



Exploring the perceptions of technology usage amongst distance learners in African universities: A case of the University of Namibia

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DECLARATION

I, Patrisia T.M. Shingoya, declare that this study titled:

“Exploring the perceptions of technology usage amongst distance learners in African universities: A case of the University of Namibia” is my own work and has not been written for me by any other person, and all the information and resources that are not originally mine have been cited by means of Harvard referencing. I also affirm that no part of this dissertation has been submitted to any institution in order to obtain a qualification.

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DEDICATION

This study is dedicated to my friend Serria Nghoshi, who informed me about this course and this university, and to my late dad, Tate Paulus Shingoya. I know you are proud of me, dad.

Abstract

Understanding how distance learners in Africa interact with technology is crucial for improving educational practices and results as digital technologies continue to change the face of higher education worldwide. The study focused on the insights of technology use at the University of Namibia's distance learning programmes.

The study employed a mixed-method approach, collecting data from a sample of University of Namibia distance learners using both quantitative and qualitative methods with an embedded mixed-method approach. The quantitative method was prioritized by means of a questionnaire survey, followed by the qualitative method using semi-structured interviews and online lesson observations. The research aimed to address several key questions: to find out the opinions of distance learners towards the use of technology in their own learning; to identify barriers to the effective use of technology by distance learners; to find out how technology can support distance learners' day-to-day academic activities; and to explore how better distance learners can be supported to use technology more effectively in their learning.

According to the findings, distance learners at the University of Namibia have a positive attitude towards technology use, with the majority indicating that technology has improved their learning experience. The majority of distance learners reported that they use technology for various learning activities, such as accessing course materials, participating in online discussions, and submitting assignments. However, the study did identify several problems that distance learners encounter, such as limited access to technology, poor internet connectivity, and a lack of technical support. The Technology Acceptance Model guided the study, providing a structured approach to understanding the interactions between distance learners and technology. The study offers suggestions of how universities might improve technology to enhance the learning experience of distance learners. The findings have broader implications, highlighting the need for improved infrastructure and support systems to facilitate technology use.

Keywords: Distance learners, Technology usage, Perceptions, African Universities, University of Namibia

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ABBREVIATIONS

TAM: Technology Acceptance Model

UNAM: University of Namibia

CODEL: Centre for Open, Online, and E-Learning

CES: Centre for External Studies

CeLIM: The Centre for eLearning and Interactive Multimedia

PEOU: Perceived Ease of Use

PU: perceived usefulness

UNESCO: United Nations Educational, Scientific, and Cultural Organization

MOOC: Massive Open Online Courses

BASIC: Beginner's All-purpose Symbolic Instruction Code

LMS: Learning Management System

ICT: Information and Communication Technology

WI-FI: Wireless Fidelity

ADA: Americans with Disabilities

NIED: National Institute for Educational Development

NUST: Namibian University of Science and Technology

AR: Augmented Reality

UDL: Universal Design for Learning

MOOCs: Massive Open Online Courses

VR: Virtual Reality

AR: Augmented Reality

AI: Artificial Intelligence

EdTech: Educational Technology

SCL: Student-Centered Learning

TLIs: Teaching and Learning Innovations

COVID-19: Corona Virus 2019

CHAPTER 1: ORIENTATION OF THE STUDY

1.0 Introduction

The chapter introduces the research study entitled “Exploring the perceptions of technology usage amongst distance learners in African universities: A case of the University of Namibia. It presents the general background, theoretical foundations, statement of the problem, objectives of the study, research questions, significance of the study, scope of the study and limitations of the study.

According to Bruno (2023), Wolff (2021), Neureiter, Jordan, and Grollnek (2020), the educational landscape is rapidly changing, with technology playing a critical role in defining the future of learning and distance learning becoming more common. The current increase in demand for distance learning is fueled by personal circumstances that are unavoidable, global pandemics, and unexpected national crises (Waterhouse, Samra, and Lucassen, 2022), which emphasize the crucial need to make use of technology to support distance learning. This study explored the impact of technology on distance learning, focusing on effectiveness, engagement, accessibility, and learning outcomes.

Distance learning, sometimes known as online or remote education, employs digital technologies and platforms to give students learning opportunities without physically sitting in the class (Alzahrani and Alhalafawy, 2022). Distance education requires the use of digital tools and platforms, which include a wide range of technological elements such as learning management systems, video conferencing tools, online content delivery methods, collaboration platforms, social media, messaging apps, and virtual laboratories (Coursera, 2019). Distance learning relies largely on technology to promote instruction, communication, and collaboration between students, educators, and institutions (Olaf Zawacki-Richter and Jung, 2023). Furthermore, technology improvements have a substantial impact on distance learning (Cabaleiro and Vera 2020). Recognizing the transformative capacity of technology in higher education is critical in a rapidly digitizing society, as it can modernize academic practices, educational strategies, and the creation of innovative learning environments tailored to students’ diverse needs and ambitions (American University, 2020).

Previous research on the perceptions of technology usage in distance learning shows that teachers have favorable attitudes towards the incorporation of technology in distance learning (Akram, 2022). Educators feel that incorporating technology into teaching assist in improving their instructional practices. According to Lewis (2013) the most relevant experiences in the context of educator's use of technology for classroom objectives are performance expectancy, effort expectancy and social influence. In addition to that the way instructors lead their lectures, the individual and social use of ICT and the amount of student's individual study and self-regulatory method use greatly correlates to student's happiness toward their courses (Cakir, Yukselturk, 2015). Despite limited resources, poor countries make use of appropriate mobile computing technologies (Mahenge and Sanga, 2016). Furthermore, Donald and Bophelo (2023) find that the use of technology in higher education has a significant impact on teaching and learning. Maboe (2017) discovered that although almost every student had a smartphone, very few participated in online forums, and others had technical difficulties. This indicated a need for further investigation into the barriers preventing students from engaging in online forums and how to effectively address technical difficulties to enhance participation and to discover perceptions of technology usage from current enrolled distance learner at the University of Namibia.

This study investigated the critical and changing role of technology in improving the learning experiences of distance students at the University of Namibia. With the global shift towards digital education and the rising reliance on technology in higher education, it is critical to understand how technology can be properly exploited to help distance learners. The research provided significant insights and ideas to help the university develop effective strategies for integrating technology into its distance education programmes.

Furthermore, the research is intended to discover the perspectives, preferences, and issues faced by distance students in utilizing technology for their education through a comprehensive literature review, data collection, and analysis using a framework called the Technology Acceptance Model (TAM). The findings will aid in identifying areas for development and innovation in the design and implementation of technology-enabled learning environments, resulting in a more supportive and engaging educational ecosystem for distance learners at the University of Namibia.

This research correlates with the broader educational goals of fostering equitable access to quality education by investigating the impact of technology on learning. As distance education grows, particularly in regions with diverse geographical and socioeconomic challenges such as Namibia, the findings of this study can inform strategies for bridging educational gaps and ensuring that technology serves as a catalyst for inclusive and effective learning experiences for all students, regardless of location or background.

This chapter presents the study focus area through the background of the study and the theoretical framework. Additionally, the statement of the problem is stated together with the purpose of the study. The chapter also highlights the research objectives and research questions, the significance of the study, as well as the scope and limitations of the study.

1.1 General background

In order to support research and learning for distance students, universities in Africa are progressively adopting technology (Hamutumwa, 2014). Technology has proven to be an enabler and has increased access to education through distance learning for all, especially for those who want to access higher education (Rahmi, Othman, and Yusuf, 2015). Recent research by Sfenrianto et al. (2018), Nyarko and Kariuki (2019), Mou and Rajib (2019), and Riedling (2020) emphasized that well-prepared distance learning enhances institutional acceptance.

According to Murgor (2015), although the use of technology in African universities is becoming widespread, there are still major obstacles to be addressed. Despite the problems caused by historical inequality and limited computer access, technology is viewed as a critical instrument for improving higher education in African universities (University World News, n.d.). Concerns have been raised about the Sub-Saharan African government's ability to provide online learning resources, especially in light of recent occurrences such as the COVID-19 outbreak (Silva, 2020). Research has indicated that although distance learners typically hold favorable opinions about the use of technology, they frequently underutilize the materials that university libraries have access to (Kara, Erdogan, Kokoç, and Cagiltay, 2019). High prices and unreliable internet access are some of the barriers that prevent distance learners from using digital resources (Azzahra, 2020).

In order to improve technology integration in education, it is important to address learners' issues and viewpoints, as evidenced by the perception of technology adoption in African public schools (Torres and Giddie, 2020). Ultimately, even if technology has great potential to advance education in Africa, improving the continent's perception of technology in distance learning would require solving infrastructural deficiencies, digital inequality, and providing sufficient training and resources (Chomunorwa and Mugobo, 2023). Furthermore, according to Marcus (2020), Mathew, and Iloanya (2016), access to the most recent information, communication, content sharing, and contact with students are some of the main advantages of utilizing technology for online teaching and learning.

The University of Namibia (UNAM) was established on August 31, 1992, as one of the country's major institutions of higher learning and has been at the forefront of this transformation (UNAM, nd). Recent personal problems like health issues, commute and transportation challenges, work commitments, financial constraints, family responsibilities, mental health concerns, personal preferences, disabilities, disabilities travel and relocations, global pandemics such as COVID-19, Ebola outbreaks, and influenza pandemics, as well as national complications such as political instability, climate change, natural disasters, and facility issues, have highlighted the critical role of technology in ensuring educational continuity (Pappas, 2022), Nadeem (2021), and Schweitzer (2018). The study of technology's role in distance learning at UNAM is crucial in the evolving educational landscape in Namibia and beyond (CODEL, 2020).

In 2016, the University of Namibia (UNAM) formed the Centre for Open, Online, and eLearning (CODEL), which aspires to provide distance and online students with the greatest facilities. The Centre also provides learning resources, academic support, and the ability to use various technologies that fit the needs of all distance and online programs (University of Namibia Centre for Open, Distance, and eLearning Prospectus 2020, d.). UNAM has developed to become one of Namibia's principal higher education institutions, providing a wide range of undergraduate and postgraduate programs and making substantial contributions to the country's educational and research activities (University of Namibia, n.d.).

This study entails an in-depth examination of the use and impact of technology as a catalyst for improving the efficacy and accessibility of distance learning at the University of Namibia

(UNAM). The purpose of this research was to examine the impact of digital tools, online platforms, and instructional technologies within the context of UNAM's distance learning framework, with a focus on how these technological innovations influence student engagement, learning outcomes, and overall educational experiences in a distance learning environment. The study aimed to provide valuable insights and recommendations for optimizing the use of technology in higher education institutions and the continuous improvement of educational practices by examining the specific practices, challenges, and successes of technology-enabled distance learning at UNAM, contributing to both the advancement of UNAM's educational objectives and the broader discourse on digital transformation in academia.

1.2 Theoretical framework

The Technology Acceptance Model (TAM) is a well-known and significant theoretical paradigm in information systems and technology management. TAM was developed by Fred Davis in the late 1980s. It seeks to explain and anticipate how people embrace and use technology in various circumstances (Charness, 2016). TAM is based on the notion that two important aspects influence a person's intention to use technology: perceived ease of use (PEOU) and perceived usefulness (PU), which would be simple and devoid of issues (referred to as perceived ease of use (PEOU)) (Davis, 2020). It considers variables such as the simplicity of the user interface, ease of navigation, and the user's confidence in their ability to operate the technology. Perceived usefulness (PU), on the other hand, relates to an individual's conviction that adopting technology will improve their performance, productivity, or achievement of specified goals. In essence, students are more likely to embrace and employ technology when they believe it to be both simple to use and effective in achieving their goals. (Johannes Kock, 2017).

The Technology Acceptance Model is used in this study to investigate how distance students perceive and use technology tools and platforms in their learning processes. According to Panel (2021), technology is a crucial component of distance learning, and understanding how students perceive and adapt to technology can shed light on their learning experiences and outcomes.

The Technology Acceptance Model 2 (TAM2)

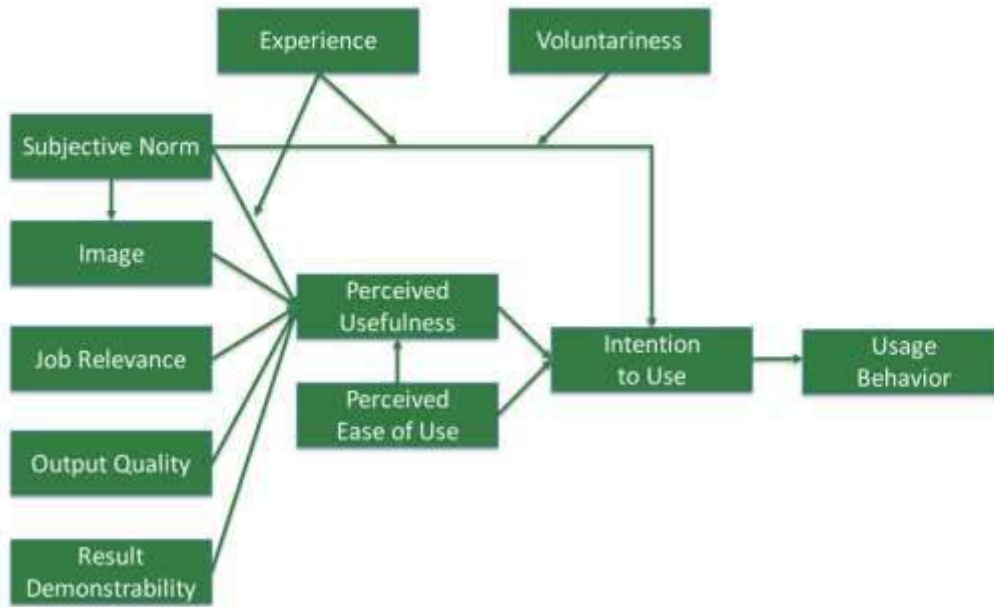


Figure 1.1 Technology Acceptance Model (Venkatesh & Davis, 2000).

