desirability bias.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This section contains the theoretical literature and empirical review. In the theoretical literature, theories underpinning experiences with virtual learning among students are presented and discussed. Past studies are reviewed in the empirical literature.

2.2 Theoretical Framework

2.2.1 Theory of Reasoned Action

The Theory of Reasoned Action (TRA) was developed in the 1960s by Martin Fishbein and Icek Ajzen. The two were interested in predicting and understanding how people make decisions, and how attitudes influence behavior (Fishbein & Ajzen, 2011). TRA borrows from a variety of theories, including Cognitive Dissonance Theory, Social Exchange Theory, and Expectancy Value Theory. It was founded in the 1980s in response to worries that staff were not using available information technology. Although several models in the field of information systems have been given to describe the link in the past, this model has garnered broad acceptance and use (Taherdoost, 2018).

Virtual learning is the implementation of ICT-enabled teaching and learning approaches in educational institutions (Zalat et al., 2021). Because social meetings in educational institutions were seen as potential COVID-19 breeding grounds, conventional educational techniques were replaced with virtual learning (Baczeck et al., 2021). As a result of the COVID-19

pandemic, instructors and educational institutions prioritized maintaining a satisfactoryquality of virtual learning for their pupils. In the context of virtual learning, the TRA would suggest that students' experiences with this mode of education are influenced by their attitudes towards it. For example, students who have positive attitudes towards virtual learning and believe that their peers and teachers support it are more likely to have a positive experience. On the other hand, students who have negative attitudes towards virtual learning and perceivea lack of support from others are more likely to have a negative experience.

2.2.2 Technology Acceptance Model

The Technology Acceptance Model (TAM) was developed by Fred Davis and Richard Bagozzi in 1989. According to the model, users' opinions of a technology's utility and its usability are the most important in determining whether or not they will adopt it. The perceived utility of a technology is its ability to aid the user in accomplishing their goals and objectives, while the perceived simplicity of use is the user's estimation of how simple or complicated it will be to put into practice (Baczeck et al., 2021). The model suggests that these two factors are the primary determinants of user acceptance, and that other factors, such as user attitude and subjective norms, are secondary.

Virtual learning is the use of ICT-enabled teaching and learning methodologies that is gaining traction in educational institutions (Zalat et al., 2021). Since parties at instructive establishments were seen as a potential favorable place for the Coronavirus infection, customary instructive strategies were eliminated for web-based learning (Baczeck et al., 2021). Under the effect of the COVID-19 epidemic, instructors and educational institutions prioritized maintaining an acceptable level of learning in a totally online environment

for their students. TAM can be used to explain students' experiences with virtual learning by looking at how their perceptions of the technology's perceived usefulness and ease of use impact their acceptance and usage of virtual learning platforms and tools.

According to the TAM, a student's intention to use virtual learning and their actual usage of it is determined by their perceptions of its perceived usefulness (i.e. the degree to which the student believes virtual learning will enhance their academic performance or improve their learning experience) and perceived ease of use. Therefore, students who perceive virtual learning as useful and easy to use are more likely to have a positive experience with it and are more likely to use it regularly. On the other hand, students who perceive virtual learning as not useful or difficult to use are more likely to have a negative experience and are less likely to use it.

2.2.3 Bridge's Transition Model

There are similarities between the BTM and the change curve proposed by psychologist Elisabeth Kubler-Ross and Otto Scharmer's theory. BTM, developed by William Bridges is intended to assist institutions in managing change efficiently by outlining the human reaction to change in three stages. The Bridges concept is predicated on the idea that transition is distinct from transformation. Change is external to the organization's employees and occurs regardless of whether they like it or not (Bridges & Bridges, 2019).

The concept denotes three phases that a person goes through throughout a period of change: ending, neutral zone, and new beginning. The first stage, ending, refers to the process of letting

go of the old way of doing things and the associated emotions that come with change. The neutral zone is a period of disorientation and uncertainty, where individuals may feel lost or confused about the new situation. The final stage, new beginning, is when individuals start to embrace the changes and move forward with a new sense of purpose (Bridges & Bridges, 2019).

Virtual learning is an emerging and increasingly popular approach to delivering education. It offers many benefits over traditional face-to-face instruction, including greater flexibility for students, lower costs for institutions, and more opportunities for people in rural areas who might otherwise not have access to educational opportunities (Dehghan et al., 2022). However, virtual learning also comes with its own set of challenges. In addition to the technical issues that arise from delivering an online course, there are many cognitive and social factors that can affect student performance in a virtual environment (Almendingen et al., 2021).

While virtual learning technologies are intended for use in educational institutions, their viability is completely subject to the acknowledgment and execution of fundamental changes in the reasoning and conduct of establishment makers and clients. For students, e-learning may result in a restricted experience combined with unfamiliar technology that need more direction and assistance. The key difficulty is figuring out how to use this new technology to ensure that learners get assistance when they need it. BTM is a tool that enables businesses to adapt to change and capitalize on opportunities. It is therefore an important theory in this study that assessed students' experiences with virtual learning.

2.3 Empirical Literature

2.3.1 Students' Experiences with Virtual Learning

Virtual learning is becoming increasingly popular in universities as a means of providing students with a more flexible and convenient way to learn (Sahoo, 2020). There are a number of advantages to virtual learning, including the ability to study at the students' own pace and the ability to access course materials from anywhere in the world. While there are some challenges associated with virtual learning such as the need for self-motivation and self-discipline, overall it can be an extremely effective way to learn. There are many benefits of virtual learning. One benefit is that it can be done at any time and from any location. Another benefit is that virtual learning can be customized to fit the needs of the learner. It can also be a more efficient use of time and resources. It can be a way to provide educational services to the public. Virtual learning can also be a way for learners to improve their skills and knowledge (Alqabbani et al., 2021;García-Alberti et al., 2021; Sahoo, 2020).

A study was carried out to assess nursing student's experiences with virtual learning in Spain. Six important themes were identified: caring in practice, uncertainty, time, educational approaches, confinement setting and additional problems, and face-to-face victory. The imposition of virtual learning imposes constraints on elderly students, rural residents, those with employment and family commitments, and those with low technological resources (García-Alberti et al., 2021)

In Kedraka and Kaltsidis (2020) study, experiences with remote learning were studied among Greek university students. Students see remote learning as engaging, contemporary, sufficient, and convenient, but not as a substitute for their social engagement with their classmates and professors. Fawaz and Samaha (2021) found a strong correlation between student poor mental health among Lebanese university undergraduates who use virtual learning platforms. According to Samsudeen and Mohamed (2019), respondents' intention to use and employ virtual learning systems was significantly influenced by Unified Theory of Acceptance and Use of Technology (UTAUT2) components in Sri Lanka. In another study, Kim et al. (2019) found that to be successful in online courses at a university, students must have strong digital skills and be willing to take part in the learning process, notwithstanding their positive opinions of their on-campus virtual learning experiences.

Ibrahim et al. (2021) research intended to investigate medical students' acceptability and impressions of virtual learning in Saudi Arabia. Medical students selected Blackboard and Zoom as their Learning Management Systems (LMSs). The better performers scored much higher on all E-learning acceptance measure (ElAM) constructions. Around three-fifths of understudies expressed that the frameworks could be utilized instead of conventional learning and was a more versatile and time-productive option. As facilitators of these frameworks, the instructor's solid virtual learning capacities, the subject, informative plan, communication, inspiration, and a vigorous LMS were distinguished. Nonetheless, most understudies said that clinical guidance is the most troublesome learning result and that unfortunate web quality could debilitate tests.

Aldowah et al. (2020) evaluated the influence of lecturers' demographic characteristics on the virtual learning problems that are likely to affect people' uptake of teaching systems in any educational institution. The results revealed the influence of lecturers' demographic backgrounds on the four primary problems associated with implementing virtual learning, including course, technical, organizational, and personal challenges. Regarding the impact of technology and organizational challenges, as well as demographic differences, the data showed a significant divide in these areas.

Wilcha et al. (2020) checked out at the benefits and disservices of virtual clinical guidance for clinical understudies. The flood of online materials was one of the benefits of virtual education. New intuitive types of virtual training are presently being created to empower understudies to speak with patients from the solace of their own homes. Students are now able to keep up with the most recent medical developments and recover information that was lost when university courses and clinical attachments were suspended thanks to open-access instruction from medical specialists. Peer mentorship has been demonstrated to be an efficient method for medical students with the objectives of enhancing knowledge and providing psychological support. Virtual teaching had its drawbacks, including issues with confidentiality, technical difficulties, decreased student participation, and the loss of evaluations. It was shown that pupils' mental health was significantly impacted by the epidemic. It has also been noted that differences in virtual teaching services in different parts of the world have an impact on the education that medical students get.

In a case study, Al-Nofaie (2020) examined how Saudi university students perceived learning on blackboard during the COVID-19 form of instruction. The goal was to evaluate the benefits

and drawbacks of online education in order to comprehend how students learned throughout the epidemic and provide workable remedies. Analysis of the students' learning diaries revealed that they preferred the asynchronous setting due to its more adaptability. However, contrary to the findings of relevant studies on virtual education for language learning, this study demonstrated that students do not always find virtual education fascinating.

The results that Malkawi et al. (2020) show that, in general, understudies have positive feelings in regards to web based learning and virtual homerooms. The discoveries didn't show a massive contrast at the level for the free factors which incorporated understudies' orientation, home area, school, and weakling. The discoveries recommend that there is a measurably tremendous contrast in understudies' fulfillment levels and mentalities toward eLearning and virtual courses for the free factor of instructive level. The study's recommendations included appropriate infrastructure and technological support, support the university's ongoing efforts to provide all educational necessities through eLearning and virtual classrooms.

In Murphy et al. (2020), students reported that their instructors used the LMS effectively for virtual coursework, that they adapted to and communicated changes in course content during the transition, and that they preferred that changes to course syllabi or schedules be communicated promptly and that grades be accessible on the LMS. Students expressed negative emotions like doubt, worry, and anxiety when they switched to virtual classrooms. The students' responses to four open-ended questions yielded six comment themes. They talked about how important it is to communicate constantly, use technology, use a learning

management system, support from teachers, be flexible and unique, engage students in the classroom, and manage the course.

After the WHO declared the COVID-19 pandemic, Elzainy et al. (2020) investigated the advantages of the move towards e-learning and online assessment, which is a promising technique with significant educational potential. It was noted that the staff and students in this digital learning environment were more satisfied, had achieved more, and had improved their technology education abilities.

The study by Alsoud and Harasis (2021) looked at how Jordanian university students learned during the COVID-19 epidemic. Although a sizable fraction of students utilize digital learning tools, many of them have substantial difficulties with online learning, including problems with internet access, lack of dedicated study area, lack of a personal device for attending online courses, and anxiety. In fact, most polled students had never even considered enrolling in an online course before the outbreak. Not even half of the students polled said they were studying less now than they were before the pandemic. In impoverished countries like Indonesia, where most students cannot utilise the internet owing to technological and economical restrictions, a research by Bestiantono et al. (2020) showed that web-based learning cannot achieve the required outcomes. Additionally, understudies in advanced education expressed concerns regarding participation in traditional homeroom socializing, response speed, and teacher eye contact.

Torres et al. (2021) conducted research with the intention of discovering how students felt about the pedagogical approach used in the online classroom. The results show that there is a significant dissatisfaction among students, which is essential for bringing about the change in

educational practices and teacher preparation. The results of the survey indicate that the teaching staff's beliefs and responsibilities regarding e-learning tutoring are inadequate.

Al Ateeq et al. (2020) investigated how stressed out students felt as a result of the outbreak of the coronavirus disease and the suspension of in-person instruction in Saudi Arabia. According to this research, students in the Kingdom of Saudi Arabia (KSA) had high to moderate levels of stress during the COVID-19 epidemic. Most likely, the obligatory curfew and remote schooling are to blame for this. Students who were female and in college had greater levels of stress. Adnan and Anwar's (2020) study looked at Pakistani higher education students' perceptions of required online and distance learning courses in light of the Coronavirus. Students in Pakistan were surveyed to determine their attitudes toward online learning. University learners felt that their professor was unresponsive to their questions, uninterested in fostering classroom community, and uninterested in interacting with them one-on-one.

In a study carried out among university instructors in South Africa, the video conferencing technology (VCT) was shown to be an efficient platform for facilitating teaching by lecturers. However, the respondents were combating weariness, autonomy, and increasing emotional connectivity (Mpungose, 2021). Konig et al. (2020) looked at how educators kept in touch with their pupils and overcame basic obstacles in the classroom. Second, they looked at a variety of possible factors. They discovered that adjusting to online teaching during COVID-19 school closures requires ICT resources such as digital teacher competency and chances for teacher education to acquire digital competence.

Bahiti (2021) conducted a similar research among 49 lecturers from two main faculties at the University of Tetovo in Macedonia. To gather data for this article, a questionnaire was employed. Several statistical procedures were employed to analyse data using SPSS. The study revealed that lecturers had a favourable attitude toward these systems but this attitude was not predicted by gender, faculty, or age, but did differ considerably by teaching experience and virtual learning experience.

Grabinski et al.'s (2020) research aimed to determine the advantages and downsides of educators using virtual learning in accounting courses. According to the survey's findings, accounting professors in Poland do not often employ virtual learning. The essential benefits of the e-courses were an expansion in the productivity and flexibility of the instructing system. The main difficulties were the enormous measure of exertion expected to develop and refresh course materials. Virtual learning had a more consistent learning process, students improve their social skills more in class, and progress is better tracked. Additionally, the research demonstrates that instructors who choose to employ virtual learning believe it to be more efficient and difficult than conventional lectures.

In Nigeria, Nwagwu (2020) show that the academics considered virtual learning as a supplement rather than an integral part of their existing roles. According to professors' assessments of their students' e-readiness, professors were confused if their students knew what virtual learning was and whether they had the essential skills. Lecturers, on the other hand, believed that their institutions and IT employees can make virtual learning a success. Lecturers' judgments of Nigerian institutions' readiness for virtual learning adoption did not include students' preparedness or human resource readiness. Nigerian institutions' readiness

for virtual learning adoption was influenced by factors such as social preparedness, financial preparedness, training readiness, resources and equipment.

2.3.2 Virtual-Learning Readiness

Virtual learning is a concept that has been embraced by many universities, but not all are prepared for it (Dehghan et al., 2022). One of the challenges is that in-person learning environments have a lot of advantages. Physical lectures, for example, are more effective than online lectures because they allow instructors to use visual aids and other techniques that help students learn from listening and watching. Another challenge is that students have difficulty differentiating between virtual and traditional classrooms. They may have a different mindset when they're in a virtual classroom than they do when they're in an in- person one. Finally, there are some issues with how students are evaluated for the courses thatare offered online.

In their research from China, Yan-Li et al. (2022) established that just 20.1% of participants exhibited high levels of online learning preparedness, while the remaining 74.7% fell into the median category. The participating nations' degrees of preparation for online learning differed. Participant dissatisfaction with online education is indicated by poor mean scores on measures of motivation, confidence, and interest in learning. Only 31% of students said they were pleased with current online learning options; this suggests that there is room for improvement. The findings also showed a substantial positive association between students' pleasure and preparedness for online learning.

The preparedness of lecturers for an unforeseen pandemic was assessed by Junus et al. (2021). It also sought to examine the drawbacks and challenges that instructors face while instructing online. This study used a mixed-methods strategy. Online readiness surveys were conducted with lecturers, and from the qualitative information obtained, numerous topics were developed. The majority of them had tactical solutions for the majority of online classes that lacked sufficient viability but lacked a strategic solution, and they quickly adapted to using an LMS. They were insufficient to teach online courses because they did not have complete faith that the learning objectives could be met.

Clemen et al. (2021) studied the impact of demographic factors on students' preparation for e-learning during the pandemic. Overall, the study's findings indicated that Filipino college students weren't prepared for online education before the onset of the 2009 COVID-19 epidemic. Most respondents did not have quick access to a computer, much alone one with sufficient software or the internet. People frequently assume they lack basic computer skills such as file saving, organising data into folders, and using the internet.

According to Sahoo (2020), student teachers are 80% financially supported and have 99% e-readiness with digital equipment, but they have poor internet access, insufficient energy, and little personal space at home. Only 35% of student instructors were found to have strong digital literacy, and the majority of them believe that effective student and teacher interaction is absent in online courses. The majority of student instructors who were polled reported feeling stressed out, alone, and low confidence in the online learning environment. They also disagreed that curriculum could be properly delivered online. Nonetheless, while most of

understudy teachers accepted that internet learning was a superior choice for picking up during this pandemic, they didn't uphold it as a swap for eye to eye guidance as the conventional strategy for learning.

According to research conducted in Iran by Dehghan et al. (2022), the vast majority of students are ready to take advantage of virtual courses. According to research by Adams et al. (2021), the vast majority of students are ready for an online mode of instruction. Further investigation revealed that, depending on their demographic characteristics, pupils' preparation for e-learning varied. Banji et al. (2021) found that 36.5 percent of members had related knowledge utilizing e- learning stages and 91.6% had fundamental PC abilities preceding the Coronavirus pandemic. They tracked down that the greater part of the understudies, or 62.9 percent, were not prepared to utilize e-learning stages at the degree of study that is viewed as prepared.

Results from Rafique et al. (2021) exhibited that, during the Coronavirus pandemic, Library and Information Sciences (LIS) understudies' decisions in regards to their web-based instructive exercises were neither completely custom-made nor effective. However, they felt able in involving personal computers (PCs) and the web all in all and were roused to take online courses. There was a critical dissimilarity in impression of web self-viability and online correspondence self-viability among respondents in light of gender. When it came to utilizing PCs, the web, and online correspondence, self-adequacy and learning inspiration were likewise essentially unique among understudies with differing degrees.

Balsicas et al.'s (2021) study aimed to examine students' perceptions of online learning with regards to factors such as device availability, preparedness, expectations, and concerns, as well as their experiences with online activities and skill development. The results showed that students were aware of online tools but faced challenges such as slow internet, data costs, and monthly internet expenses. They preferred asking questions during online classes and participating in self-paced activities. The students also expressed uncertainty about their skill and competency development through e-learning.

Khairi et al. (2021) found that academics don't require sophisticated tools for online instruction. Basic tools like a camera and microphone are not included. To simplify the teaching process, essential tools like electronic drawing boards should be supplied. The institution offers three online learning platforms: Google Teams and Microsoft Teams are third-party platforms, while Spectrum, which was created by UM, is mandatory for academics to use. Meladina and Zaswita (2020) found that most students struggled with issues such as poor internet signal, budget constraints, lack of understanding and focus, and limited interaction. The results suggest that students are not fully prepared for online learning.

A Sutini (2022) research sought to determine parents' knowledge, attitudes, and views towards their children's offline learning in Indonesia. The majority of parents, the survey revealed, had a reasonable degree of understanding of COVID-19, indicated views regarding the value of virtual learning that were quite strong, and reported being prepared for offline learning. The parent preparedness score and attitudes and beliefs were substantially correlated. The findings indicate that parents in Indonesia have a sufficient level of knowledge, belief, and attitude to engage in offline learning during the COVID-19 outbreak. Government and health agencies need to keep the public updated on COVID-19 via frequent communication..

According to the findings of Churiyah et al. (2020), while Indonesia has well-prepared virtual infrastructure, instructors and schools still need to learn more about the fundamentals of remote learning. Teachers are generally uncomfortable bringing up the topic of technology, and many parents are clueless about what their children are doing at home in terms of education. As a consequence, students have less say over their independent study.

According to Prihastiwi et al. (2020), learning preparedness was responsible for 26% of the variation in learning engagement. According to the findings, student engagement and preparation for online learning are related. Self-viability, online correspondence self-adequacy, and e-learning readiness are decidedly related with commitment in e-learning. Self-coordinated learning had the most grounded relationship with and commitment to the difference in learning support when contrasted with PC self-viability, online correspondence self-viability, and independent learning.

Dehghan et al. (2020) point out that during the Covid-19 epidemic, 70% of students were well- prepared for online learning. The majority of participants had access to personal computers with programs and fast internet. Nevertheless, Aboagye et al. (2021) discovered that the students lacked the preparation they needed to participate in virtual education.