TAM provides a formal framework for evaluating how distance students perceive technology in their learning contexts. It assisted this study in determining if students find technology tools and platforms easy to use (perceived ease of use) and whether they consider them to be useful for their learning (perceived usefulness). These two elements are critical in determining the extent to which distance students utilize technology. Students are more inclined to accept technology if they can be certain of its use and effectiveness for their learning.

The model enabled the study to investigate the factors influencing technology adoption among distance students, identifying particular areas for improvement in the design and implementation of technology-enabled distance learning by collecting data on students' evaluations of ease of use and usefulness. For example, if students assess a specific platform as difficult to use, this knowledge can help instructional designers and educators make user-friendly changes.

Finally, the theory was used in this study to determine whether distance learners are likely to adopt technology and, if so, how this adoption affects their learning experiences. This predictive feature of TAM is crucial for educators and institutions wanting to build effective strategies for integrating technology into distance learning programs, thereby promoting more successful and engaging learning experiences for distance students.

1.3 Statement of the problem

Individual views and usage of technology vary and evolve with the emergence of new technologies (Cormick, 2019 and openedu, nd). There are significant differences in technology usage (Cohen, Soffer, and Henderson, 2022.), and up-to-date research is needed to build upon existing knowledge (SciSpace: Question, n.d.).

The problem arose from the need to understand the current state of technology use in distance education and the ongoing individual view of technology usage in Africa, especially in Namibia. The researcher explored major challenges faced by distance learners in using technology for their educational journey include attitudes towards technology, obstacles delaying its efficient use, the possibility of technology to boost regular academic aspiration, tactics to assist distance students, and the support that distance learners need in utilizing technology.

Furthermore, there is a gap of the limited regional focus; many studies concentrate on countries with more developed technological infrastructures, such as South Africa, often neglecting Namibia and similar regions where infrastructure challenges are more pronounced (Isaacs, 2007; Brown, 2019). Additionally, there is a lack of research addressing the influence of cultural beliefs, socioeconomic status, and language diversity on student's perceptions and the effectiveness of technology in distance learning (Chawinga, 2017). Another underexplored area is the differentiation between various types of technologies such as mobile phones, online learning platforms, and radio and their accessibility or usability by students, particularly those in remote or rural areas (Mtebe & Raisamo, 2014).

By concentrating on Namibia's contextual realities such as socioeconomic variety, infrastructure constraints, and cultural considerations the study tackled the particular possibilities and challenges these students encounter. The study provided light on the obstacles to efficient learning and the ways in which technology might improve academic results by looking at how

students use and access various technologies in both urban and rural environments. Furthermore, the study investigated the significance of institutional support and instructor involvement, providing recommendations that are customized to the unique requirements and circumstances of distance learners at the University of Namibia. In the end, this localized strategy will enhance the learning experience for remote learners by promoting more equal and successful technological integration.

In the context of African higher education, addressing these gaps is crucial to improving the planning and carrying out of technology-enhanced learning experiences for distance learners, especially at the University of Namibia and other universities in the area.

1.4 Purpose of the study

The study seeks to discover how distance learners at the University of Namibia perceive and use technology in their learning processes. The study aimed to explore distance learners attitudes and perspectives on technology, particularly whether they perceive it as beneficial or challenging. To accomplish this goal, various objectives govern the study. First, the study sought to reveal distance learners opinions of the incorporation of technology into their learning processes. Understanding these attitudes is critical for determining if technology is viewed as beneficial or hard on their academic process.

The study investigated distance learners attitudes, preferences, and experiences in their learning process in order to better understand their perspectives on technology. Additionally, the study sought to identify challenges to effective technology use, including concerns such as access and technology literacy gaps that prevent technology integration into their academic activities. It also aimed to investigate how technology aids academic activities, revealing its practical implications in aiding learning processes, communication, and information access.

The Technology Acceptance Model (TAM) guided the study by providing a theoretical framework to understand how students perceive and adopt technology in their learning processes. TAM focuses on two key factors perceived usefulness and perceived ease of use that influence user's attitudes toward technology and their subsequent intention to use it. By applying

TAM, the study analyzed how these perceptions shape distance learners acceptance of various educational technologies. This approach helped identify the factors that encourage or hinder the adoption of technology, allowing for targeted recommendations to improve technology integration in distance education at the University of Namibia.

Finally, the study looked into techniques for assisting distance learners in harnessing technology, with the goal of identifying interventions, tools, or support mechanisms that maximize technology's benefits for academic performance and enhanced learning outcomes. Through these goals, the research study hoped to contribute to a better understanding of technology's role in distance education and pave the way for personalized interventions to improve learner's experiences and outcomes.

1.5 Main research objective

- To find out the perceptions of technology usage among distance learners at the University of Namibia.

1.5.1 Sub-research objectives

1. To find out the opinions of distance learners towards the use of technology in their own learning.
2. To identify barriers to the effective use of technology by distance learners.
3. To find out how technology can support distance learners day-to-day academic activities.
4. To identify strategies for enhancing technology support for distance learners to improve their learning experience.

1.6 Main research question

- What are the perceptions of technology usage among distance learners at the University of Namibia?

1.6.1 Sub-Research questions

- What are the opinions of distance learners towards the use of technology in their own learning?
- What are the barriers to the effective use of technology by distance learners?
- How can technology support distance learner's day-to-day academic activities?
- What are the strategies for enhancing technology support for distance learners to improve their learning experience?

1.7 Significance of the study

As one of Namibia's top higher education institutions, UNAM is dedicated to offering high-quality education and expanding access to a diverse student community, including those studying remotely (UNAM, nd). Understanding how technology may improve distant students learning experiences is critical to UNAM's mission. The study's findings can help guide strategic decisions about technology integration and support services. It will also assist UNAM in improving its educational outcomes, engagement, and general satisfaction of its distance learners by optimizing the use of technology and aligning its practices with worldwide trends in digital education.

This study is also relevant to Namibia's broader higher education scene. The research findings and best practices highlighted can serve as a valuable resource and standard for other universities looking to improve their distance learning programmes and scholars looking for relevant literature. In a fast-changing digital age where technology plays an increasingly important role in education, the findings of this study can help Namibian educational officials and institutions develop successful student-centered approaches to distance learning.

Finally, the study's significance extends to the global debate on technology-enhanced education. As distance and online learning become more popular around the world, UNAM's experiences and lessons can help broaden understanding of best practices, obstacles, and innovations in digital education. This research can help inspire future innovations in online education and contribute to the ongoing evolution of higher education in an increasingly digital environment by providing vital insights into the complexity of technology's role in fostering student learning and

engagement. The findings may not be generalizable to other universities or student populations, and that future research could expand the scope to explore these broader contexts.

1.8 Scope of the study

The study was conducted in Namibia, and the University of Namibia (UNAM) and its distance learning programme and distance education students were the exclusive focus of this research. The research was not extended outside UNAM's institutional limits to include other Namibian or worldwide universities or higher education organizations. The geographical scope was still limited to UNAM's main campus and distance learning operations.

The study's temporal span includes the current registered distance students only. During this time period, it assessed the condition of technology incorporation in UNAM's distance learning programmes and its influence on student learning. The study did not project into the future or evaluate long-term trends beyond the time frame specified. Furthermore, the study did not explore historical trends in technology integration at UNAM that happened before the timeframe indicated.

The key participants in the study will be distance students enrolled in UNAM's online programmes because the number of distance students is evolving over the year's more than part-time courses (UNAM, n.d.). The researcher's field of study is education. Some distance education students might be new to using technology in learning as they came from rural schools; some students might be working full-time; some lack finances for transport to full-time classes; and some may have unexpected diseases such as tuberculosis, chicken pox, and the Corona virus. Insights may also be obtained from UNAM lecturers participating in online education delivery. To preserve a clear emphasis on distance education at UNAM, the study will exclude participants from other groups, such as in-person students or students from other universities.

1.9 Limitations of the study

One of the most significant constraints is time. The study is based on information accessible to the current registered distance students only. While attempts were made to elicit feedback from a diverse spectrum of distance learners, those who chose to reply to research questions did not represent the full UNAM distance education community. Some distance learners may be more motivated to participate if they have had exceptionally favorable or negative experiences with technology, thereby skewing the statistics. Furthermore, because the study relies on self-reported data, participants may have provided socially desired responses or incorrectly recalled their experiences.

The research focused on UNAM's context and distance education programmes, which may have distinct characteristics, problems, and support systems. As a result, the findings may be inapplicable to other Namibian universities or international institutions with diverse educational environments, resources, and student populations. While the research can provide significant insights and serve as a reference point for similar institutions, extending the findings to broader educational settings should be done with caution.

The researcher aimed to observe ten lessons, but due to limited transport funds from place to place where distance students reside, only five distance learners were observed. Many distance learners work on a full-time basis and have responsibilities after work; most of them kept on giving excuses until the time for data collection elapsed, causing the researcher to only interview five distance learners out of ten. On the questionnaire survey, 15 students contacted the researcher to say that they had network issues and were unable to complete the survey.

1.10 Delimitation of the study

The study was limited to the usage of technology in distance learning and not in full-time, although the university at which the research was conducted also offers full-time and part-time modes of study. The findings of this research were not generalized to other modes of study because of its particular focus on technology in distance education. Every study modality has its

own distinct set of difficulties, relationships, and results that could not coincide with the conclusions drawn from distance learning's use of technology alone.

1.11 Definition of terms

Distance learning is a form of education where students can take courses or participate in programs from a distance, usually utilizing the internet.

Perceptions in this study mean the thoughts, attitudes, or opinions that students have about technology experience.

Technology usage in this study refers to the use of various technical tools and gadgets by students, such as computers, tablets, smartphones, and software programs, to support their learning, improve their educational experiences, and complete academic work.

1.12 Overview of Chapters

This dissertation consists of the five chapters listed below.

Chapter 1

Present the background and rationale for the study, the theoretical foundations, the study's problem statement, aims, and objectives. The significance of the study, scope of the study, and limitations are briefly explained, along with the delimitations of the study.

Chapter 2

Presents an insight into the review of the literature related to the study topic.

Chapter 3

Provides an overview of the research design, method of data collection, population and sample selection, validation of data, reliability, data collection procedures, ethical considerations, and data analysis.

Chapter 4

This chapter presents the quantitative and qualitative findings. The results presented are meant to answer research questions for this study.

Chapter 5

This chapter presents the discussions and interpretations for the results, as well as implications and recommendations.

1.13 Chapter Summary

In this chapter, the background of the study is covered. It has also covered the problem statement for the study, the research questions, the significance of the study, and the limitations and delimitations of this study. Additionally, the definitions of the terms used in this chapter have been addressed. According to the literature, there is no study carried out on the perceptions of technology usage among distance learners in African universities: A case of the University of Namibia. The study might prove useful for future distance learners, the University of Namibia's technology enhancement, researchers, and professional development organizations to enhance the current technology integration and improve distance learning at universities.

CHAPTER 2: REVIEW OF RELATED LITERATURE

2.0 Introduction

This chapter reviews the existing literature on technology usage amongst distance learners in African universities. The review covers a number of topics related to the study: the global use of technology in distance learning, the historical context of higher education in Africa, the concept of distance education and technology, technology usage and integration in African universities, Technology and distance education integration at the University of Namibia, the journey of technology integration in Namibian universities, technology tools for distance education, technology accessibility, technology effectiveness in distance education, perceptions of technology in distance learning, challenges faced by students in the utilization of technology in learning, initiatives and policies related to distance education in Namibia, Supporting distance learners to harness technology benefits, gaps in literature, and summary.

2.1 The global use of technology in distance learning.

Technology integration has completely changed distance learning globally (Bryant et al., 2020). Universities and other educational institutions are progressively embracing digital tools and platforms to provide students with high-quality learning experiences regardless of their location, as the need for flexible and accessible education grows (Mdhlalose and Mlambo, 2023). Online education made possible by the internet has emerged as the latest advancement in distance learning, which began with correspondence courses and progressed to radio and television transmissions (Moore and Kearsly, 2012). Globally, educational institutions rely heavily on learning management systems (LMS), such as Moodle, Blackboard, and Canvas (Means et al., 2014). Massive Open Online Courses (MOOCs) have made education more accessible to a wider audience by providing elite universities' courses to a global audience. These platforms include Coursera, edX, and Udacity (Yuan & Powell, 2013). Immersion learning is made possible by VR and AR technology, especially in disciplines like engineering, history, and medicine where simulation can greatly improve comprehension (Radianti et al., 2020).

Furthermore, AI-powered solutions offer instantaneous feedback, automatic grading, and customized learning experiences. Examples of such developments are content recommendation

algorithms and adaptive learning platforms like Knewton (Baker & Inventado, 2014). Online learning tools have been widely adopted in many areas, and EdTech businesses have received significant investments. In addition to that, blended learning strategies are prevalent, integrating both online and in-person training (Allen & Seaman, 2016). The unequal availability of technology and the internet, especially in developing nations, exacerbates educational disparities (Van Dijk, 2020). It can be difficult to maintain learners' interest in a virtual setting. The need for more interactive and engaging content is highlighted by the high dropout rates in online courses (Kizilcec et al., 2013).