The purpose of the work by Cutri et al. (2020) was to analyse the literature published prior to the COVID-19 pandemic in order to quantify and elaborate on the various components of online preparedness among faculty. The study's findings suggest that a dispositional cocktail of modesty, empathy, and optimism helped online teacher trainees overcome the stigma associated with trial and error. These discoveries consolidated the approval of a scale to quantify these developments and bits of knowledge from a centre gathering. According to teacher educators, changing to the online environment in the midst of a crisis distorts one's usual, long-term judgments of preparedness and preparation. This new understanding of time was related to unforeseen advantages of forming a connection between them and their pupils.

2.3.3 Challenges of Virtual-Learning in Universities

The technology itself is still developing, so there are often technical issues that interfere withthe learning process. According to Sutini (2022), students often perform better academically when learning in a virtual environment because of the absence of distractions they would havewhen they are learning in a traditional classroom. The loss of face-to-face contact between instructors and their students is a major drawback of online education. Because of this, student-teacher communication may suffer. Another issue is poor engagement. This is often caused by students feeling like they are not part of the class or that the class is not interesting. Another big challenge is lack of motivation (Ibrahim et al., 2021). This can becaused by a number of factors including the feeling that the class is not relevant to their interests or that it is too difficult. Virtual learning can also be hindered by technical issues such as poor internet connectivity or problems with the software. Another challenge is the cost of virtual learning. While it can be cheaper than traditional classroom learning, it can still be expensive for some families. Finally, privacy of information is also an important concern when learning in a virtual environment (Banji et al., 2021).

Disparate and inconsistent guidelines are a key hindrance to the widespread adoption of online education. Without these guidelines, it is impossible to establish meaningful comparisons between various online education programmes, which might raise issues of accountability (García-Alberti et al., 2021). One of the main reasons that virtual learning has become so popular is because it can be implemented at a low cost. However, this also means that it is not always as effective as traditional methods of teaching. In addition, there are many different types of virtual learning programs that can be difficult to compare. In order to make virtual learning more effective, it is important for educators and administrators to have a common understanding of the goals and outcomes of each program. This will help teachers evaluate their students' progress and provide them with the information they need in order to provide better instruction. Another challenge is the lack of research on the effectiveness of virtual learning. Since there are few studies that have been conducted in this area, it's difficult to determine exactly how effective virtual learning programs can be and what factors contribute to their effectiveness. In order to address this problem, it is important for leaders in the field of virtual learning to develop a set of standards that can be applied across all programs. These standards should include criteria for assessing the quality and effectiveness of virtual learning programs, as well as guidelines for developing new programs (Rotas & Cahapay, 2020).

Irfan et al. (2020) research sought to identify the barriers that develop after the deployment of virtual learning in mathematics teaching. All instructors impacted virtual learning using an LMS-based website impacted by the pandemic. The most often utilized platform is the LMS,

followed by video conferencing. What's noteworthy is that the on-campus LMS is less appealing to instructors.

A research was conducted to ascertain students' virtual learning perceptions in Iran. Virtual learning problems were categorized into six major categories: thirteen issues with education, such as an overabundance of context and modules, a disregard for the educational needs of the industry, and the incapacity of instructors to follow students during the early stages of their projects. In the absence of a culture that encourages the use of this discipline, a negativeattitude toward online learning, and other ethical difficulties, many barriers must be addressed, including sluggish internet connections and a lack of virtual learning facilities. Five enabling factors were necessary for the project, including a shortage of facilities and permission to utilise the campus cafeteria. Virtual learning courses need in-person assessments, but only a small fraction of a student's final mark is allocated to in-person exams. Students confront three administrative issues: a lack of face-to-face contact, poor instructional material, and the head of virtual faculty's refusal to accept students due to time constraints (Shafiei Sarvestani et al., 2019).

According to Sepulveda-Escobar and Morrison's (2020) findings, the absence of direct connection with other students and a rapid shift in environment were among the elements that most significantly impacted the participants' personal learning processes. Despite the difficulties, student instructors expressed hope that this exceptional experience will, at least in part, benefit their preparation as teachers and their future jobs.

The findings of Lassoued et al. (2020) showed that in addition to educational, technological, budgetary, and organisational barriers, professors and students also encountered self-imposed

barriers. Their opposition to it reveals a lack of knowledge and an ignorance of its significance in higher education. The slow internet bandwidth in many rural locations, which led to broadcast disruptions and made it difficult to continue classes, was cited by professors and students as one of the challenges to establishing excellence in distant learning during the COVID-19 epidemic. Similar to the findings of a previous study on how difficult it was for some students to access computers; many instructors and students raised the issue of the inability to interact remotely.

According to a research by Bariham et al. (2021), all schools had ICT labs that were wired for electricity so that students could access online instruction. However, the majority of classrooms lacked power, which would have prevented virtual learning. Schools lacked enough ICT resources and local ICT in education policy guidelines to direct e-learning. Although they have pedagogical and topic understanding, teachers lacked the ICT technical abilities needed to conduct online learning. The rate at which students used digital technology to enhance their understanding of social studies was low and inefficient.

Utilizing for the most part subjective examination strategies, Rotas and Cahapay's (2020) study took a gander at a gathering of understudies who had been chosen coincidentally or plan and were at present signed up for an advanced education institution. The following issues with remote learning were recognized: whimsical web organization, lacking learning resources, power outages, cloudy learning contents, over-trouble representation works out, confined instructor stages, sad companion correspondence, battle with home responsibilities, lamentable learning environment, money related issues, genuine prosperity compromises, and profound prosperity battles. Pérez-Pérez et al. (2020) guarantee that fulfilment is the main

determinant of seen learning results and the main indicator of understudies' pleasure. Additionally, what informativeness means for apparent learning results might be essentially impacted by the instructive setting, for example, mixed versus virtual learning.

According to Garca-Alberti et al. (2021), students who performed well in the face-to-face portion of the semester did well in the distance-learning portion, but low-achieving students were more negatively impacted. When compared to technology modules, where the dropout rate was less than 10%, fundamental topics had a 22% dropout rate, which was much higher.

Sarker et al. (2019) conducted a similar examination in Bangladesh. The data for this research were gathered using a mixed-methods approach by delivering questionnaires and conducting in-depth interviews to students and relevant course instructors at a private institution in Bangladesh. The results of this research indicated a high acceptance as shown by their everyday use of the LMS to watch lecture videos, access course material, and read other students' forum discussions. However, there are limitations, since the learning materials are poorly structured, preventing students and instructors from interacting effectively.

A few studies have also been carried out in Africa on virtual learning experiences. For instance, Kaisara and Bwalya's (2021) studied virtual learning perceptions in Namibia. According to the survey, mobile devices remained the most frequently utilised computer device for academic information access. Using the study's results as a basis, researchers identified five key issues: accessibility, layout, Internet and network resources, social isolation, and the physical environment of the learner. These themes highlighted student concerns about online courses. Adeoye et al. (2020) explored some obstacles and possibilities that private and public colleges in Nigeria may capitalize on. The limitations of eLearning in

Nigeria include an unstable power supply, expensive internet subscription prices, and limited internet access, to name a few.

2.4 Conceptual Framework

Figure 2.1 shows the variables in the study

Presence of Virtual learning (independent)	Existing learning conditions facilitative of virtual learning
	Perceived benefits of virtual learning
	Challenges of e–learning by students

Independent Variable   **Dependent Variables**
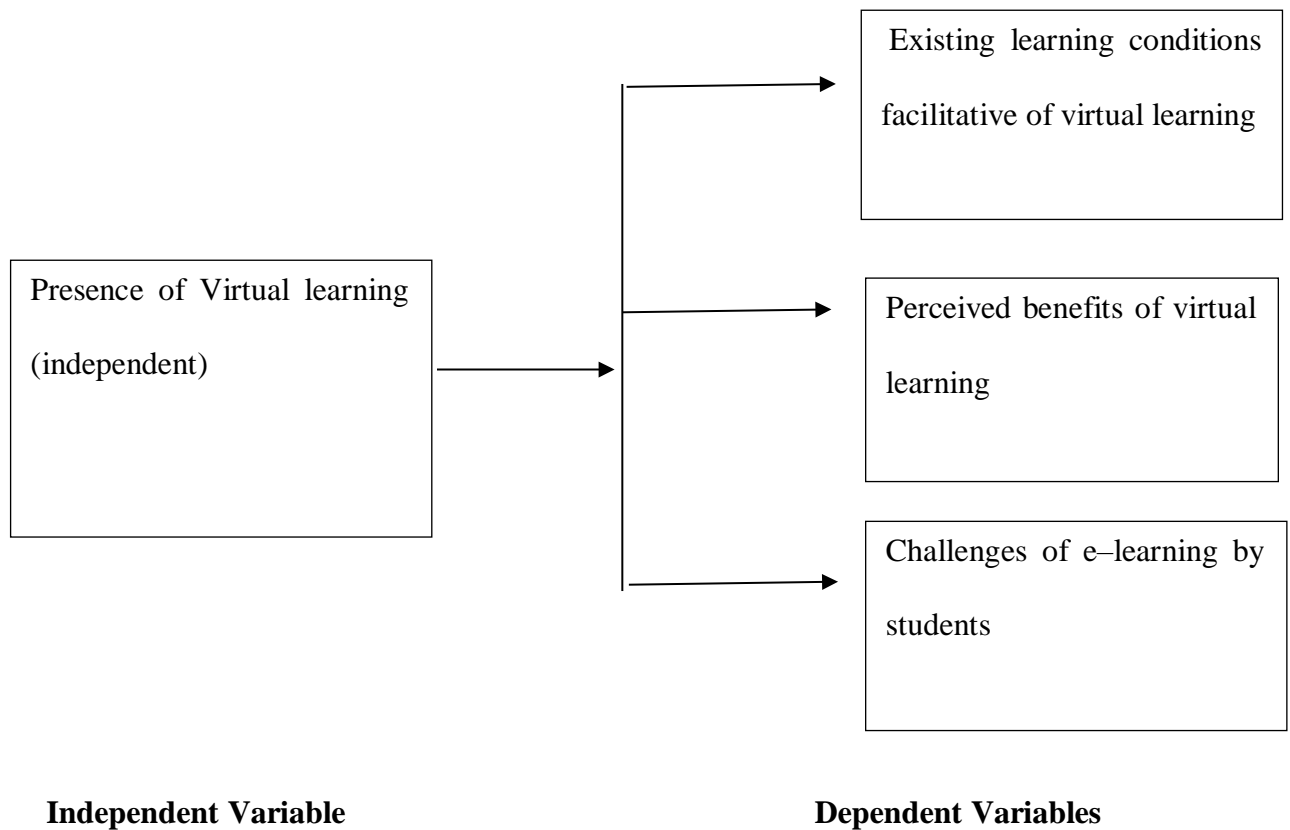
Figure 2.1 Conceptual Framework

2.5 Summary of Literature

Literature was reviewed on experiences with virtual learning among students in universities. The findings showed that there was a variety of experiences. Majority of students and their educators struggled with the new form of education and experienced many challenges

including accessibility, network challenges, isolation and lack of engagement. Some advantages including convenience, flexibility and reduced costs were also identified. However, gaps exist in available studies that justify the need for the current study. The main gap is that the vast majority of these studies were carried out in developed countries and studies in developing countries are scarce. In addition, many studies were carried out to assess the acceptability of the e-leaning model and studies investigating actual experiences are hard to come by. To fill these gaps, this study assessed experiences with virtual learning among students in Kenya.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter includes the research study setting, design, population, and sample. Also covered are the methods used to gather and analyse the data. The importance of ethical issues is also emphasized.

3.2 Study Site

This study was conducted in Nairobi City County. This is Kenya's capital and it is also the country's biggest city by population. The county's population was just under 5 million in the 2019 census (Kenya National Bureau of Statistics, 2020). Nairobi city has a lot of educational institutions spread out across the county. There are 25 Universities in Nairobi with an approximate enrolment of over 100,000 students.

3.3 Study Design

A study design comprises data gathering and analysis on variables specified in a given research subject. The study adopted a mixed methods approach to assess experiences of students with virtual learning. This design combines quantitative and qualitative data and approaches in one study to better comprehend a research issue. Combining these two approaches in a single study was favoured because it allowed the researcher to draw on both forms of data thereby obtaining more perspectives on the subject matter.

3.4 Target Population and Sampling

The study targeted the students in universities in Nairobi, Kenya. Students were selected because they are the ones who interact with virtual learning systems the most. There are 25 universities in the area including 16 private and 9 public universities with over 100,000 students. Due to the large student population, Fischer's formula was used to sample the students.

$$n= \quad z^2p(1-p)/d^2 = 1.96^2 \text{ x } 0.5 \text{ (1- 0.5)}/0.05^2 = 384$$

The study therefore had a sample of 384 student respondents. Stratified random sampling was used to distribute this population in the 8 universities based on the total population, as shown in Table 3.1. Public universities had more students than private universities; therefore, more students were drawn from there.

Table 3.1 Sampling of Students

Type	Number of universities	Number of students
Public	3	261
Private	5	123
Total	8	384

A random number generator (RNG) was also used to sample students in the study. The researcher liaised with student leaders and class representatives to get a list of students from the various faculties. Using an RNG, the desired number of students was drawn. This ensured that the sample was truly random. It also ensured that the study had male and female students and contained students from various years of study. More students were drawn from public

universities because they have a larger enrolment compared to the private universities. A total of 384 students in universities in Nairobi, Kenya took part in the study.

3.5 Data Sources and Collection

Students completed a questionnaire and interview schedule to provide information for this study. The questionnaire was semi-structured and was formulated with the help of Microsoft Forms. Microsoft Forms was also used to formulate the interview schedule. The links were sent to the sampled respondents through email, text or WhatsApp.

3.6 Data Analysis

Quantitative data was subjected to descriptive statistics with the help of Statistical Package for the Social Sciences (SPSS). This comprised frequencies, percentages, mean and standard deviation. Results of quantitative data were presented using tables. Content analysis was used to analyse qualitative data. Results of content analysis were presented using narration.

3.7 Ethical Considerations

The study was approved by University of Nairobi. The management of the participating universities was also contacted to seek permission to collect data. Only willing respondents were recruited into the study. Participants in the study were kept anonymous and the data collected was treated with confidentiality. The research findings are meant for academic purposes.

CHAPTER FOUR

FINDINGS AND DISCUSSION

4.1 Introduction

This chapter presents the findings of the study which sought to identify experiences with virtual learning among students in universities in Nairobi, Kenya. This includes results on preparedness for online learning, experiences with virtual learning and perceived benefits on virtual learning and challenges faced in using virtual learning. The findings are presented in the form of simple descriptive statistics. A discussion of the findings is also presented.

4.2 Background Characteristics of the Respondents

Majority (69.5%) in the study were from a public university. As shown in Table 4.1, 50.8% were female. Results show that slightly below half (49.7%) were aged between 18 and 23, while 32.8% were aged between 24 and 29. Slightly below half (49%) were undertaking a degree while 25.5% were pursuing a diploma. As shown in Table 4.1, 32% were pursuing a businesscourse while 23.2% and 20.1% were pursuing a health science and education course, respectively. Results also show that 33.3% were in theirsecond year of study while 24.5% and 24.2% were in their first and third year of study.

Table 4.1 Demographic Characteristics of Students

Demographic Characteristic	Categories	Frequency (n=384)	Percent (%)
Type of University	Public	267	69.5
	Private	117	30.5
Gender	Male	189	49.2
	Female	195	50.8
Age	18-23 years	191	49.7
	24-29 years	126	32.8
	30-35 years	54	14.1
	>35 years	13	3.4
Level of study	Diploma	98	25.5
	Higher diploma	57	14.8
	Degree	188	49.0
	Masters	36	9.4
	PhD	5	1.3
Area of study	Agriculture and Veterinary Sciences	12	3.1
	Architecture and Engineering	29	7.6
	Business	123	32.0
	Education	77	20.1
	Health Sciences	89	23.2
	Humanities and Social Sciences	54	14.1
Year of study	1st	94	24.5
	2nd	128	33.3
	3rd	93	24.2
	4th	57	14.8
	5th	12	3.1

4.3 Preparedness for Virtual Learning

The study's first objective sought to explore the learning conditions before the introduction of virtual learning indicative of preparedness for virtual learning in universities in Nairobi, Kenya. The vast majority (93%) of the respondents indicated that there was Wi-Fi in their university before introduction of virtual learning. The findings show that 49.2% of those who indicated that there was Wi-Fi were in a public university. According to 47.3% of the respondents, the quality of connectivity of the Wi-Fi was poor while 28.3% indicated that connectivity was fair. As shown in Table 4.2, 41.7% indicated that the quality of Wi-Fi was poor were in public universities. These results corroborate those of a research by Mwangi (2016), which found that a lack of suitable information and communication technology

infrastructure was a significant barrier to the widespread adoption of E-learning in Kenyan institutions.

Table 4.2 Presence of free Wi-Fi before introduction of virtual learning

	Response	Percent		
		Public	Private	Total
Presence of free Wi-Fi before introduction of virtual learning	Yes	49.2	43.8	93.0
	No	3.1	3.9	7.0
Quality of connectivity of the Wi-Fi	Good	11.8	12.6	24.4
	Fair	24.4	3.9	28.3
	Poor	41.7	5.6	47.3

Majority (83.5%) of the respondents indicated that their university had a functional computer lab before introduction of virtual learning. Most of those who replied on the affirmative were from public universities. According to 36.2% of the respondents, the adequacy of computers in this lab was poor while 33.9% indicated that it was fair. As shown in Table 4.3, 29.9% of those who indicated that adequacy of computers was low were from public universities.

Table 4.3 Availability of Functional Computer Lab

	Response	Percent		
		Public	Private	Total
University had a functional computer lab before introduction of virtual learning	Yes	58.1	24.0	83.5
	No	11.5	6.5	16.5
Adequacy of computers	Good	19.8	10.1	29.9
	Fair	26.2	7.7	33.9
	Poor	29.9	6.4	36.2

Respondents in the study were asked to rate the digital preparedness of their university's library system. As shown in Figure 4.1, 42.7% rated the preparedness as poor while 34.1% indicated it was fair. Results also show shat most (38%) of those who indicated that preparedness was poor were in a public university.
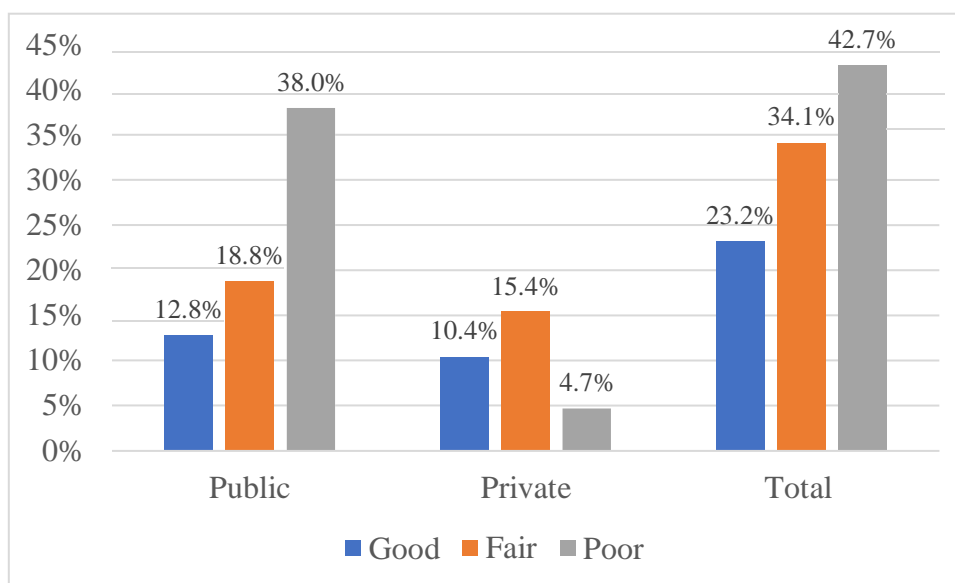
Figure 4.1 Digital Preparedness of the Library System

Respondents in the study were asked to indicate whether in their opinion, their university was prepared to offer virtual learning. Majority (63.8%) indicated that they did not believe their university was prepared. Results also show that most of those who indicated their institution was prepared were from a private university. Banji et al. (2021) had a similar finding whereby despite the fact that a third of participants had prior experience using virtual learning platforms and the vast majority of participants had basic computer skills prior to the COVID-19 pandemic, preparedness was low. This is however in contrast to what Parkes et al. (2015) who found that despite the fact that students may be well-prepared to utilize the technology of virtual learning, they are not well-prepared for tasks such as reading and writing, responding in a clear and concise manner, synthesizing ideas, devising strategies and working with others.