Finally, adding elements of game design to instructional materials can boost motivation and engagement. Gamification is a useful tool that platforms like Duolingo use to improve language learning (Deterding et al., 2011). According to Sharples and Domingue (2016), blockchain technology is being investigated for safe and confirmed credentialing, guaranteeing the legitimacy of degrees earned online. Learning experiences can now be more individualized and productive due to the increasingly sophisticated use of data analytics to monitor student progress and modify teaching strategies (Siemens & Long, 2011).

In relation to the mentioned literature, the widespread use of technology in distance learning is changing the face of education, bringing with it both new obstacles and previously unheard-of opportunities. The future growth of inclusive and efficient distance learning systems depends on sustained innovation, investment, and equal access. This exciting topic has the potential to broaden educational perspectives and enable more individualized and accessible learning than in the past.

2.2 The historical context of higher education in Africa

Higher education refers to study and academic endeavors after secondary or high school. Undergraduate and postgraduate programmes given by universities, colleges, and institutions committed to teaching specialized knowledge and skills in various academic areas are often included (Britannica, 2016).

Adea (2015), Marire (2017), Teferra and Altbachl (2004), and Ansah (2015) similarly find that pre- and post-colonial centuries make up the history of higher education in Africa. Africans had

already created their own knowledge and teaching methods prior to the arrival of European colonists. Between the 1950s and 1990s, African countries regained their independence and started to rebuild their traditional forms of education (Boddy-Evans, 2019). African higher education is facing low postsecondary attendance percentages, but higher education is recognized as a critical force for transformation and development (Nampala, Kityo, Makuma, and Adipala, 2017). Today's higher education in Africa is comprised of institutions, systems, and practices that lack specific values and aims, as well as a mission and vision that connects them to the major concerns of their local and global contexts (Aina, 2010). Higher education in Africa is remarkably underdeveloped and continues to stay behind the rest of the world. Significant inequalities in access, enrollment, equality, and quality control still exist in African higher education (Wiseman and Wolhuter, 2013).

Most universities in Sub-Saharan Africa were in disrepair in the 1990s. The UNESCO World Conference on Higher Education in 1998 marked a watershed moment in the history of African universities, providing a foundation for increased financing for higher education and resulting in the rebirth of African institutions (Mohamedbhai, 2015; Lurat, 2005). Higher education in African contexts keeps evolving, with African higher education introducing technology and distance education (Sharpe, Benfield, and Francis, 2006; Anthony et al., 2020).

2.3 The concept of distance education and technology

Distance education, which is sometimes referred to as online learning or remote learning, is a type of education in which instructors and students are physically separated from one another but are able to communicate through technology (Sinecen, Mahmut, 2018). According to Petracchi (2000), Corry (2012), and Cleveland-Innes et al. (2020), through the use of distance education, students can study without having to physically attend class. As an alternative, individuals can participate in courses and finish their homework from a distance with the use of technology. To do this, they frequently use the internet and other technological tools to communicate with teachers and access course materials (Firefly, n.d.). Distance education operates with the help of technology, as there are no face-to-face classes where educators can physically talk to the students (Margaryan, Littleton, and Vojt, 2011).

According to Lei (2014), technology is a vast and comprehensive notion that includes the use of information, tools, and procedures to solve problems, accomplish goals, and improve the human condition. It reflects the ever-changing set of methods, processes, and equipment developed and used by people to expand their capabilities and alter the environment (Rotolo, Hicks, and Martin, 2015).

Over the years, researchers have found that technology has been used in higher education and distance education in various subjects and different languages (Jaaskela et al., 2017). Technology is used in second language distant learning and has transformed the way people learn new languages, removing geographical and cultural boundaries and allowing students to practice their listening, speaking, reading, and writing abilities remotely (Blake, 2009). Pamuk (2011) emphasizes that distance education is the most rapidly expanding means of formal and informal teaching, training, and learning. It is multifaceted, embracing e-learning, mobile learning, and immersive learning environments. Issues in Distance Education contain contemporary research findings as well as instructive and approachable overviews, analyses, and investigations of current subjects and concerns, as well as the technologies used in distance education (Guessab et al., 2021).

Distance education, backed by technology, is critical for lifelong learning and skill development. Individuals can stay relevant in ever-changing businesses by taking online courses, attending webinars, and obtaining digital credentials (Dumitru and Vaceanu, 2014). Furthermore, Massive Open Online Courses (MOOCs) and online degree programs include a wide range of subjects and disciplines, allowing students to delve into a variety of interests with the help of technology (Muzdalifah and Herningtias, 2021).

According to several scholars Benson and Samarawickrema (2009), Sousa and Rocha (2019), Alavi and Leidner (2021), distance education is essentially dependent on technology for its survival and efficiency. Unlike traditional classrooms, where physical presence is required, distance education allows students and instructors to communicate and engage in learning activities from anywhere in the world.

Technology acts as a means for delivering instructional content, communicating with students, and conducting evaluations. Online platforms, multimedia content, virtual classrooms, and collaboration tools would not be conceivable without technology (Nair, 2019). Distance learning's asynchronous nature is facilitated by technology, which allows students to access resources and participate in discussions at their leisure. It also facilitates personalised learning experiences by tailoring information to individual needs and accurately tracking progress (Resource Hub for Schools and Districts, 2020).

In conclusion, technology delivers the essential rapid feedback for student improvement and understanding. In essence, technology is the backbone of distance education, allowing it to be a dynamic, accessible, and participatory style of learning that caters to varied learners all over the world (Deeley, 2018). The fundamental core and benefits of distance education would be lost without it, making technology an essential component of its operation (Revell, 2007) and (Rashid and Erahi, 2012).

2.4 Technology usage and integration in African Universities

Technology has been evolving at African universities (Rivers et al., 2015). African universities are adopting technology to bridge educational gaps, improve learning experiences, and stimulate creativity in the face of different economic, cultural, and infrastructure obstacles (Meda and H. Makura, 2017). Scholars explored the use of technology at African universities, such as Khan (2021), who observed that the level of eLearning usage and implementation differs between universities due to a variety of factors, such as technological and institutional obstacles. The availability of digital connectivity, both in urban and rural locations, determines the reach of technology-enabled education (Velag et al., 2012). Socio-cultural issues, such as attitudes towards technology and conventional learning methods, also influence its reception and implementation (Tom, 2011). Furthermore, multinational collaborations and partnerships frequently contribute to critical experience and resources, stimulating innovation and pushing technology adoption (Phill 2015). Finally, the successful adoption of technology in African higher education is dependent on a delicate balance of financial investments, supportive regulations, digital infrastructure, societal attitudes, and global collaborations (Muhuro 2011).

According to Ewing et al. (2014) and Adeniran and Jonhston (2016), while computers are no longer a common sight in African universities, they are still instruments that only a few can acquire due to both budgetary constraints and a lack of expertise. Many students utilize technology tools in their distance studies, yet a large proportion have less skill in using them. (Magambo, 2007), (Edutopia, n.d.), and (Anon, 2023).

Phelps and Maddison (2008) observed that the use of technology has added value in teacher education only, particularly because ICT facilitates gathering, organizing, and finding information. A study carried out at Bells University also observed that academic personnel spent more time on websites than they are supposed to, with more than 90% downloading research resources from the web but less than 8% publishing their study on the web. In order to generate web content, universities should first comprehend standard global requirements for the development and deployment of websites and web resources (Avemaria, 2008).

The generation of young students who grew up with the Internet and digital technology cannot imagine their lives without them, like using technology in their learning journey. These students have high skill levels in the use of new technologies (Liebenberg, Benade, and Ellis, 2010). Due to various constraints, such as those of technology and institutions, the extent of eLearning success, excess, and implementation varies across universities. Some have poor management of portals, no free Wi-Fi pockets or data for students, and funds being badly spent (Kipsoi, Chang'ach, and Sang, 2012).

According to Torres and Giddie (2020), a variety of factors, such as a lack of digital competence and low self-efficacy among lecturers in using technology for teaching, can hinder their willingness and confidence in integrating technology in the classroom. Distance learning lectures also frequently have restricted time to employ technology (Wibawa and Syahrial, 2020).

Beginning in the 1960s, computers for teaching were slowly implemented, including the programming language BASIC. Computers were becoming considerably more common in schools at this point. (Capacity, n.d.) Technology integration in African universities has occurred gradually over the last few decades, with noteworthy advances accelerating in the twenty-first century (Toure and Tchombe, 2008).

According to Meda and Makura (2017), African universities began to adopt fundamental technologies such as computers and internet access in the late 1990s and early 2000s. However, with the proliferation of mobile devices and the rising availability of high-speed internet connections in the 2010s, the integration process acquired substantial traction (Uetela,2017).

Several studies carried out about perceptions of technology in African universities observed that information and communication technology was widely implemented at higher institutions, despite challenges like a lack of governmental funding (Otiso and Chweya, 2015). A smaller number of distance learners are not proficient in the use of technology (Shava, 2022), and the learning process is moving towards mobile learning technologies despite various obstacles (Azeez and Van, 2018). Technology can improve school activities (Mafenya, 2022). There is a significant correlation between the quality of technology in African universities and the rise in awareness (Ghasia et al., 2020). This suggests a need for further investigation into the factors affecting technology proficiency among distance learners and how to address this issue to improve their learning experience.

During technology integration in higher education, many African countries, such as Namibia, Kenya, Zimbabwe, and Ethiopia, continue to face obstacles such as limited finance, inadequate infrastructure, and the digital divide, which hinder the pace and scope of technology integration in higher education (Gemmell et al., 2014).

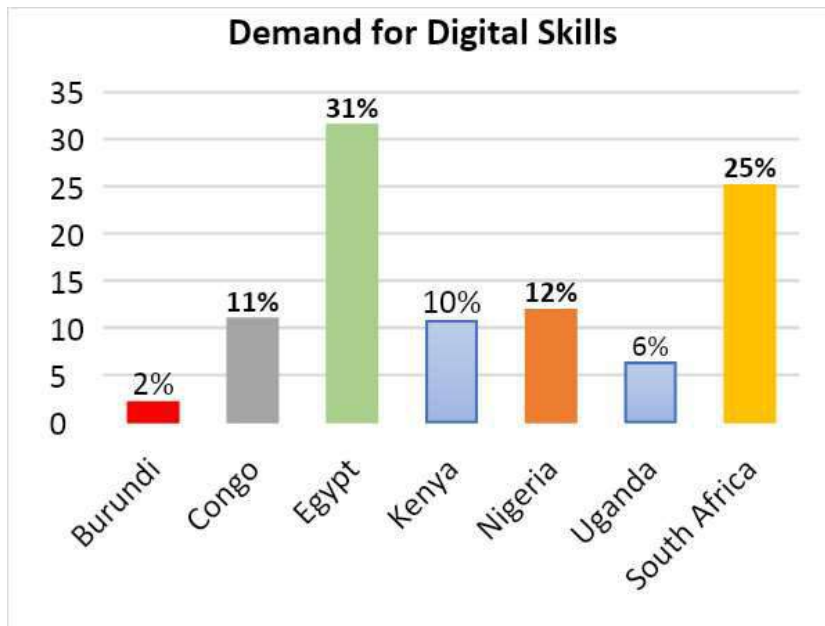


Figure 2.1 Countries that still demand technological skills (Northwind 2023)

2.5 Technology and distance education integration at University of Namibia

In 2016, the University of Namibia (UNAM) formed the Centre for Open, Remote, and eLearning (CODEL) through a merger of the Centre for External Studies (CES) and the Centre for eLearning and Interactive Multimedia (CeLIM) to deliver and strengthen remote education in Namibia (Mutenda, 2020). According to UNAM (n.d.), distance education, sometimes known as distance learning, allows students to study when they do not attend face-to-face classes. In other words, studying while working, after hours, or from afar (Gunawardena and McIsaac, 2013).

There are currently approximately 6,000 registered distance and online students, compared to less than 1,000 students registered in 2016. Since its establishment, the university has made use of technology. Through its main business of teaching, research, innovation, and community service, UNAM has made significant contributions to Namibia's economic, social, and cultural growth (UNAM, nd).

At all campuses, the University of Namibia (UNAM) provides and supports technology, communication, information, and collaboration services to its students and staff in order to achieve excellence in teaching and learning, with information and communication technology (ICT) in charge of delivering effective ICT services and support to the university's students,

lecturers, and stakeholders in order to progress and support the university's purpose and goals (UNAM, 2021).

UNAM's ICT services include desktop computing support in both administrative and academic environments, operating system and database administration for the central campus computing environment, support for University Information Systems, software support and distribution, web presence assistance, campus network infrastructure maintenance, network and email account setup and management, management of student computing labs, and campus audiovisual management (University of Namibia, n.d.), (UNAM, n.d.), and (repository.unam.edu.na, n.d.).