Figure 4.2 Perceived Preparedness of the University to Offer Virtual learning

Qualitative data from the students show that majority felt that their university was ill prepared to offer virtual learning effectively. Some of their responses are captured below:

"The university was not well prepared"

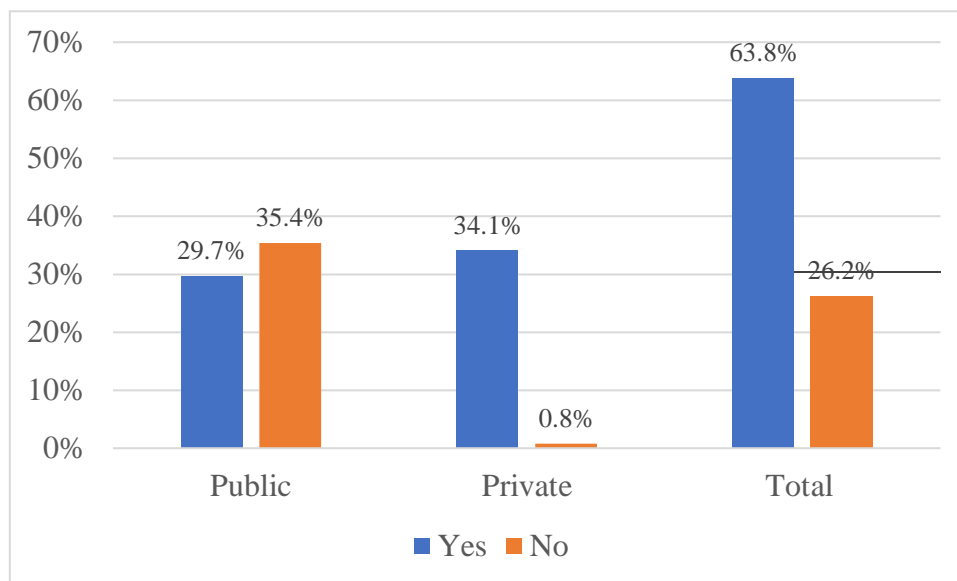*"I think the university was not well prepared when Covid-19 set in the country since already the IT department was not well staffed and no training was provided."*

"Compared to other public universities, the University of Nairobi was relatively more prepared for virtual learning due to their initial investment in open and distance learning online facilities like the E-Class Portal"

These results therefore show that learning conditions prior to introduction of virtual learning are indicative of poor preparedness for virtual learning in universities in Nairobi, Kenya.

4.3.1 Experiences of Students with Virtual Learning

Majority (81.5%) of the respondents in the study indicated that they had ever used virtual learning. Most of those who had ever used virtual learning were in a public university. As shown in Table 4.4, 47.6% used zoom while 29.7% used Google Meet. Results show that 28.4% and 22.7% of those who used zoom and Google meet were in a public university. Results show that 35.5% had used virtual learning for three semesters while 29.4% had used for two semesters. Results show that 25.9% of those who had used virtual learning for three semesters were in public universities. However, in Irfan et al. (2020) study, all instructors impacted by the pandemic did virtual learning using an LMS-based website.

Table 4.4 Utilization of Virtual learning among Students

	Response	Percent
Use of virtual learning	Yes	81.5
	No	18.5
Platform used	Zoom	47.6
	Google meet	29.7
	Microsoft Teams	18.8
	Others	3.8
Number of semesters respondent used Virtual learning	1	21.4
	2	29.4
	3	35.5
	More than 3	13.7

The majority (75.7%) indicated that they did not feel confident using the virtual learning system. Most (49.7%) who were not confident using the virtual learning system were in a private university. Most of the people who answered (81.8%) didn't agree that they could pay attention in online classes. Most of the people who said they couldn't pay attention in online classes (69.5%) went to a state university. In the same way, 64.5% of them didn't agree that they were happy with how quickly they had gotten used to virtual learning. Table 4.5 shows that 40.9% of the people who said they weren't happy with how quickly they were getting used to virtual learning were in a public university. Most (82.7%) didn't think that the college had taught students about the teaching tools and apps used for virtual learning. Most of the people who said their universities hadn't taught them about the tools and apps used for virtual learning (72,1%), were in state universities. Most (80.2%) also didn't agree that the topic taught in class is changed well enough for online training. Most of the people who said that the information taught in class is not well suited to online teaching methods were from public universities (73.2%). Also, 67.7% of people didn't agree that the training tools meet the basic needs of virtual learning. Most of the people who said the teaching tools don't meet the

technology needs of virtual learning (60.2% of the total) were in state universities.

Majority (66.8%) agreed that virtual learning needs to be improved. As shown in Table 4.5, 36.2% of those who agreed that virtual learning needs to be improved were in a private university. Similarly, 62% indicated they missed in-person communication with teachers. The results also show that 34.1% of those who agreed they missed in-person communication with teachers were in a private university. However, 62.9% disagreed that virtual learning is enjoyable. Most (41.1%) of those who indicated that virtuallearning is not enjoyable were in a public university. Similarly, 70% disagreed that virtual learning satisfies their educational needs. As shown in Table 4.5, 38.3%of those who indicated that virtual learning did not satisfy their educational needs were in a public university. Most (80.5%) didn't think that they could use an IT office or another service to solve any technical problems that might come up with virtual learning. Most of the people who didn't agree that an IT office or another service is available to help with any technical problems that might come up with virtual learning were in state universities (60.7%). Most of them (86.6%) said they probably wouldn't use the video learning method again. Most of the people who said they wouldn't use the virtual learning method in the future were from state universities (72,1%). Also, 75.7% of people didn't think that virtual learning should keep going after the COVID-19 outbreak. As shown in Table 4.5 47.9% of those who disagreed that virtual learning should be continued even after the COVID-19 pandemic is over were in a public university.

These findings therefore suggest that students were dissatisfied with virtual learning in general. This result agrees with Kedraka and Kaltsidis (2020) who found that students see remote learning as engaging, contemporary, sufficient, and convenient, but not as a substitute for the social engagement they have with their classmates and professors. A study by Pete and

Soko (2020) also found that people were very unsatisfied with the cost, reliability, and internet connection. However, the result disagrees with Ibrahim et al. (2021) finding whereby around three-fifths of students stated that virtual learning could be used in place of traditional on-campus learning and was a more adaptive and time-efficient alternative.

Table 4.5 Students' Experiences with Virtual learning

	Agree			Uncertain			Disagree		
	Public	Private	Total	Public	Private	Total	Public	Private	Total
I feel confident using the virtual learning system	4.6	13.3	17.9	2.9	3.5	6.4	26.0	49.7	75.7
I am able to concentrate in online classes	4.9	7.6	12.5	2.3	3.5	5.8	69.5	12.3	81.8
I am satisfied with how fast I have adjusted to virtual learning	9.7	14.6	24.3	4.9	6.3	11.2	40.9	23.6	64.5
The University has provided students with training about the teaching tools and software used for virtual learning	6.6	10.7	17.3	0.0	0.0	0.0	72.1	10.6	82.7
The content given in class adequately adapted to online teaching methodologies	6.3	9.4	15.7	4.2	0.0	4.2	73.2	7.0	80.2
Generally, the teaching materials are adequate for the technical demands of virtual learning	11.2	17.2	28.4	2.9	0.9	3.8	60.2	7.5	67.7
Virtual learning needs to be improved	30.6	36.2	66.8	4.9	2.1	7.0	22.1	4.1	26.2
I miss in-person communication with teachers	27.9	34.1	62.0	0.0	0.0	0.0	23.7	14.3	38.0
Virtual learning is enjoyable	13.0	19.3	32.3	2.6	2.2	4.8	41.1	21.8	62.9
Virtual learning satisfies my educational needs	6.4	11.5	17.9	5.5	6.6	12.1	38.3	31.7	70.0
For solving possible technical problems related to virtual learning , an information technologies office or another service is at our disposal	0.9	2.9	3.8	10.2	5.5	15.7	60.7	19.8	80.5
I am likely to use the virtual learning system in the future	3.4	4.9	8.3	4.4	0.7	5.1	72.1	14.5	86.6
Virtual learning should be continued even after the COVID-19 pandemic is over	9.9	11.2	21.1	2.3	0.9	3.2	47.9	27.8	75.7

From the qualitative responses, majority of the respondents described an unpleasant experience. This was common in students in private universities. Some of their responses are captured below:

"It was great"

"The virtual learning platform does not give one the opportunity for close interaction with the instructor to understand some of the social dynamics useful in accessing the lecturer"

"It was difficult in the initial stages but is now easier to navigate through. I however dislike the lack of face to face engagement. With virtual classes you really don't get to see the faces

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of the instructors and thus you lack a more human engagement with the audience"

This finding is similar to that of Grabisnki et al. (2020) who demonstrated that instructors who choose to employ virtual learning believe it to be more efficient and difficult than conventional lectures. It is also similar to Sarker et al. (2019) findings that there are limitations, since the learning materials are poorly structured, preventing students and instructors from interacting effectively. Additionally, there are certain technological issues, such as a slow internet connection, that limit access to virtual learning platforms.

4.4 Perceived Benefits on Virtual learning

The study had an objective to investigate perceived benefits of virtual learning among students in universities in Nairobi, Kenya. The results are presented in this section. As shown in Table 4.6, convenience and mobility were the most cited benefits as indicated by 89.1% and 81.8% of the respondents. Most (54.4%) of those respondents who identified convenience were from a public university. This result also lends support to findings of Sarker et al. (2019) where virtual learning was well received by the majority of students, as shown by their everyday use of the LMS to watch lecture videos, access course material, and read other students' forum discussions. However, there are limitations, since the learning materials are poorly structured, preventing students and instructors from interacting effectively. Virtual learning enables students to participate in their courses from anywhere with an internet connection. They are not bound by the constraints of physical attendance in a specific location. This freedom from commuting to campus or being confined to a specific geographical area offers convenience and flexibility, especially for students who live far from the university or prefer to study remotely. It also allows students to have more control over their study schedule. They have

the flexibility to access learning materials, lectures, and assignments at any time that suits their personal schedule. This is particularly advantageous for students who have other commitments such as part-time jobs, family responsibilities, or extracurricular activities.

Table 4.6 Perceived Benefits on Virtual learning

	Public	Private	All
Convenience	54.4	18.2	72.7
Mobility	42.7	24.0	66.7
Lectures can be recorded	12.0	5.2	17.2
Learning materials are easier to access	4.9	3.1	8.1
Others	2.6	2.1	4.7

On the basis of qualitative data. majority of the respondents mentioned convenience, cost effectiveness and time saving opportunities. This was similar across students from both public and private universities. Some of their responses are captured below:

""Cost effective due to less movement"

"One of the major advantages of virtual learning is the flexibility it offers. I appreciate the ability to access lectures, assignments, and study materials at my own convenience."

"Virtual learning has significantly increased accessibility to education. Through online platforms, I can attend classes and access course materials from anywhere, as long as I have an internet connection"

"The advantage is that lectures can be provided from any place and bringing on board

students sitting in different parts of the world"

"Virtual learning has enabled students to use teaching tools such as power point in a more effective manner. Most lecture halls in public universities don't have projectors which forces lectures to be conducted through note taking and dictation which eats up on the time needed to elaborate on concepts and discussions. Another benefit of virtual learning is the time saving opportunities this form of teaching gives since both students and staff are able to have their lectures at place of their convenience"

"Engaging in virtual learning has given me the opportunity to develop and enhance my technological skills. Through online platforms, I have learned to navigate various software and tools, improving my digital literacy"

In a study conducted in South Africa, Mpungose (2021) had similar findings whereby Zoom video conferencing technology was shown to be an efficient platform for facilitating effective and synchronous virtual learning. They were, however, combating Zoom digital weariness, promoting autonomy, and increasing emotional connectivity. Similar results were made by Bahiti (2021) where respondents had a favorable attitude toward virtual learning, and their attitude scores did not vary substantially by gender, faculty, or age, but did differ considerably by teaching experience and virtual learning experience. Virtual learning eliminates the time and cost associated with commuting to campus. Students can save time that would have been spent traveling to and from the university, allowing them to allocate those hours for studying or engaging in other activities. Additionally, virtual learning potentially reduce costs related to transportation, accommodation, and other expenses associated with on-campus education. This cost-saving aspect adds to the convenience and flexibility of virtual learning. The ability

to adapt the learning experience to individual preferences, save time and costs, and access a wider range of resources creates a more convenient and flexible educational environment for students.

4.5 Challenges Faced by Students in Using Virtual Learning

The third objective of the study was to assess the challenges faced by students in universities in Nairobi, in regard to virtual learning. The vast majority (69.3%) of respondents indicated that they had connectivity issues during virtual learning. Majority (64.9%) and (63.3%) of the respondents cited lack of internet at home and lack of sound respectively. Most (56.5%) of those who identified connectivity issues were in a public university. Similarly, 49% of those who indicated lack of internet at home were also in a public university. This is in line with the findings of Kaisara and Bwalya (2021), who found that difficulties were caused by isolation, the home environment, resources for network and internet access, accessibility to virtual learning systems, and layout of virtual learning platforms. The findings of this study are comparable to those of Shafiei Sarvestani et al. (2019), who discovered that administrative difficulties included ineffective course materials, the head of virtual faculty rejecting applicants because of a lack of time, and communication difficulties related to a lack of connection with academic staff, a lack of face-to-face communication, and a lack of connection with classmates.

Connectivity issues, such as slow or unstable internet connections, can hinder students' access to learning resources. Connectivity issues can lead to students experiencing difficulties in consistently participating in virtual learning activities. Students may struggle to join scheduled live sessions, experience frequent dropouts, or face challenges in accessing learning materials

and assignments online. This inconsistency in participation can affect their understanding of course content, disrupt their learning rhythm, and hinder their overall progress.

Table 4.7 Students' Responses on Challenges of Virtual learning

	Public	Private	All
Connectivity issues	56.5	12.8	69.3
Poor sound	28.4	23.2	51.6
Lack of internet at home	49.0	3.9	52.9
Lack of interaction	11.5	10.9	22.4
Others	5.5	3.1	8.6

On qualitative responses, students mentioned connectivity issues as the main challenge. Some of the responses from the students on the challenges include:

""Internet connectivity issues"

"I often face connectivity issues, which disrupt my ability to attend online classes or access course materials"

"Connectivity, if one is not very IT proficient, it becomes a challenge to manoeuvre between different windows"

"Spending long hours in front of a screen for virtual classes can lead to tiredness and difficulty focusing"

"I miss the personal interactions and discussions with professors and classmates that I used to have in traditional classrooms"

"It can be challenging to stay motivated and manage my time effectively without the structure of a physical classroom"

As was the case with quantitative data, qualitative data suggest that connectivity is the main challenge in addition to other challenges such as lack of student engagement. This result

agrees with Bariham et al. (2021), Sepulveda-Escobar and Morrison's (2020) as well as Shafiei Sarvestani et al. (2019) who also found that connectivity was a major issue in virtual learning. Virtual learning heavily relies on online communication tools such as video conferencing, discussion forums, and email. Connectivity issues can result in frequent disconnections, audio/video lag, or poor call quality, leading to communication breakdowns between students and their instructors. This can disrupt their ability to download or stream educational materials, access online platforms, participate in live lectures or discussions, and submit assignments. Limited access to resources can impede the learning process and prevent students from fully engaging with course content.

Respondents in the study were also asked to suggest measures of improving virtual learning. Majority (55.7%) of the respondents recommended improvement of the internet while 41.1% and 34.6% recommended review of virtual learning systems and training of students respectively. As shown in Table 4.8, 41.4% of those who recommended improvement of internet speed were in public universities. Recognizing the challenges faced by students, universities should establish comprehensive support services to assist them in overcoming connectivity and equipment limitations. This may include offering technical assistance helplines, providing resources for troubleshooting connectivity issues, or organizing training sessions to enhance digital literacy skills. Additionally, universities can establish communication channels to address concerns and gather feedback from students, ensuring their needs are considered in the planning and implementation of virtual teaching modalities. By providing robust support services, universities can enhance the continuity and effectiveness of virtual learning.

Table 4.8 Students' Suggestions for Improving Virtual learning

Suggestion	Public	Private	All
Improve virtual learning systems	30.5	10.7	41.1
Improve internet speed	41.4	14.3	55.7
Train students	22.4	12.2	34.6
Act on students' complaints	5.5	3.9	9.4
Others	1.6	1.6	3.1

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of the study, conclusion and recommendations.

5.2 Summary

This study aimed to assess experiences with virtual learning among students in universities in Nairobi, Kenya. The study's objectives were to explore the learning conditions before the introduction of virtual learning indicative of preparedness for online learning, to investigate perceived benefits on virtual learning among students, and to assess the challenges faced by students in universities in Nairobi, in regard to virtual learning. The study adopted a mixed methods approach to assess experiences with virtual learning among the students

The study's first objective sought to explore the learning conditions before the introduction of virtual learning indicative of preparedness for virtual learning in universities in Nairobi, Kenya. Majority (63.8%) indicated that they did not believe their University was prepared due to the challenges the current implementation of virtual learning was facing. This was due to inadequate IT resources and lack of training on virtual learning to students.

The study's second objective sought to investigate perceived benefits on virtual learning among students in universities in Nairobi, Kenya. As indicated by 89.1% and 81.8% of the respondents, convenience and mobility were the most cited benefits.

The study also sought to assess the challenges faced by students in universities in Nairobi, in regard to virtual learning. The vast majority (69.3%) of respondents indicated that they had connectivity issues during virtual learning. Majority (64.9%) and (63.3%) of the respondents cited lack of internet at home and lack of sound respectively.

5.3 Conclusions

The study concludes that the learning conditions before introduction of virtual learning indicative of preparedness for virtual learning in universities in Nairobi, Kenya were poor. There was inadequate infrastructure and lack of training for using virtual learning for students. This highlights the need for universities to allocate sufficient resources to support virtual learning initiatives. This includes budgetary provisions for infrastructure upgrades,technology maintenance, faculty training, and student support services. This may also includeensuring reliable internet connectivity, upgrading computer labs, providing necessary software and hardware, and establishing virtual learning platforms that are user-friendly and accessible to all students. Universities also ought to prioritize equipping both students and faculty with the necessary digital literacy skills and knowledge to effectively utilize virtual learning tools.

Convenience, mobility and cost effectiveness are the perceived benefits on virtual learning among students in universities in Nairobi, Kenya. The identified benefits of convenience and mobility indicate that virtual learning can overcome geographical barriers and provide greater access to education. Universities should therefore prioritize making virtual learning resources and platforms easily accessible to all students, ensuring that they can engage in learning regardless of their physical location. The convenience aspect of virtual learning suggests that

universities should offer flexible learning options that accommodate the diverse needs and schedules of students. In addition, cost-effectiveness is an important consideration for universities. By leveraging virtual learning modalities, universities can potentially reduce costs associated with physical infrastructure, such as classrooms and utilities.

Connectivity issues were the main challenges among students face in universities in Nairobi, Kenya. Other challenges have to do with equipment and cost of internet. Collaboration with external stakeholders, including government agencies, internet service providers, and philanthropic organizations, can be crucial in addressing the challenges related to connectivity, equipment, and cost. Universities can negotiate discounted internet packages with service providers or establishing partnerships to provide subsidized or free internet access to students in need. Additionally, universities can establish communication channels to address concerns and gather feedback from students, ensuring their needs are considered in the planning and implementation of virtual teaching modalities.

5.4 Recommendations

The findings of this study have implications for universities and technology companies in the context of virtual learning. For universities the findings indicate a need for more investment in virtual learning. More specifically, there is a need for training students. For technology companies, the implication is that internet strength and reliability ought to be improved to ensure smooth learning.