2.6 The journey of technology integration in Namibian universities

The government of Namibia aimed to take advantage of the new opportunities that the use of technology presented. After independence, the government started creating national policies and plans for incorporating technology into the curriculum (Simataa, 2015; education-profiles.org, n.d.). Thereby, the requirement for technology use and integration throughout the whole educational system has evolved into a national policy (Iipinge, 2010). Simataa (2015) finds that a lack of resources and expertise prevents instructors from using computers to educate. Afunde (2015) and Quest (2014) observed that educators in the Khomas Education Region have a positive outlook on computer technology, but the majority of information and communication technology integration initiatives in the classroom are still not optimized to a desirable redefinition or transformational level, despite a few creative strategies (Jatileni 2018). This is because of issues with attitudes, support, affordability, and skill levels. Stakeholders should be aware of the necessity of focusing on re-implementing ICT integration activities since the Ministry of Education, Arts, and Culture seems to place more budgetary emphasis on staff training (Nghaamua, 2022).

According to the study carried out at the University of Namibia, both the instructors and the students comprehend the national Information and Communication Technology Policy for Education quite well (Scirp.org, 2022). The majority of teacher educators said that their experience with integrating technology into the classroom is still in its early stages. Word processors and presentation software are their primary tools of choice. (Isaacs et al., 2018).

2.7 Technology tools for distance education

Technology is inextricably linked with digital and electronic systems in the present day (Study, 2024). Computers, smartphones, the internet, and a plethora of software programs have all become indispensable in our educational, personal, and professional lives. These digital technologies offer real-time communication, access to massive amounts of data, and the automation of complicated operations (Khin and Ho, 2018).

In the active landscape of distance education, a surplus of technology tools has developed, transforming the way educators engage with students remotely, not only bridging geographical gaps but also enhancing collaboration, interactivity, and personalised learning experiences (Turan, 2023). Starting from learning management systems to virtual classrooms and interactive multimedia, the collection of technology tools available for distance education is diverse and constantly evolving (Burhenn and Smudde, 2015), (Mercada and Gairin, 2020), and (Škrlec and Čančarević, 2023).

Technology tools perform a variety of functions, allowing students and educators to have a more seamless and participatory learning experience. There are different types of technology tools used in distance learning; high institutions use various tools depending on accessibility and funds for maintenance (Csillag, 2016). According to Burgess (2003), Smith (2008), Salleh (2012), Garcia et al., (2018) and Botho University (2023), technology tools used by universities and students for distance learning are learning management systems, video conferencing and virtual classrooms, collaboration and communication tools, collaboration documents and file sharing, online quizzes and assessments, learning analytics and student engagement, plagiarism checkers, video conferencing and streaming platforms, webinar platforms, personal computers and laptops, communication tools, note-taking apps, social media, cloud storage services, and online research tools.



Figure 2.2 Typical example of technology tools in distance education (Millan and Yunda, 2014)

2.8 Technology accessibility

In distance education, technology accessibility refers to ensuring that all students and staff, regardless of skills or impairments, can access and fully engage in online learning settings (Mayisela, 2013) and (CUNY Assistive Technology Services, n.d.). It entails creating digital tools, platforms, and educational content that meet a variety of demands, such as visual, aural, motor, cognitive, and technological accessibility, and it is critical for offering an inclusive educational experience as well as meeting legal obligations such as the Americans with Disabilities Act (ADA) in the United States and comparable legislation in other countries (Munz, 2021). Research conducted at private universities in South Africa by Verkijika and De Wet (2018) found that the university portal that is used was crashing several times; they have no standby technician to monitor and fix it.

Academics in African higher education face systemic obstacles and lack the necessary skills for the introduction and integration of e-learning (Anyaoaku, Echedom, and Baro, 2019). Moreover, many African higher education institutions lack e-learning policies as well as technical and administrative support for academics in the establishment and use of e-learning facilities. Such deficiencies have a variety of effects on academics' awareness, experiences, and attitudes

regarding e-learning. The struggle to make active and effective use of e-learning facilities in distance education is due to a lack of considerable support and help from the technical department (Maphalala and Adigun, 2020).

2.8.1 Technology effectiveness in distance education

The most significant advantages of employing technology for online teaching and learning are interaction and student participation, access to current knowledge, content sharing, and communication (Ronghuai Huang et al., 2019).

According to Flecknoe (2002), View (2022), Anuonline (2023), and Telefonica (2023), information and communication technology are now being used in education, and they help students learn more successfully by giving lecturers access to a variety of innovative approaches. These technologies are being utilized to help lecturers with administrative work (Wali and Omaid, 2020). Applications for information and communication technologies make educational work easier. This new application allows students to demonstrate to lecturers how to enhance teaching, providing students with better informed and profitable access to teachers' knowledge and skills (Handerson, 2020). Other scholars, Matheos (2004), Carver (2016), and Ellermeijer (2019), find that effective teaching with technology in distance education is a fantastic resource and reference for all instructors, trainers, and instructional designers that work with adult students; thus, it should be required reading for senior educational leaders who are readily swayed by the allure of new change. According to Kazondovi (2018), educators at the University of Namibia have an excellent comprehension of information and communication technology. Distance learners are enthusiastic about technology such as electronic resources due to prior experience, high self-efficacy, and the numerous benefits of using them. It helped them complete work like writing assignments, research papers, and research projects (Hamutumwa, 2014).

In addition to that, technology has transformed distance education by increasing students's accessibility and flexibility (Pargaonkar et al., 2023). Individuals can now pursue higher education regardless of their physical location or rigid timetables, all owing to technological developments such as online learning platforms and digital resources (Paper, 2023). Students from all over the world can access course materials, engage in virtual classrooms, and collaborate with peers (Lisedunetwork, 2023). Adaptive learning systems have the potential to

personalize the educational experience by responding to individual learning styles and pacing. Because of this level of flexibility and accessibility, technology has become a highly effective instrument for increasing access to higher education (Pramuka and Van Roosmalen, 2009). The effectiveness accords well with Singh and Hurley (2017), who observed that another key advantage of higher education technology is its ability to promote student participation and collaboration. Even in online environments, learning management systems, discussion boards, and real-time communication tools have developed a sense of community among students.

In addition, the use of multimedia tools, simulations, and virtual labs has improved the learning experience by making complicated topics more accessible and interesting (Abdulrahman et al., 2020). Technology also provides educators with data-driven insights, allowing them to track student progress and alter their teaching approaches, ultimately improving educational quality (Varthana, 2022). The effectiveness of technology in higher education is full of obstacles; overreliance on technology can result in digital distraction and lessen face-to-face engagement, and not all students have equal access to the necessary gadgets and high-speed internet, resulting in discrepancies in their learning experiences (Liljaniemi and Paavilainen, 2020). Furthermore, due to the quick rate of technological change, educational institutions must constantly adapt and invest in updates and training. As a result, while technology has clearly improved higher education, its full promise can only be realized via strategic integration and the mitigation of its related obstacles (Elja, 2017).

In recent years, there has been a notable trend in higher education, with students enrolling in technology-related subjects at a higher rate than other disciplines (techreviewer.co, n.d.). This spike of interest can be traced to the expanding influence of technology in all facets of modern life. With the rapid evolution of digital technologies, students recognize the value of obtaining technical skills and knowledge that are immediately applicable to real-world circumstances (Huang and Hsieh, 2020). Technology classes in fields such as computer science, data science, programming, and digital marketing provide practical skills that are in high demand in today's work market (University of Wisconsin, 2017). The attractiveness of these courses stems from their capacity to train students for professions in domains that are constantly expanding, giving numerous options and competitive advantages. As a result, the popularity of technology classes continues to climb, indicating the growing demand for competence in the digital age (Ragusa and

Crampton, 2018). Furthermore, because of technology's tremendous usefulness and relevance in today's society, students are increasingly drawn to technology education over other methods of study (University, Stanford, and California, 2024) and (Brasca, 2022).

Every aspect of civilization is affected by technology, from business and healthcare to entertainment and communication. As a result, students recognize that learning technical abilities provides them with vital tools for dealing with real-world problems (Richardson, 2024). Technology education provides hands-on experiences that allow students to participate in new projects, coding, and problem-solving activities, thereby improving their critical thinking skills (Niiranen, 2019). Furthermore, the fascination with technology stems from its almost endless possibilities for innovation and enterprise. (21stCentEd, 2023). The digital age has produced a thriving job market for technology experts, with a wide range of rewarding career prospects. The potential of permanent work in fast-developing industries stimulates students to seek technology study, making it a tempting choice over other subjects (Henderson, Selwyn, and Aston, 2015).

One of the forms of technology used in distance education is interactive platforms, which have transformed how students interact with course materials and teachers, dramatically improving their learning experiences (Specialist, 2020). These platforms create a virtual environment in which students can actively participate in discussion forums, access learning materials, collaborate on projects, and interact in real time with both educators and peers (Harman, 2024). Distance learners can ask questions, seek clarification, and share ideas using tools such as discussion boards, live chat sessions, and video conferencing, building a sense of community and collaboration (Khan 2014). Furthermore, interactive platforms frequently provide multimedia resources, quizzes, and interactive projects that cater to a variety of learning styles, ensuring that students obtain a well-rounded and entertaining educational experience (Tubaishat, 2018). Herrmann-Werner et al. (2021) opined that this level of involvement not only engages students but also gives them rapid feedback, allowing them to track their progress and effectively address any learning gaps. As a result, interactive platforms in remote education enable students to actively participate in their education, resulting in a dynamic and rewarding learning environment that mimics the interaction of traditional classrooms.

Wang, Shannon, and Ross (2013) find that technology is extremely effective in online courses, fundamentally transforming the landscape of education. Online courses offer engaging multimedia content, interactive simulations, and virtual collaboration spaces that cater to diverse learning styles, and these technologies enable students to access course materials at any time and from any location, fostering a sense of flexibility and convenience. Additionally, Soffer and Nachmias (2018) also find that online courses frequently combine adaptive learning algorithms and analytics, allowing instructors to personalize the learning experience based on individual progress and performance. Real-time communication systems enable instant contact between students and instructors, overcoming physical distance and fostering a sense of virtual community. Furthermore, technology allows for the seamless assessment of pupils through online quizzes, interactive assignments, and automated grading systems (Edisonos, nd).

According to Kovanović (2015), technology in distance education sometimes occurs through asynchronous learning, in which students access course materials and lectures at their own leisure, freeing them from rigid timetables and allowing them to balance work, family, and personal obligations. According to Elearning (2020), mobile applications have further revolutionized learning by allowing students to access educational content while on the go, allowing them to study whenever and wherever they want, even during short intervals in their hectic schedules. Furthermore, the abundance of online resources, ranging from interactive textbooks to virtual libraries and educational websites, enabled students to do in-depth and independent research. This adaptability not only meets the needs of working professionals and parents, but it also accommodates global learners from various time zones (Alison, 2021). The convergence of asynchronous learning, mobile applications, and online resources has democratized education, removing obstacles to entry and creating a dynamic, adaptable learning experience for people juggling many commitments (Lytle, 2019).

A study carried out by Sadek and Mahrous (2018) on adaptive learning technologies showed amazing efficacy in adapting educational content to specific student needs. These technologies provided personalized learning experiences that catered to each student's unique talents and learning styles by leveraging the power of artificial intelligence and data analytics. Students reactions, learning patterns, and progress are analyzed in real time by adaptive learning platforms, allowing them to get personalized information and conduct experiments (Taylor,

Yeung, and Bashet, 2021). This versatility guarantees that students get the help they need when and where they need it, encouraging better understanding and mastery of complicated subjects. Sangeeta Dhamdhere-Rao and Andres (2022) have also revealed that adaptive learning systems boost student engagement, motivation, and overall learning outcomes. These technologies, by targeting individual learning gaps and preferences, not only improve academic accomplishment but also build a sense of confidence and self-efficacy in students, making learning a more personalized and empowering experience.

The efficacy of personalized learning paths with technology has demonstrated revolutionary effects on student results, transforming the old education paradigm. Personalized learning paths enable learners to continue at their own pace while ensuring a deeper knowledge of the topic by adapting learning experiences to individual students' requirements, abilities, and interests (Desai et al., 2023). Significant increases in student engagement, motivation, and knowledge retention are demonstrated in these case studies. When students can connect with the information on a personal level, they are more likely to take ownership of their learning, which leads to improved comprehension and critical thinking skills (Munyaradzi Maravanyika, Nomusa Dlodlo, and Nobert Jere, 2017). Further research is needed on how technology affects the learning of distance students at the University of Namibia.

2.8.2 Perceptions of Technology on distance learning.

According to Hamutumwa (2014), due to the students' high level of self-efficacy, past experience, and the numerous advantages of using electronic resources, distance learners had a positive attitude towards technology at the University of Namibia. Students did not utilize the subscribed e-resources because of their expensive cost, inadequate internet access, power disruptions, scarcity of computers, and lack of computer expertise (Doyumaç, Tanhan, and Kiymaz, 2020). Distance students had a relatively poor level of awareness regarding the electronic resources that the library had. It also demonstrated that most students lacked basic computer skills, searching abilities, and adequate instruction in the use of ICT and electronic resources. Hambabi (2021) finds that very little progress has been made in the efficient use of mobile devices for teaching and learning in Namibia. Despite the instructors and students positive attitudes towards this approach, there are obstacles that prevent mobile devices from

being used effectively, including low storage capacity, sluggish application opening times, limited or nonexistent access to electricity, a lack of knowledge about mobile applications for teaching and learning, and small or nonexistent screen sizes. Additionally, Shikulo (2018) observed that the technology learning outcome at the Namibian University of Science and Technology was affected by a few issues, including a lack of technology resources, understaffed regional centers, a lack of support services on weekends and public holidays, and a lack of cooperation between lecturers, face-to-face instructors in the regions, and mentors.