The study found that majority of the students disagreed that the college had provided students with training about the teaching tools and software used for virtual learning. Therefore, there

is a need for virtual training for students to ensure smooth implementation of virtual learning. Lack of access to internet for students at home was identified as a major challenge to use of virtual learning. It is therefore recommended that universities should also partner with telecommunication companies to offer special subsidized internet bundles for learning to enable all students' access virtual learning resources.

The study found that universities used free applications such as Zoom or Google meet. It could be that much of the connectivity and reliability issued mentioned by the respondents are due to these free applications. Therefore, instead of using free applications, universities ought to use learning management systems which are tailored to specific university's teaching needs

REFERENCES

Aboagye, E. (2021). Transitioning from face-to-face to online instruction in the COVID-19 era: Challenges of tutors at colleges of education in Ghana. *Social Education Research*, 5(3), 9-19.

Adams, D., Chuah, K. M., Sumintono, B., & Mohamed, A. (2022). Students' readiness for e-learning during the COVID-19 pandemic in a South-East Asian university: a Rasch analysis. *Asian Education and Development Studies*, *11*(2), 324-339.

Adnan, M., & Anwar, K. (2020). Online Learning amid the COVID-19 Pandemic: Students' Perspectives. *Online Submission*, *2*(1), 45-51.

AlAteeq, D. A., Aljhani, S., & AlEesa, D. (2020). Perceived stress among students in virtual classrooms during the COVID-19 outbreak in KSA. *Journal of Taibah University Medical Sciences*, *15*(5), 398-403.

Aldowah, H., Umar, I., Ghazal, S., Bervell, B., & Saif, A. (2020). Examining the effect of lecturers' demographic variables on the challenges facing the use of e-learning in a university context. *International Journal of Business Information Systems*, *35*(4), 439-458.

Almendingen, K., Morseth, M. S., Gjølstad, E., Brevik, A., & Tørris, C. (2021). Student's experiences with online teaching following COVID-19 lockdown: A mixed methods explorative study. *PloS one*, *16*(8), e0250378.

Al-Nofaie, H. (2020). Saudi University Students' perceptions towards virtual education During Covid-19 pademic: A case study of language learning via Blackboard. *Arab World English Journal (AWEJ), 11(3), 12-27.*

Alqabbani, S., Almuwais, A., Benajiba, N., & Almoayad, F. (2021). Readiness towards emergency shifting to remote learning during COVID-19 pandemic among university instructors. *Virtual learning and Digital Media*, *18*(5), 460-479.

Alsoud, A. R., & Harasis, A. A. (2021). The impact of COVID-19 pandemic on student's e-learning experience in Jordan. *Journal of Theoretical and Applied Electronic Commerce Research*, *16*(5), 1404-1414.

Bączek, M., Zagańczyk-Bączek, M., Szpringer, M., Jaroszyński, A., & Wożakowska-Kapłon, B. (2021). Students' perception of online learning during the COVID-19 pandemic: A survey study of Polish medical students. *Medicine*, *100*(7), e24821. https://doi.org/10.1097/MD.0000000000024821

Bahiti, R. (2021). Investigation of lecturer' attitudes towards virtual learning according to demographic variables. *European Journal of Engineering and Formal Sciences*, *4*(2), 17-24.

Balsicas, N. W., Padohinog, E. C., Hala, P. A. R., & Bulauan, F. B. (2021). E-Learning in COVID-19 Pandemic: Preparedness, Expectations, and Concerns of Private School Students. *Universal Journal of Educational Research*, *9*(3), 675-682.

Banji, G. T., Frempong, M., Okyere, S., & Raji, A. S. (2021). University students' readiness for e-learning during the covid-19 pandemic: an assessment of the university of health and allied sciences, ho in Ghana. *Library Philosophy and Practice*, 1-24.

Bariham, I., Ondigi, S. R., & Kiio, M. (2021). Preparedness of Ghanaian senior high school instructors for application of online learning in social studies instruction amid the Covid-19 pandemic. *Social Education Research*, 52-64.

Bestiantono, D. S., Putri, Z. R. A., & Cheng, T. H. (2020). Online learning amid the COVID-19 pandemic: Students' perspectives Muhammad. *Journal of Pedagogical Sociology and Psychology*, *2*(1), 45-51.

Bridges, W., & Bridges, S. (2019). *Transitions: Making sense of life's changes*. Hachette UK.

Churiyah, M., Sholikhan, S., Filianti, F., & Sakdiyyah, D. A. (2020). Indonesia education readiness conducting distance learning in Covid-19 pandemic situation. *International Journal of Multicultural and Multireligious Understanding*, *7*(6), 491-507.

Clemen, I. G., Ali, H., Abdulmadid, A. N., & Jabbar, J. H. (2021). Education during COVID-19 era: readiness of students in a less-economically developed country for E-learning. *IMCC Journal of Science*, *1*(2), 94-101.

Cutri, R. M., Mena, J., & Whiting, E. F. (2020). Faculty readiness for online crisis teaching: transitioning to online teaching during the COVID-19 pandemic. *European Journal of Teacher Education*, *43*(4), 523-541.

Dehghan, H., Esmaeili, S. V., Paridokht, F., Javadzade, N., & Jalali, M. (2022). Assessing the students' readiness for E-Learning during the Covid-19 pandemic: A case study. *Heliyon*, *8*(8), e10219. https://doi.org/10.1016/j.heliyon.2022.e10219

Elzainy, A., El Sadik, A., & Al Abdulmonem, W. (2020). Experience of e-learning and online assessment during the COVID-19 pandemic at the College of Medicine, Qassim University. *Journal of Taibah University Medical Sciences*, *15*(6), 456-462.

Fawaz, M., & Samaha, A. (2021, January). E-learning: Depression, anxiety, and stress symptomatology among Lebanese university students during COVID-19 quarantine. In *Nursing forum* (Vol. 56, No. 1, pp. 52-57).

Fishbein, M., & Ajzen, I. (2011). *Predicting and changing behavior: The reasoned action approach*. Psychology press.

García-Alberti, M., Suárez, F., Chiyón, I., & Mosquera Feijoo, J. C. (2021). Challenges and experiences of online evaluation in courses of civil engineering during the lockdown learning due to the COVID-19 pandemic. *Education Sciences*, *11*(2), 59.

Grabinski, K., Kedzior, M., Krasodomska, J., & Herdan, A. (2020). Embedding Virtual learning in accounting modules: the educators' perspective. *Education Sciences*, *10*(4), 97.

Ibrahim, N. K., Al Raddadi, R., AlDarmasi, M., Al Ghamdi, A., Gaddoury, M., AlBar, H. M., & Ramadan, I. K. (2021). Medical students' acceptance and perceptions of e-learning

during the Covid-19 closure time in King Abdulaziz University, Jeddah. *Journal of infection and public health*, 14(1), 17-23

Igwenagu, C. (2016). *Fundamentals of research methodology and data collection*. LAP Lambert Academic Publishing.

Irfan, M., Kusumaningrum, B., Yulia, Y., & Widodo, S. A. (2020). Challenges during the pandemic: use of virtual learning in mathematics learning in higher education. *Infinity Journal*, *9*(2), 147-158.

Junus, K., Santoso, H. B., Putra, P. O. H., Gandhi, A., & Siswantining, T. (2021). Lecturer readiness for online classes during the pandemic: A survey research. *Education sciences*, *11*(3), 139.

Kaisara, G., & Bwalya, K. J. (2021). Investigating the Virtual learning challenges faced by students during COVID-19 in Namibia. *International Journal of Higher Education*, *10*(1), 308-318.

Kedraka, K., & Kaltsidis, C. (2020). Effects of the covid-19 pandemic on university pedagogy: students' experiences and considerations. *European Journal of Education Studies*, *7*(8).

Kenya National Bureau of Statistics (2020). *2019 Kenya Population and Housing Census Results.* https://www.knbs.or.ke/2019-kenya-population-and-housing-census-results/

Khairi, M. A. M., Faridah, I., Norsiah, H., & Zaki, M. A. (2021). Preliminary study on readiness to teach online due to Covid-19 pandemic among university academician in

Malaysia. *International Journal of Information and Education Technology*, *11*(5), 212-219.

Khalil, R., Mansour, A. E., Fadda, W. A., Almisnid, K., Aldamegh, M., Al-Nafeesah, A., ... & Al-Wutayd, O. (2020). The sudden transition to synchronized online learning during the COVID-19 pandemic in Saudi Arabia: a qualitative study exploring medical students' perspectives. *BMC medical education*, *20*, 1-10.

Kim, H. J., Hong, A. J., & Song, H. D. (2019). The roles of academic engagement and digital readiness in students' achievements in university e-learning environments. *International Journal of Educational Technology in Higher Education*, *16*(1), 1-18.

König, J., Jäger-Biela, D. J., & Glutsch, N. (2020). Adapting to online teaching during COVID-19 school closure: teacher education and teacher competence effects among early career teachers in Germany. *European Journal of Teacher Education,* 43(4), 608-622.

Lassoued, Z., Alhendawi, M., & Bashitialshaaer, R. (2020). An exploratory study of the obstacles for achieving quality in distance learning during the COVID-19 pandemic. *Education sciences*, *10*(9), 232.

Malkawi, E., Bawaneh, A. K., & Bawa'aneh, M. S. (2020). Campus off, education on: UAEU students' satisfaction and attitudes towards e-learning and virtual classes during COVID-19 pandemic. *Contemporary Educational Technology*, *13*(1), ep283.

Meladina, M., & Zaswita, H. (2020). Students' Readiness and Problems to Face Online Learning in Pandemic Era. *Tamaddun*, *19*(1), 1-8.

Ministry of Health (2022). *COVID-19 situation.* https://www.health.go.ke/#1621663241218-5a50bcac-41da

Mpungose, C. B. (2021). Lecturers' reflections on use of Zoom video conferencing technology for e-learning at a South African university in the context of coronavirus. *African Identities*, 1-17.

Murphy, L., Eduljee, N. B., & Croteau, K. (2020). College student transition to synchronous virtual classes during the COVID-19 pandemic in Northeastern United States. *Pedagogical Research*, *5*(4).