Furthermore, Kanyemba and Josua (2023) observed that some students at the University of Namibia had difficulties acquiring subject knowledge when learning online. To ensure pedagogic access, the majority of students favored in-person or blended learning and assessment. It is determined that students exposure to online learning aided in the improvement of general computer abilities. Technology has both satisfactory and insufficient outcomes. This can be because of many reasons, such as poor learning management systems, students willingness to utilize technology, a lack of funds to buy data or Wi-Fi extra (Passey and Higgins, 2016). Some technology learning outcomes at African universities include increased inclusivity for rural and remote students, interactive virtual classrooms, chances for collaborative research, greater educational access for a wide population, effective job-market preparedness, and the development of lifelong learning abilities. (Berry, 2015) and (Sabi, 2016).

2.9 challenges faced by students in utilization of technology in learning

According to Melor et al. (2009), when adopting technology for education, distance students encounter a variety of problems. These obstacles can have a substantial impact on their learning experience and outcomes.

Challenges faced by students in the utilization of technology range from limited access to reliable internet; distance students experience a lack of constant and reliable internet connectivity (Guze, 2015). Many localities, particularly rural areas, may have insufficient or unstable internet infrastructure. Student's ability to participate in online classes, access course materials, and engage in collaborative activities might be hampered by a lack of high-speed internet access, negatively influencing the entire learning experience (Wong, Greenhalgh, and Pawson, 2010).

Kotluk and Kocakaya (2016) observed that not all students are equally comfortable with computers and digital tools, and some distance students, particularly older folks or those from low-income families, may lack basic digital literacy abilities. Skinner (2019) opined that effective online learning requires the ability to navigate online platforms, use software tools, and grasp digital etiquette, which some students struggle to fulfill. According to Adnan and Anwar (2020), in the digital learning environment, students who lack these skills may struggle with coursework and communication. Lack of social interaction and isolation in distance education, particularly in asynchronous online classes, can be alienating. Distance students, unlike typical classroom students, may miss out on social contacts and peer support that can enhance the learning experience (Azmat, Osborne, and Rentschler, 2011). These accord with Pozdnyakov (2017.p.93), who opined that a lack of face-to-face interactions and group discussions can contribute to a sense of isolation, lowering motivation and participation in the learning process, time management, and self-control.

While the flexibility of distant education is a huge benefit, it also necessitates excellent time management and self-discipline (Veletsianos and Houlden, 2019). Distance learners frequently manage their education with work, family duties, or other obligations. Balancing these commitments and finding the time to study might be difficult, and procrastination and a lack of self-discipline can cause students to fall behind (Vernon et al., 2009).

Challenges continue with software malfunctions, compatibility concerns, or outdated technology that all disturb the learning experience. As a result, students may have difficulty accessing online learning platforms, completing assignments, or participating in virtual lectures (McBrien, Cheng, and Jones, 2009). These challenges can be frustrating and create impediments to efficiently completing school. Their coursework has a detrimental impact on their academic achievement. (Viberg and Grönlund, 2015).

The view of technology policy execution in Namibian higher education institutions is primarily influenced by two key factors: student's lack of ICT literacy and limited access to learning and training resources. The poll of students found that despite the existence of an ICT policy, many students believe that they lack the requisite digital skills and competences to properly employ technology in their studies (Woyo, Rukanda, and Nyamapanda, 2020). Many distance learners

require longer to gain certifications due to high failure and repetition rates. This could be attributed to a scarcity of materials and their underutilization by students, a lack of collaboration between marker-tutors and lecturers, and low attendance at tutorial classes by both students and lecturers/tutors (Shikulo and Lekhetho, 2020).

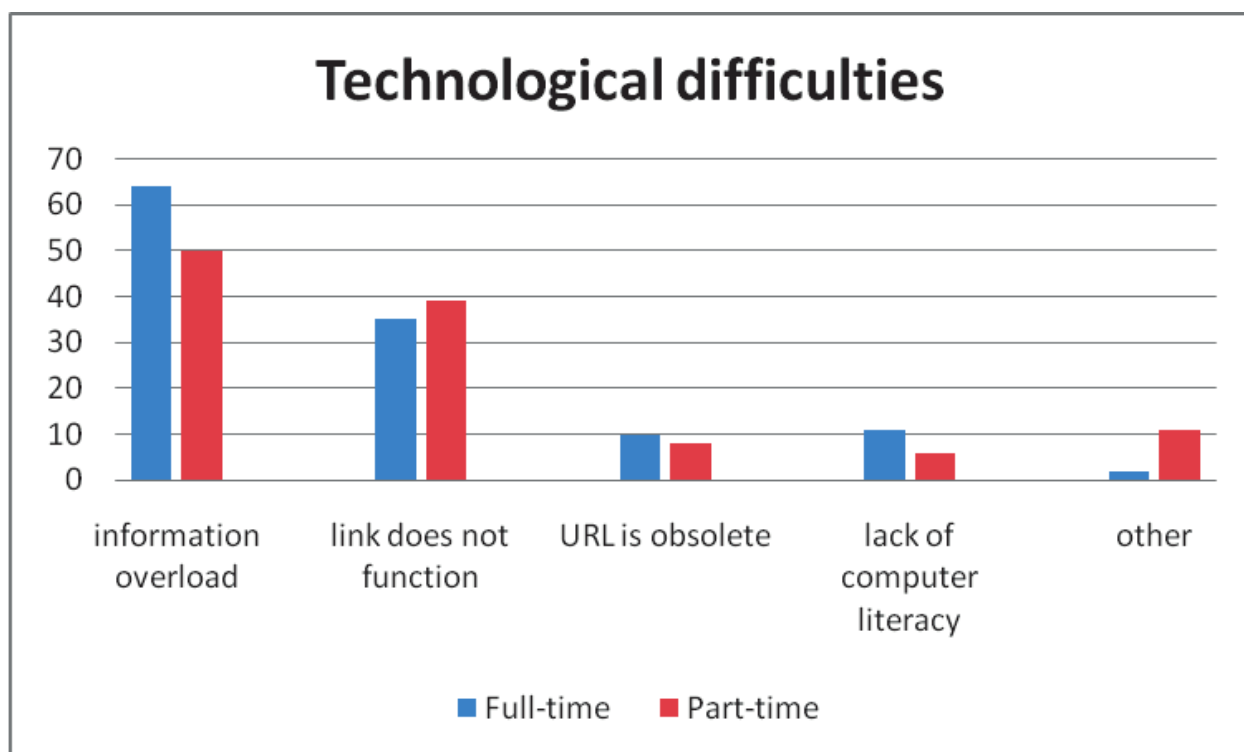


Table 2.3 some examples of challenges faced when using technology (Commons, 2019).

2.10 Institutions and policies related to distance education in Namibia

Namibia, like many other countries, recognizes the value of distance education in expanding access to quality education, particularly in remote and disadvantaged areas, and several efforts and regulations to encourage distance education have been enacted; thereby, distance education policies and institutions have been introduced gradually (Matakala, 2014). National Institute for Educational Development (NIED): The National Institute for Educational Development (NIED) is a key player in developing Namibia's educational landscape. The National Institute of

Education has been actively involved in the development of remote education materials and programs for both primary and secondary education. It has developed printed and digital resources, including textbooks, to assist students and teachers in rural areas. These tools are critical for educating students who may not have easy access to traditional schools (Nied n.d.).

Namibia University of Science and Technology (NUST): NUST, one of Namibia's finest higher education institutions, has been at the forefront of distant education programs. It provides a variety of distance education programs, including diploma and degree programs, to meet the educational needs of working adults and people living in rural areas. NUST's dedication to remote education is consistent with the country's overarching goal of increasing access to higher education (coll.nust.na, n.d.).

According to Kadhila (2020), Namibia has launched the eLearning Namibia Initiative to leverage the power of technology in education, supported by the Ministry of Information and Communication, which aims to improve educational outcomes through the addition of digital technology in schools. While this effort primarily focuses on in-person learning, it lays the framework for future technological integration in online education (Matengu, Likando, and Kangumu, 2018).

Namibia also created a National ICT Policy for Education to guide the integration of information and communication technology (ICT) into the education sector. While not solely concerned with distance education, this policy recognizes the significance of technology in improving teaching and learning, which is pertinent to distance education programs. It highlights the significance of connectivity, digital literacy, and the creation of e-content to enhance education (Woyo, Rukanda, and Nyamapanda, 2020).

The Ministry of Education, Arts, and Culture in Namibia has developed the Open, Distance, and eLearning (CODEL) Policy to govern the introduction and management of ODeL programs in the country. This policy establishes the regulatory framework for universities offering distance and eLearning programs, ensuring program quality and consistency (Moe.gov.na, 2022).

It's evident that initiatives led by NUST, NIED, and the eLearning Namibia program reflect the country's commitment to using technology and flexible learning approaches to improve educational access and quality. These activities are consistent with Namibia's overall educational aims and the country's ambition to use remote education to suit the different requirements of its population (Christoffer Mässon, 2017).

2.11 Supporting distance learners to harness technology benefits

As technology has advanced, distance learning has become more popular since it gives students flexibility and access to education regardless of their location. But distance learners need all-encompassing support in order to get the most out of technology (Mathew and Abele, 2016).)

Ensuring strong technology infrastructure and access is one of the core components of assisting distance learners. Research highlights the significance of proper technology, dependable internet access, and easily navigable learning management systems (Keles and Ozel, 2016). A sufficient infrastructure facilitates learners's easy interaction with digital content, their participation in online courses, and their efficient use of technology resources (Anderson, 2010; Moore & Kearsley, 2012).

The effectiveness of distance learning initiatives depends on providing extensive learner support services. These services include options for mental health, technical assistance, and academic counseling. Studies emphasize how crucial it is to offer academic counseling that is easily accessible, round-the-clock technical support, and tools for stress management and wellbeing maintenance (Simpson, 2018). Learning technologies that are adaptive and tailor lessons to the specific needs of each learner are becoming more and more popular. These technologies offer personalized content, evaluations, and feedback using data analytics (Contrino et al., 2024).

2.12 Gaps

There are some significant gaps in the research that has already been written about how distance learners in African higher education perceive their use of technology, with a particular emphasis on the University of Namibia. Primarily, there is a dearth of comprehensive research that explores the distinct obstacles encountered by distance learners in African environments, where

socioeconomic variables, infrastructure constraints, natural disasters, pandemics, and cultural subtleties greatly influence the use of technology. Furthermore, little study has been done on the academic and psychological elements of how University of Namibia distance learners view and use technology. More comparative studies between other African countries are also required to identify regional trends and differences in the use of technology by distant learners.

Finally, a thorough grasp of how distant learner's perceptions of technology change over time is hampered by the literature's frequent lack of a longitudinal perspective. In order to develop effective policies and practices that can improve the educational experiences of distant learners at African universities like the University of Namibia, it is imperative that these gaps be addressed.

2.13 Summary

This chapter aimed to provide insights into the related literature that shows the details of technology usage, the constraints that obstruct its successful use, and the potential it has to enhance day-to-day academic operations. This research thus lays the groundwork for an empirical investigation aimed at bridging the gap between technology, the views of distance learners, and the academic achievements of distance learners at the University of Namibia.

CHAPTER 3: RESEARCH DESIGN AND METHODOLOGY

3.0 Introduction

This chapter describes the research methodology used to investigate distance learners' perceptions of technology usage in African universities, with a focus on the University of Namibia. The study employed a mixed-methods design that is explained as a combination of qualitative and quantitative analysis (George, 2023). The study followed the embedded design mixed method; according to Creswell (2006), Kimmons (2022), and George (2023), in embedded design, one form of data (quantitative or qualitative) is prioritized above another, while the second is supplemental. The method largely focused on quantitative survey data, with qualitative interviews and observations offering additional insights to enhance the quantitative results. Furthermore, the chapter also clarifies the reasons why some research methodologies were chosen over others. The chapter describes the research design, data gathering methods, data analysis procedures, and ethical issues in detail.

3.1 Research design

According to Gaver (2012), a research design is a structured strategy outlining a researcher's methodical approach to studying a given research problem or question. It guarantees that varied research activities run smoothly, and to perform an effective research study, it is critical to clearly state the proposed research technique (Kothari, 2004) and (Scribbr, n.d.).

The significance of research design stems from its function as a vital link between the theory and argument that guided the research and the empirical data collected (Blessing, 2009) and (Scribbr, nd). A study design choice reflects considerations regarding the importance of various aspects of the research (Peppers, 2007) and (Sileyew, 2019). This will, of course, have a significant influence on methodological methods such as sampling and statistical packages. A research design encompasses several types of inquiry and/or inquiry procedures that can be used for a research project using quantitative, qualitative, or mixed methods (Kennedy-Clark, 2019).

To get a full understanding of distance learners's perceptions of technology usage, this study employed a mixed-method approach, combining qualitative and quantitative methods. A mixed-methods design is vital because it allows for a more in-depth analysis of the issue by triangulating data from many sources, hence improving the study's overall reliability and validity (Hesse-Biber, 2010). It enables a broad understanding of the various features of technology use in a specific educational situation. Given the complexities of the factors that influence technology adoption and usage among distance learners, a mixed-methods approach allowed the researcher to capture the phenomenon's breadth and depth. The researcher collected structured data about the frequency and percentage of technology use via quantitative surveys, offering a wide overview of trends. Meanwhile, qualitative methods such as interviews and observation were used to provide a more in-depth knowledge of learners's perceptions and experiences that influence their interactions with technology.