Mwangi, E. (2016). ICT Infrastructure Preparedness for Virtual learning Implementation in Kenyan Universities. http://library.kisiiuniversity.ac.ke:8080/xmlui/handle/123456789/624

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

Parkes, M., Stein, S., & Reading, C. (2015). Student preparedness for university virtual learning environments. *The Internet and Higher Education*, *25*, 1-10.

Pérez-Pérez, M., Serrano-Bedia, A. M., & García-Piqueres, G. (2020). An analysis of factors affecting students perceptions of learning outcomes with Moodle. *Journal of Further and Higher Education*, *44*(8), 1114-1129.

Pete, J., & Soko, J. (2020). Preparedness for virtual learning in the context of Covid-19 in selected Sub-Saharan African countries. *Asian Journal of Distance Education*, *15*(2), 37-47.

Prihastiwi, W. J., Prastuti, E., & Eva, N. (2020). E-Learning readiness and learning engagement during the Covid-19 pandemic. *KnE Social Sciences*, 236-243.

Rafique, G. M., Mahmood, K., Warraich, N. F., & Rehman, S. U. (2021). Readiness for Online Learning during COVID-19 pandemic: A survey of Pakistani LIS students. *The Journal of Academic Librarianship*, *47*(3), 102346.

Rotas, E., & Cahapay, M. (2020). Difficulties in remote learning: Voices of Philippine university students in the wake of COVID-19 crisis. *Asian Journal of Distance Education*, *15*(2), 147-158.

Sahoo, S. (2020). E-readiness and perception of student teachers' towards online learning in the midst of COVID-19 pandemic. *Available at SSRN 3666914*.

Samsudeen, S. N., & Mohamed, R. (2019). University students' intention to use e-learning systems: A study of higher educational institutions in Sri Lanka. *Interactive Technology and Smart Education*.

Sarker, M. F. H., Mahmud, R. A., Islam, M. S., & Islam, M. K. (2019). Use of e-learning at higher educational institutions in Bangladesh: Opportunities and challenges. *Journal of Applied Research in Higher Education*, *11*(2), 210-223.

Sepulveda-Escobar, P., & Morrison, A. (2020). Online teaching placement during the COVID-19 pandemic in Chile: challenges and opportunities. *European Journal of Teacher Education*, *43*(4), 587-607.

Shafiei Sarvestani, M., Mohammadi, M., Afshin, J., & Raeisy, L. (2019). Students' experiences of e-learning challenges; a phenomenological study. Interdisciplinary Journal of Virtual Learning in Medical Sciences, 10(3), 1-10.

Sutini, T., Apriliawati, A., Astuti, M. A., Wulandari, I. T., & Santi, R. T. (2022). Offline Learning Readiness during COVID-19 Pandemic: Indonesian'Parent Knowledge, Belief, and Attitude. *Open Access Macedonian Journal of Medical Sciences*, *10*(E), 254-258.

Taherdoost, H. (2018). A review of technology acceptance and adoption models and theories. *Procedia manufacturing*, *22*, 960-967.

Torres Martín, C., Acal, C., El Homrani, M., & Mingorance Estrada, Á. C. (2021). Impact on the virtual learning environment due to COVID-19. *Sustainability,* 13(2), 582.

United Nations Children's Fund (2020). *Education in emergencies.* https://www.unicef.org/education/emergencies

United Nations Children's Fund (2021). *40 per cent of children in Eastern and Southern Africa are not in school.* https://www.unicef.org/press-releases/40-cent-children-eastern-and-southern-africa-are-not-school

Wilcha, R. J. (2020). Effectiveness of virtual medical teaching during the COVID-19 crisis: systematic review. *JMIR medical education*, *6*(2), e20963.

World Health Organization (2020). *Coronavirus disease (COVID-19).* https://www.who.int/health-topics/coronavirus#tab=tab_1

World Health Organization (2022). *Kenya Situation.* https://covid19.who.int/region/afro/country/ke

Yan-Li, S., Jiang, N., Pamanee, K., & Sriyanto, J. (2022). Online learning readiness and satisfaction during covid-19 pandemic among university students in four Asian countries. *Journal of Nusantara Studies (JONUS)*, *7*(2), 245-269.

Zalat, M. M., Hamed, M. S., & Bolbol, S. A. (2021). The experiences, challenges, and acceptance of e-learning as a tool for teaching during the COVID-19 pandemic among university medical staff. *PLoS One*, *16*(3), e0248758.

APPENDICES

Appendix I: Questionnaire

Instructions

i.) Answer **ALL** questions

ii.) Tick in the box or write in the spaces

iii.)**DO NOT** indicate your name

A: Demographic Data

1. Indicate the name of your University

………………………………………………………………………….

2. Is your University public or private?

☐ Public

☐ Private

3. Indicate your gender?

☐ Male

☐ Female

4. Indicate the age group where your age falls?

☐ 18- 23 Years

☐ 24 -29 Years

☐ 30-35 Years

☐ Over 35 Years

5. What is your level of study?

☐ Diploma

☐ Higher diploma

☐ Degree

☐ Masters

☐ PhD

6. What is your area of study?

☐ Agriculture and Veterinary Sciences

☐ Architecture and Engineering

☐ Business

☐ Education

☐ Health Sciences

☐ Humanities and Social Sciences

7. Indicate your year of study?

………………………………………………………………

B: Learning Conditions Prior-To Introduction of Online Learning

8. Did the University have free wifi prior to introduction of virtual learning?

☐ Yes

☐ No

If yes, how would you rate the quality of connectivity of the Wi-Fi?

☐ Good

☐ Fair

☐ Poor

9. Did the University have a functional computer lab prior to introduction of virtual learning?

☐ Yes

☐ No

If yes, how would you rate the adequacy of computers?

☐ Good

☐ Fair

☐ Poor

10. How would you rate the digital preparedness of the library system?

☐ Good

☐ Fair

☐ Poor

11. In your opinion, was the University well prepared to offer virtual learning ?

☐   Yes

☐   No

If no, expound

……………………………………………………………………………………………………

……………………………………………………………………………………………………

……………………………………………………………………………………………………

C: Experiences with Virtual learning

12. Have you used virtual learning for your learning?

☐   Yes

☐   No

13. If yes, which platform do you use?

……………………………………………………………………………………………………

14. How many semesters have you used virtual learning?

    ☐ 1 semester

    ☐ 2

    ☐ 3

    ☐ 4

    ☐ 5

☐ More than 5

15. Do you think the University was prepared to offer virtual learning before COVID?

☐ Yes

☐ No

16. Indicate your response by ticking on the appropriate box: 1= Strongly Agree 2= Agree 3= Uncertain 4=Disagree 5= strongly disagree	1	2	3	4	5
I feel confident using the e-learning system					
I am able to concentrate in online classes					
I am satisfied with how fast I have adjusted to e-learning					
The University has provided students with training about the teaching tools and software used for e-learning					
The content given in class adequately adapted to online teaching methodologies					
Generally, the teaching materials are adequate for the technical demands of e-learning					
E-learning needs to be improved					
I miss in-person communication with teachers					
E-learning is enjoyable					
E-learning satisfies my educational needs					
For solving possible technical problems related to e-learning, an information technologies office or another service is at our disposal					
I am likely to use the e-learning system in the future					
E-learning should be continued even after the COVID-19 pandemic is over					

C: Perceived benefits on virtual learning

17. What benefits does virtual learning offer compared to traditional learning (face to face)?

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C: Challenges of Virtual learning

18. What challenges have you encountered when using virtual learning platform?

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19. What can be done to enhance virtual learning in institutions of higher learning?

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Appendix II: Interview Schedule

The purpose of this interview is to collect data on a study seeking to establish experiences with virtual learning among students in universities.

1. Indicate the name of your University

………………………………………………………………………….

2. Is your University public or private?

☐ Public

☐ Private

3. Comment on the preparedness of the University to offer online learning

……………………………………………………………………………………………………

……………………………………………………………………………………………………

……………………………………………………………………………………………………

4. Have you used virtual learning for your teaching?

☐ Yes

☐ No

5. If yes, which online platform do you use to teach?

……………………………………………………………………………………………………

6. How many semesters have you used virtual learning to teach?

☐　1

☐　2

☐　3

☐　4

☐　5

☐　More than 5

7. Describe your experience teaching using virtual learning platform

……………………………………………………………………………………………………

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……………………………………………………………………………………………………

8. In your own experience, what advantages does virtual learning platform have over in-person learning?

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9. What challenges have you met when using virtual learning platform?

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10. What can be done to enhance virtual learning?

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Appendix III: Letter of Authorization

UNIVERSITY OF NAIROBI
DEPARTMENT OF ECONOMICS AND DEVELOPMENT STUDIES

Telephone: +254-020-3318262 Ext.28122	P.O. Box 30197-00100 GPO
Telephone: +254-20-4913206	04 Harry Thuku Road
Email: economics@uonbi.ac.ke	Gandhi Wing, Room GW 210
Website: economics.uonbi.ac.ke	NAIROBI, KENYA

1st September, 2022
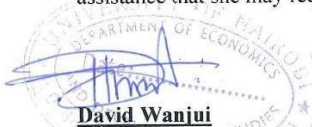
TO WHOM IT MAY CONCERN

RE: <u>DIANA OKUTO– T51/7914/2017</u>

This is to confirm that the above named is a Master of Arts in Development Studies student in the Department of Economics and Development Studies, University of Nairobi.

She is required as part of the study to write an independent research paper project. She is has chosen to study *"Assessment of experiences with E-learning among students and lecturers in universities in Nairobi Kenya."*

In this respect, we request your kind consideration in providing the student with any assistance that she may require.

David Wanjui
Administrative Assistant,
Department of Economics and Development Studies

Appendix IV: Research Permit

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **172037**

Date of Issue: **06/September/2022**

RESEARCH LICENSE

This is to Certify that Miss.. Diana Adhiambo Okuto of University of Nairobi, has been licensed to conduct research in Nairobi on the topic: Assessment of experiences wit e-learning among students and lecturers in Universities in Nairobi,Kenya for the period ending : 06/September/2023.

License No: **NACOSTI/P/22/20198**

172037
Applicant Identification Number

Director General
NATIONAL COMMISSION FOR
SCIENCE,TECHNOLOGY &
INNOVATION

Verification QR Code

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