In research, a mixed-methods strategy entails using both qualitative and quantitative research methodologies in the same study. This method combines qualitative data, which provides detailed descriptive insights, with quantitative data, which provides numerical and statistical data (Fetters and Creswell, 2015). This concurs with Creswell and Plano Clark (2017), who described that in a mixed-methods approach, researcher's first collect and analyze qualitative data in order to methodically investigate a phenomenon, developing hypotheses and theories. Following that, quantitative data is acquired in order to support or contradict the qualitative conclusions on a broader scale. This sequential method enables the researcher to use qualitative data to guide the construction of quantitative instruments, which aids in quantitatively confirming qualitative results. This methodological triangulation strengthens the research findings.

The goal of combining the two procedures is to provide the researcher with a full grasp of the study subject at hand rather than employing each approach alone (Biber, 2010). Similarly, the goal of adopting mixed approaches is to ensure and enhance the credibility of findings from various methods. A mixed-methods strategy also yields more comprehensive data and rewards for the limitations of a single method (Hesse-Biber, 2010; Polit and Beck, 2010). Furthermore,

according to Ivankova, Creswell, and Stick (2006), mixed methods seek elaboration, enhancement, illustration, and clarification of the results.

According to Palinkas (2015), qualitative data discusses non-numerical information obtained using methods like interviews, focus groups, or observations in a sequential explanatory mixed-methods approach. In contrast to quantitative data, which is concerned with numerical measurements and statistical analysis, qualitative data gives descriptive, context-rich insights into participants experiences, beliefs, perceptions, and behaviors (Stolle, 2022) and (Hsieh and Shannon, 2005). Following the first quantitative data collection and analysis, qualitative data is used as a critical component in the second part of the study. Qualitative approaches are used to investigate the complexities of the research issue, providing a greater comprehension of the quantitative data achieved previously (Creswell, 2009) and (Loyola Marymount University, 2021).

A mixed-methods approach with embedded mixed methods was appropriate for this study because the researcher obtained comprehensive insights into the subtleties of students's attitudes, experiences, and perceptions of technology in distance learning by integrating qualitative and quantitative methodologies. While qualitative data offered deeper insights into particular perceptions, quantitative data offered statistical information on the prevalence of particular perceptions. A mixed-methods approach enabled the examination of various viewpoints and experiences, which led to a more nuanced knowledge of the focus.

Although quantitative data was used to spot patterns and trends throughout the sample, qualitative data was used to investigate the experiences of specific distance learners. The study's findings are validated by a mixed-methods approach. The quantitative data indicated that most distance learners saw technology use favorably. The researcher utilized qualitative data to investigate why this is the case and further contextualized the findings. The researcher used two distinct phases to solve the research questions concerning distance learners. In the first step, the researcher used a quantitative questionnaire survey with simple random sampling and a stratified sampling strategy by first segmenting the population into several strata of age groups and fields of study. Participants from each stratum were then chosen at random to receive the survey.

The researcher also used the qualitative method through online lesson observations and phone calls for semi-structured interviews in the second phase by means of convenience sampling, where the researcher selected participants that live close to her place, and snowball sampling by asking the distance learners to recommend other most likely free and willing ones for interviews to acquire insight into students usage of technology on the learning process.

The use of an embedded mixed-methods approach is purposeful and complex given the complexities of examining perceptions of technology usage. The embedded mixed-methods approach allows for the integration of several data sources (W. Alex Edmonds and Kennedy, 2016), promoting a holistic understanding of the study issue and supporting the creation of insights that can guide policy and practice in the University of Namibia's distance learning programs. This methodology is suited for the research topic because it allows the examination of perceptions, which can be better understood through qualitative data, while simultaneously allowing for the collection of quantitative data to provide a larger context or validate the qualitative findings.

In conclusion, by combining quantitative and qualitative data, the study was able to produce actionable insights that are sensitive to the unique challenges and opportunities confronting distance learners at the University of Namibia, informing the development of effective strategies and interventions to meet their technological needs.

3.2 Research paradigm

A research paradigm is a collection of ideas and methods that direct the course of research (Proofed, 2022). The interpretivism paradigm makes the most sense for this study. This paradigm is centered on comprehending the personal interpretations and experiences that people give to their surroundings (Dudovskiy, 2019). This paradigm suits well because it made it possible to explore and comprehend the human and social issues surrounding the use of technology by distance learners in African universities, especially at the University of Namibia.

3.2.1 Ontology

According to interpretivism ontology, reality is subjective and socially constructed. It highlights how crucial it is to understand people's meanings and experiences within a specific environment (Shava and Nkengbeza, 2019). The perspectives of distance learners about technology use were the main emphasis of this study, which entails understanding their individualized experiences and interpretations of technology use in their learning.

3.2.2 Epistemology

Interpretivism epistemology places a strong emphasis on the researcher's ability to shape the research process and the significance of comprehending the environment in which evidence is gathered (Alharahsheh and Pius, 2020). It was chosen for this study because it offers a framework for comprehending how knowledge is formed and how the researcher's own experiences and preconceptions may affect the outcomes. It also ensured that the research was firmly based on a detailed understanding of the context and the experiences of the participants by acknowledging the need to understand the technology usage among distance learners at the University of Namibia.

3.2.3 Axiology

Axiology is a branch of philosophy that studies judgments about value. Axiology is concerned with the assessment of the researcher's own value at all stages of the research process (Research Methodology, n.d.). Axiology is suitable for this study because it focuses on comprehending the values and beliefs that form perceptions, which is important for investigating the perspectives of distance learners at the University of Namibia on the use of technology. Axiology underscores the significance of ethical deliberations and the influence of technology on the welfare of students and academic achievements. Prioritizing ethical viewpoints and values assisted the study in better addressing the difficulties and specific aspects affecting the use of technology in distance learning.

3.2.4 Methodology

Mixed-methods methodology: To meet the research aims, this study combined quantitative and qualitative methodologies. While qualitative techniques by means of lesson observations and interviews offered depth and context, the quantitative method by means of surveys provided generalizable data.

3.3 Methods of data collection

According to Cope (2014), the systematic approaches, processes, and tools used by researchers to collect, analyze, evaluate, and draw conclusions from data are referred to as research methods in a research paper. These methods include a wide range of methodologies, such as surveys, experiments, interviews, observations, and statistical analyses (Li, 2017). Research methods play an important role in guiding the research process, assuring the reliability and validity of the findings and offering a formal framework for investigating research topics or hypotheses. These approaches serve as the foundation for research projects, guiding the researcher in the generation of new information or the validation of existing hypotheses (Cooke, 2019) and (Pawar, 2004). As a result, the following data collection phases will be used in this study: site selection, acquiring access, sampling, collecting, and recording data.

3.3.1 Site selection

This study aimed to explore the use of technology in distance education at the University of Namibia. The study explored the perceptions of students in the distance department on the use of technology and how distance learners are using technology for their learning. The site chosen was the University of Namibia campus, situated in Windhoek, Namibia. This site was chosen for the study because the researcher is a former postgraduate distance student at the University of Namibia. During the time the researcher was a distance learner; she experienced and observed that they had different perceptions of technology use. It is with this notion that the researcher got interested in finding out how the current registered distance learners from the main campus use technology in their learning.

3.3.2 Acquiring access

The researcher applied for permission through the center for research services at the University of Namibia by sending an email to the head of postgraduate research support services, Dr. Armas Shikongo, to request permission to collect data from distance learners. The researcher contacted the lecturers and learners by phone four days prior to carrying out the interview and lesson observation. The researcher explained the rationale for the study to the learners and then delivered the research information sheets that clarify the goal of the study and the learners expected roles in the study. The research information sheet also included information such as learners and voluntary participation in the study, which informed them about their consents and that if they wish to withdraw from the study, they can do so at any point during the process without providing any reason.

Furthermore, the researcher guaranteed the learners the confidentiality of information acquired from them, indicating that it would be used only for the study and not for other objectives; hence, in reporting the conclusions of this research, the learners' names were replaced with pseudonyms.

3.4 Population

The selection of participants is an important feature of this study. In order to better understand the relationship between distance learners and technology at the University of Namibia, The researcher involved a detailed account of the population that included a rigorous strategy that included numerous data collection techniques. The researcher used a multimodal method that included lesson observations, a survey questionnaire, and interviews to get relevant data.

Survey questionnaires were the main tool used to collect data. A total of 150 survey questionnaires were sent. The purpose of these questionnaires was to collect quantitative information about the learner's technology usage during their academic endeavors. Of the 150 surveys that were sent via email, 74 were filled out and mailed back.

In addition to questionnaires, five lessons were observed; the researcher was able to observe in-person interactions between distance learners and the technology they utilize during actual classes. To complement the data obtained from the survey questionnaire and lesson observation, the researcher also interviewed five distance learners. Through direct communication via phone

calls, the researcher acquired comprehensive and sophisticated explanations about technology usage.

3.5 Sample selection

The researcher used a sampling technique that ensured a correct conclusion regarding the population from which the sample was collected. There are two sorts of sampling methods: probability sampling and non-probability sampling (Qualtrics, n.d.). Probability sampling techniques in which there is an equal chance of selection for each subject in the target population and non-probability sampling that involves selecting subjects from an available and accessible group or people who exhibit the required qualities (Hennink et al., 2019) and (Elfil and Negida, 2017). This study used stratified sampling, simple random sampling, a type of probability sampling, convenience sampling, and snowball sampling, which is a type of non-probability sampling.

In order to guarantee that the sample accurately represented the population, stratified sampling was employed by splitting up the population based on fields of study, gender, current level of study and age that was followed by simple random sampling, where the researcher randomly picked emails from the list of enrolled students. Through the inclusion of all relevant subgroups in the study, this approach guaranteed a more nuanced knowledge of the research problem and improved the generalizability of the findings.

The researcher used convenience sampling to choose participants based on their closeness to the researcher's location. This method was largely motivated by a lack of funding for transport and traffic congestion in the capital city, which freed the researcher from the time and logistical burdens that come with involving participants who live far away. Finally, snowball sampling was used during the data gathering procedure, specifically in the interview and lesson observation phases. Participants were invited to recommend other suitable applicants to the researcher.

The integration of different sample techniques facilitated a comprehensive and resilient approach to gathering data, guaranteeing that the research encompassed a wide range of viewpoints and encounters.

3.6 Validation of the instruments

Validation of instruments is the process of evaluating the accuracy and consistency of the instruments used to gather data for a research study. It ensures that the instruments measure what they are supposed to measure and yield consistent findings across time (Middleton, 2023). In order to validate the survey, lesson observation, and interview tools, the researcher took several steps.

3.6.1 Validation of Survey Instruments

To confirm the validity of the instruments, the questions were well-crafted, brief, and appropriate to the objectives of the study. A thorough methodology covering all relevant aspects of technology use was used to record participant experiences and viewpoints. Creating questions that effectively gauged participants' opinions of technology use was necessary for construct validity. To verify the impartiality and clarity of the instruments, a pilot study was carried out by testing the instruments with two fellow students and three lecturers who are friends with the researcher first to find out if the instruments aligned with the objectives and if there were errors. Test feedback aided in identifying areas of unfairness or confusion, enabling the required adjustments.

3.7 Reliability of the instruments

Ensuring the reliability of data instruments is essential for carrying out thorough research using diverse approaches (Thompson, 2013). The researcher employed test-retest reliability in survey instruments by giving surveys to the same participants twice under the same circumstances in order to acquire consistent results over time. In order to evaluate inter-rater reliability for lesson observation, two observers independently rated the identical lessons using a standardized checklist, with the goal of achieving high rater agreement. By having the same observer rate lessons at several intervals and maintaining consistency in their evaluations, intra-rater reliability was guaranteed. Through strict transcription procedures and uniform questioning guidelines, as well as by using several transcribers to ensure correctness and uniformity, interview tools were kept reliable. Small-scale trials were conducted for instrument testing, such as surveys and observation checklists, in order to detect and resolve any problems. The instruments were then

refined based on user feedback in order to improve their overall reliability. By following these procedures, the researcher made sure that the data it gathered was trustworthy, which enhanced the reliability of its conclusions.

3.8 Data collection procedures

The data collection technique was divided into two phases because this study used an embedded mixed method. The first part entails the gathering of quantitative data via a questionnaire survey, while the second phase involves the collection of qualitative data via online lessons, observations, and semi-structured interviews. Because the primary data collection is quantitative, this study prioritized quantitative data, with qualitative data utilized to seek elaborations on quantitative conclusions.

3.8.1 Online survey Questionnaire: The researcher collected data by emailing approximately 150 questionnaires to the University of Namibia distance students.

3.8.2 Lesson observations: Online lesson observations were used to gather qualitative data during the second phase of the study. The researcher observed 5 different distance learners lessons online that took place at the participants houses and were taught on Google Meet and Moodle. The participants used mobile phones, and some used laptops as technological devices to connect to the lessons. Observations are useful for collecting data on specific student behaviors and the learning environment that would be difficult to obtain using other approaches such as surveys or interviews (Ritchie, 2021). Observation forms of the online lessons were filled, the researcher observed 5 different lessons, two lesson observations for Macroeconomics taught on Google meet and three for Home Economics taught on Moodle. Five different distance learners were observed on different dates and Observation forms were used to assess the use of technology during these lessons.

3.8.3 Interviews: Five distance Learners were interviewed in their own natural settings, with some selecting after hours and some selecting weekends through phone calls. Convenience sampling was used to choose these distance learners, meaning that they were near where the researcher is residing, and participants were chosen simply based on their availability and desire to participate, not because they represent the target population (Simkus, 2023).

According to Crabtree (2006), a pre-interview guide that "provides a clear set of instructions for interviewers and can provide reliable, comparable qualitative data" is typically used in semi-structured interviews. Furthermore, the researcher typically prepares a list of questions in advance for semi-structured interviews, which enables the interviewer to be more knowledgeable and prepared during the session (Wang, 2018). Because the interview is typically open-ended, participants are always free to share their opinions on their own terms when using this method. Additionally, in semi-structured interviews, the interviewer had the chance to elicit additional information from the interviewee if the responses supplied did not satisfy him or her by asking follow-up questions (Whiting, 2008).

The researcher made phone calls to 10 distance learners. Three of the distance learners agreed to be interviewed and recorded during the phone call. The calls were made and recorded after working hours between 18:00 and 19:00 and on Saturday between 12:00 and 17:00. The other two students were recorded by means of a voice recorder at their houses on Saturday between 12 PM and 2 PM. The voice audio was sent to the laptop, edited, and saved in a separate folder.

3.9 Ethical considerations

The researcher requested an ethical clearance certificate from the Botho University Faculty of Health and Education Ethics Committee. Additionally, the researcher obtained permission from the head of research support services at the University of Namibia for the collection of data involving lecturers and learners enrolled in distance education. The researcher proceeded to notify the 150 distance learners of the approval to conduct the study after receiving permission from the Center for Research Services and receiving the registered distance learners list with their contact details from the admissions office at UNAM.

3.9.1 Informed consent

The researcher discussed the roles, advantages, and risks of the study with the lecturers and learners who took part. They were then provided with the consent documents to sign and submit their written consent. A formal consent was also provided to participants whose participation in the online class was observed and to the learners who were interviewed.

3.9.2 Voluntary participation

Participants were made aware that their participation in the study is voluntary and that they may leave at any time without giving a reason during the familiarization meeting.

3.9.3 Confidentiality, anonymity and privacy

According to Onwuegbuzie and Leech (2015), every research attempt aims to generate legitimate and trustworthy information in a morally sound manner. Distance learners participating were made aware of the security precautions taken to maintain anonymity, privacy, and confidentiality. Because of this, participants were not obliged to put their names on the questionnaires, and their subject names were not used in any way during the data analysis. Participants were also notified that the information gathered about them would only be used for research.

3.10 Data analysis and interpretation of results

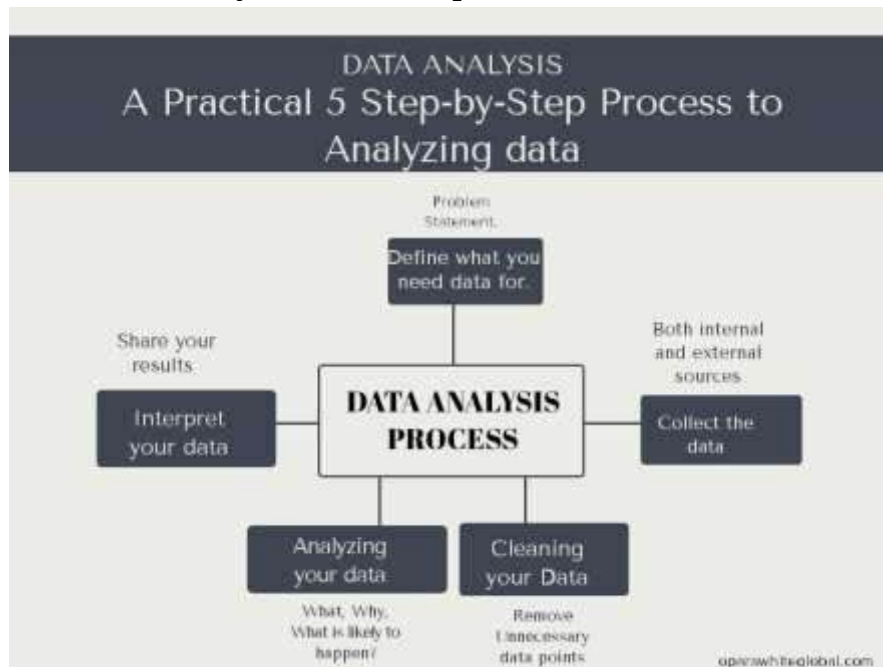


Figure 3.1 Data analysis (Team, 2020)

The researcher used the above steps in Figure 3. 1. Defining the data analysis's purpose was done by exploring how distance learners at the University of Namibia perceive the use of technology.

This directed the process of gathering and analyzing data; the second step was gathering information from the University of Namibia's distance learners through surveys, interviews, and lesson observations. Technology usage trends and opinions were gathered. The third step was to clean the data to make sure it was accurate and trustworthy (Kantarci, 2018); this entailed eliminating any mistakes or missing data.

The researcher employed descriptive analysis in quantitative data presentation by means of frequency and percentage to summarize the data in an understandable and efficient manner and the cross-tabulation method by arranging data into rows and columns to show the relationship between variables. The presentation of information about how distance learners perceive and use technology was further improved by using visual aids by means of tables, graphs, and charts. Thematic analysis was used to detect, analyze, and report themes and patterns in qualitative data sets placed on Google Sheets and given temporary codes for arrangement on suitable themes and categories. Thematic analysis is especially effective when the research aims to comprehend the experiences, viewpoints, and opinions of participants (Caulfield, 2019). The outcomes of the qualitative and quantitative studies were then combined to offer a more thorough picture of how University of Namibia distance learners perceive their use of technology.

The processes researchers employ to address the research questions are part of data analysis. Data analysis gives data meaning (Eldridge, 2023). This research identified multiple data sources, including the questionnaire survey and primary data sources such as online classroom observations and interviews that were thoroughly understood through the literature evaluation (Ashirwadam, 2014).

After gathering the data using the above-mentioned methods, the researcher interprets it. The questionnaires are analyzed by the researcher, who considers factors such as learners home locations, technological experiences, and accessibility to tools.

To make the process of data analysis easier, the transcriptions of the qualitative data that was gathered through semi-structured interviews and observations were first manually coded.

3.10.1 Data from questionnaire surveys

The study involved sending an email survey to distance learners at the University of Namibia. The survey aimed to gather insights into distance learners's perceptions of the use of technology in their learning, identify barriers to effective technology use, comprehend how technology supports academic activities, and investigate ways to better support distance learners in leveraging technology benefits.

The researcher used descriptive analysis to calculate percentage and frequency distributions. The researcher also compiled and organized the responses collected from the questionnaire survey, ensuring that the data was well structured. The researcher went through the responses to gain an understanding of the content and context of the data. The data from the questionnaire survey were manually labeled and categorized based on reoccurring concepts, topics, and replies about technology use among distance learners and placed on tables, graphs, and charts.

3.10.2 Data from online lesson observations

Qualitative data was gathered in the second stage of the data collection procedure through the observation of online lessons. The researcher filled out the observation form against the learners's behaviors towards technology use during the online class.

The researcher created codes for the transcripts of the observation forms. These consist of the instructional phase, the use of technology by learners, instructions, actions during the presentation, and the questions that learners pose as examples. The researcher read through the transcripts multiple times during the initial coding process to determine the significance of the responses. The researcher discovered common themes that characterized distance learners attitudes, challenges, supports, and needs related to technology use by using thematic analysis. The selected themes were interpreted and examined in light of the research objectives. The researcher analyzed the themes using a Google Sheet to gather important insights into distance learners experiences and opinions on technology use. The final stage was to validate the identified themes to ensure that they appropriately reflected the data. The researcher then summarized the findings, presenting the important themes that emerged from the lesson observations.

3.10.3 Data from semi-structured interviews

Semi-structured interviews with distance learners were performed via phone calls to gain insight into their attitudes toward technology use in learning. The interviews were intended to be open-ended, allowing participants to express themselves freely. The researcher listened to recordings to better grasp the data's substance and context. The audios were sent on the laptop, codes were then created, and the audios were converted to words to describe the content of the replies and capture crucial components about distance learners's perspectives of technology use.

Thematic analysis was used to create themes and categories on Google Sheets, thereby revealing important themes on technology accessibility, platform layout, internet resources, home environment problems, and distance learners support needs. These themes gave useful insights on distance learners's attitudes and experiences with technology in their academic journey. Finally, thematic analysis of semi-structured interviews enabled the researcher to systematically identify, analyze, and report on the patterns and themes that emerged from the responses, resulting in a better understanding of distance learners's technology usage perceptions in the context of the study.

3.11 Summary

The chapter outlined the methodology that was used for the study. The study employed an embedded mixed-methods approach to gather data. In this way, quantitative and qualitative data were gathered. The chapter also consists of a detailed explanation of the research tools that were used, and the reliability and validity of the data were covered.

CHAPTER 4: Presentation and analysis of results

4.0 Introduction

In this chapter, the researcher will present the analysis and interpretation of the results of the study. The results are presented according to research questions. The data analysis approach was directed by the research objectives, which sought to comprehend students's perceptions regarding technology, pinpoint obstacles to its efficient utilization, and investigate the ways in which technology can support their academic pursuits. The results presented and analyzed were obtained through a survey questionnaire, online lesson observation, and semi-structured interviews. This will help the reader to clearly comprehend the significance of the study.

The study explored the perceptions of technology usage amongst distance learners at the University of Namibia. The chapter begins by presenting the contextual information and the profiles of participants who took part in the study in terms of the following seven biographical details: (a) gender; (b) age; (c) current level of education; (d) fields of study.

In the second phase, the chapter presents the quantitative results obtained from the survey questionnaire. The analysis of the data gathered in this section is meant to answer the following research sub-questions: What difficulties, if any, have you experienced when utilizing technology for your online courses? What are the key advantages of using technology in a distance education program, in your opinion? What additional technologies would you recommend for a distance learning program that improves your learning experience?

In order to maximize students learning experiences and results, how can learning paths and technologies be customized to match each student's unique learning needs and preferences? What fair tactics and interventions can be used to guarantee that every student has an equal opportunity to use technology for learning? How pleased are you with the University of Namibia's overall infrastructure and technology support for distance learning? And further feedback or recommendations. These research questions are formed according to the study objectives to be able to find the perceptions of technology usage from The University of Namibia distance learners.

This is followed by the analysis of qualitative results obtained from the online lesson observations and semi-structured interviews. Qualitative data from five interviews and semi structured interviews done through recorded phone calls. Although learners were asked to assign themselves pseudonym names in the recorded interviews to ensure their confidentiality, the researcher found it convenient to refer to them as Distance Learner 1 to Distance Learner 5 (DL1-DL5).

4.1. Contextual information and distance learners profiles

The questionnaires were emailed to the University of Namibia main campus distance students in Windhoek, Namibia. Exactly 150 questionnaire surveys were emailed. 74 of the surveys were filled out.

Biographical information	Category	Frequency
Gender	Male	28
	Female	46
	Non-binary	0
	Prefer not to say	0
Age	18-24	15
	25-34	46
	35-44	12
	45-54	1

	55-64	0
	65 or above	0
Current level of study	Degree	33
	Postgraduate diploma	13
	Honors	26
	Masters	2
Fields of study	Education	62
	Social science	3
	Business Economics	4
	Natural and Applied Sciences	5
	Arts and humanity	0

Table 4.1: The profiles of distance learners who participated in the study

The results indicate that 28 of these distance learners (37.8%) are males, and 46 of the distance learners that took part are females (62.2%). In terms of age groups, 15 learners (20.3%) are aged between 18 and 24 years, with a high number of learners that are aged from 25 to 34, with 46, for a percentage of 62. While 12 distance learners aged between 35 and 44 (16,2%) took part, ending with 1 learner aged between 45 and 54 with 1.4 percent. Whereas 33 degree distance learners

took part with a percentage of 44.6, 13 postgraduate learners with a percentage of 17.6, 26 honors degree students with a percentage of 35.1, and 2 distance learners doing their Master degree with a percentage of 2.7. The results also indicate that 62 learners with a percentage of 83.8 are doing education: 3 distance learners from social science with a 4.1 percentage, 4 from business and economics with a 5.4 percentage, and 5 from natural and applied sciences with a 6.8 percentage.

4.2. Analysis of quantitative results from survey questionnaire

4.2.1 Distance learners overall experience with technology

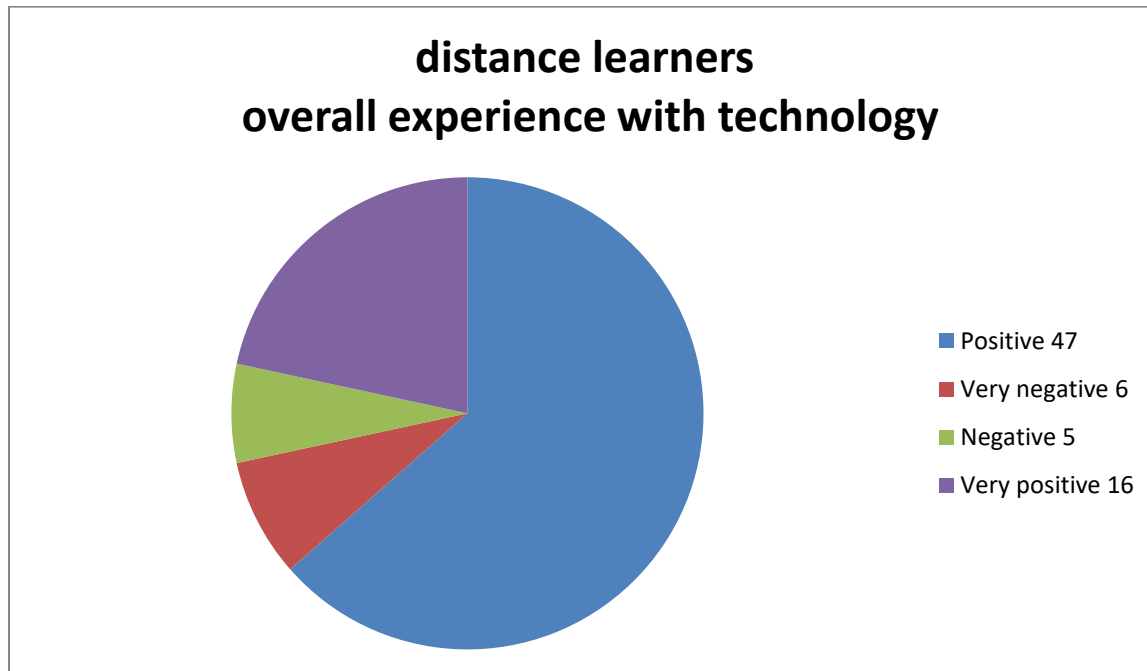


Figure 4.2: Overall experience with technology in distance learning

In Section B, students were asked to rate their overall experience with technology in a distance learning program. 16 learners (22.5%) rated very positively, 47 learners (63.5%) rated very negatively, and another 5 learners (7%) rated negatively.

4.2.2 Types of technology tools or platforms used in distance learning.

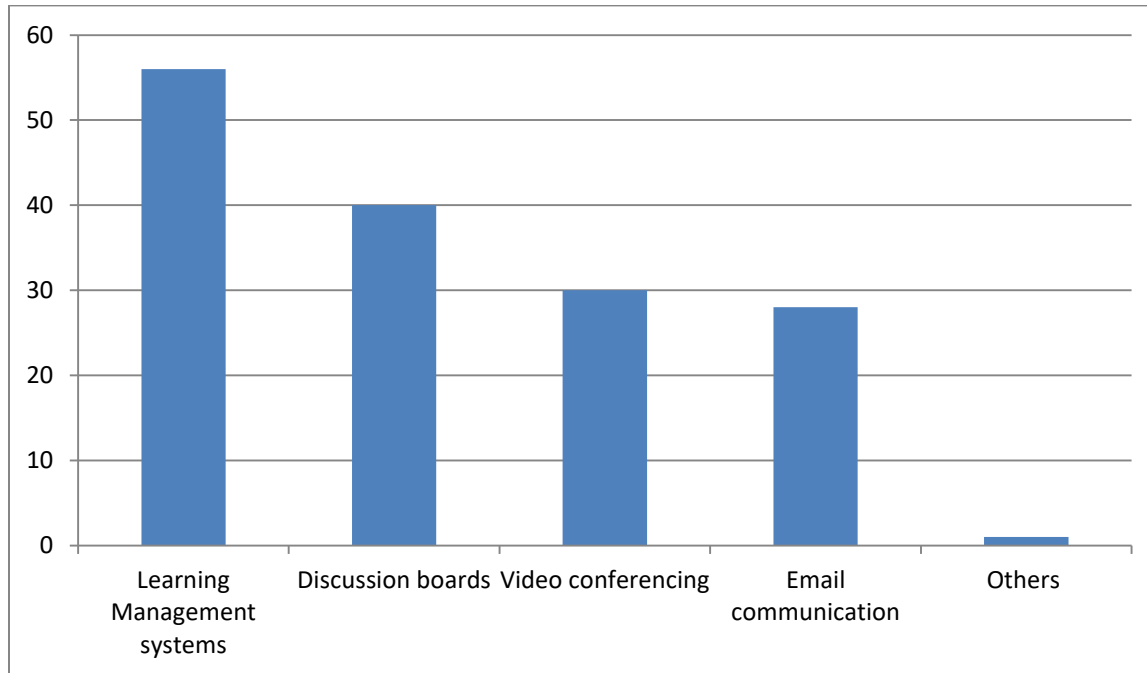


Figure 4.3 Technology tools or platforms used in distance learning

Distance learners were asked to select technology tools that they use in their learning. 56 distance learners selected learning management systems, 40 selected discussion boards, and video conferencing is used by 30 students, while 28 students use email as a communication platform and 1 mentioned others.

4.3.1 Comfort level of technology usage

Comfort level	Frequency	Percentage
Very comfortable	22	29.7%
Uncomfortable	4	5.4 %
Neutral	11	14.9 %
Comfortable	36	48.6%
Very comfortable	22	29.7 %

Table 4.4 Comfort level of using technology in distance learning

Comfort ability when using technology resulted in 36 learners (48.6%) being comfortable, 22 learners being very comfortable (29.7 percent), 11 with 14.9 percent being neutral, 4 learners being uncomfortable (5.4 percent), and 1 (1.4%) being very uncomfortable.

4.3.4 Rating of technology improvement for distance education

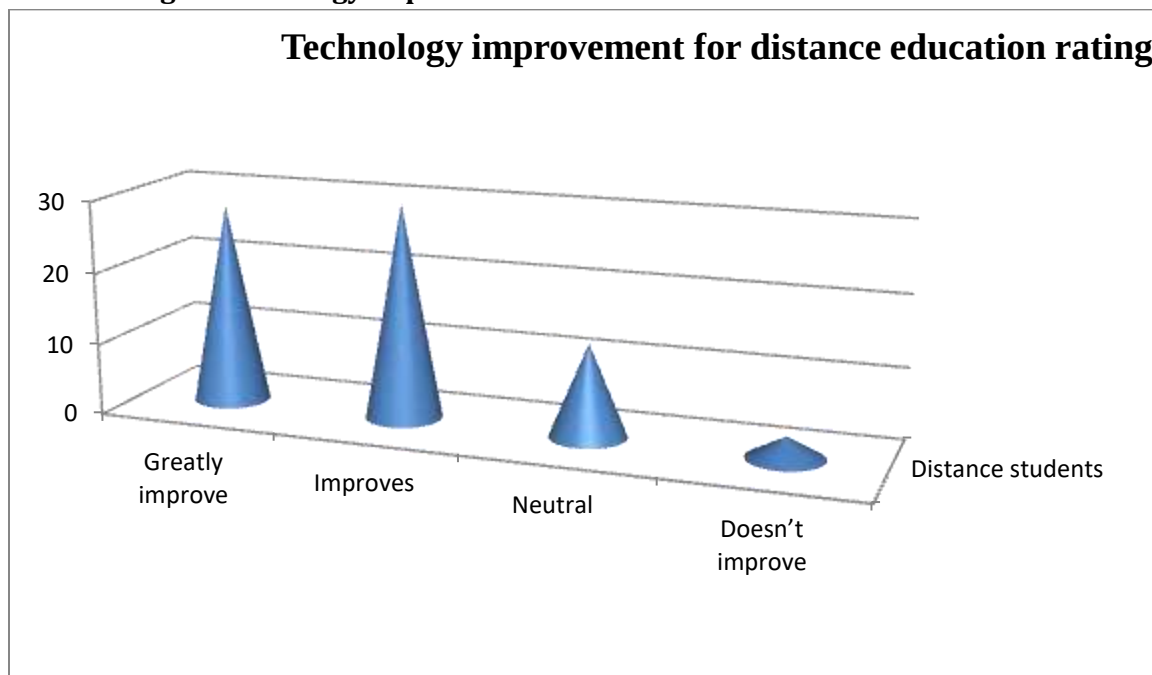


Figure 4.1 Rating for technology improvement for online education

Learners were also asked to rate in what way technology improves their online education program experience as students, and the results indicated that 28 (37.8%) students said it greatly improved, 30 (40.5%) learners said it improved, 13 (17.6%) learners indicated neutral, and 3 (4.1%) indicated that it did not improve.

4.3. 5 Difficulties experienced when utilizing technology in distance learning.

Category	Frequency	Percentage
Network connectivity issues	47	63.5 %
Access to technology	6	8.1 %
Digital literacy and training	7	9.4 %
System and platform issues	14	18.9%

Table 4.5 Difficulties faced when using technology

This table gives a thorough picture of the issues that distance learners face when using technology. 63.5 percent of distance learners experience network issues; 8.1 percent experience issues with accessing technology; 9.4 percent have issues with digital literacy; and 18.9 percent have issues with systems and platforms of technology.

4.3.6 Key advantage of using technology

Advantages	Frequency	Percentage
Flexibility and convenience	37	50%
Enhanced learning experience	10	13.5 %
Cost efficiency	9	12 .16%
Technological advancements	8	10.8 %
Other advantages	15	20,27 %

Table 4.6 Benefits of using technology

Distance learners were asked to select several advantages of using technology in their learning. The majority of the students with 37 of the students amounting to (50%), highlighted flexibility and convenience. Enhancement and learning experience with 10 (13, 5%), cost efficiency with 9 percent (12.6%), 8 (10.8%) distance learners acknowledged technological advancements, and 15 (20, 27%) selected other advantages.

4.3.7 Additional technologies recommended for a distance learning program that improves learning experience

Technology recommendations	Frequency	Percentage
ELearning platforms and online classes	8	12.31%
Video meeting apps example zoom	14	21.54%
Hardware recommendations example laptops, computer and tablets	18	27.69%
Improvement in existing technologies	7	10.77%
Network and internet connectivity	10	15.38%
Virtual reality and augmented technologies	3	4.62%
Mobile learning apps	1	1.54%
Other recommendations	13	20%

Table 4.7 Technologies recommended by distance learners for distance learning program improvement.

Table 4.7 shows that diverse perspectives were obtained from 65 distance learners who participated in a survey regarding technology recommendations for enhancing distance learning experiences. The results show a range of needs and preferences for technology. Strong technology-based learning infrastructures are essential. Eight distance learners (12.31%) recommended e-learning platforms and online classes. A significant number of students (21.54%) selected video meeting apps like Zoom, indicating the importance of real-time communication and teamwork tools in online learning environments.

Hardware recommendations are indicated. 18 students (27.69%) emphasized the need for dependable hardware as the cornerstone for successful distance learning. This includes devices such as laptops, PCs, and tablets. Seven students (10.77%) focused on "Improving Current Technologies," demonstrating the constant quest to improve and maximize current resources for better learning results. Ten students (15.38%) who were aware of network and internet connectivity emphasized how important it is to have consistent internet access in order to continue learning.

Three students (4.62%) mentioned virtual reality (VR) and augmented reality (AR) technologies, which alluded to the expanding field of immersive learning opportunities. One student (1.54%) recognized mobile learning apps, suggesting a niche interest in on-the-go learning options. Lastly, 13 students (20.00%) offered Other Recommendations, displaying a wide range of other tools and techniques to improve distance learning initiatives. This thorough research highlights the significance of inclusive and flexible approaches to distance learning by illuminating the complex technical environment that supports contemporary educational practices.

4.3.8 How learning paths with technologies can be customized to match each distance learner's learning needs and preferences in order to maximize students learning experiences and results.

Recommendations	Frequency	Percentage
Personalised learning platforms	13	16.67%
Assessment and diagnostic tools	7	8.97%
Adaptive learning technologies	9	11.54%
Flexible content delivery	6	7.69%
Peer collaboration and support	7	8.97%
Teacher professional development	3	3.85 %
Network and internet connectivity	6	7.69%
Orientation and training	8	10.26%
Hardware provision and accessibility	11	14.10%
Feedback and communication	6	7.69%
Other recommendations	15	19.23%

Table: 4.8 Ways on how to customize learning paths to match each distance learners learning needs and preferences.

As shown in the table, a thorough analysis of suggestions for enhancing virtual learning encounters, derived from the perspectives of seventy-eight respondents, highlights the complex character of successful learning with technology. Thirteen respondents (16.67%) supported personalized learning platforms and plans, highlighting the need for customized learning paths to match the needs and preferences of each individual student. Seven individuals (8.97%) identified assessment and diagnostic tools, emphasizing the use of data-driven insights to guide instructional decision-making. According to nine people (11.54%), adaptive learning technologies provide responsive and adaptable learning opportunities to meet the needs of a wide range of learner profiles.

Six respondents (7.69%) acknowledged flexible content delivery techniques, which highlights the significance of flexible content formats to accommodate a range of learning environments and styles. Peer Collaboration and Support: These factors, which were also mentioned by 7 individuals (8.97%), highlight how important collaborative learning environments are for promoting social and emotional development. Three respondents (3.85%) noted teacher professional development, indicating an understanding of the critical role that teacher preparation plays in enabling successful online learning. Six respondents (7.69%) emphasized the significance of network and internet connectivity, highlighting the basic need for dependable internet access for flawless educational experiences. Eight individuals (10.26%) mentioned orientation and training, which emphasizes the necessity of thorough onboarding procedures to acquaint stakeholders with digital learning environments.

Eleven respondents (14.10%) approved of hardware provision and accessibility, highlighting the significance of providing equal access to technical resources for all students. Six participants, or 7.69%, acknowledged the importance of feedback and communication, emphasizing the need for open lines of communication and helpful criticism in online learning environments. Lastly, 15 respondents (19.23%) offered Other Recommendations, which represented a wide range of additional tactics and technological advancements to improve the efficacy of distant learning.

4.3.9 Fair tactics and interventions that can be used to guarantee that every distance learner has an equal opportunity to use technology for learning.

Recommendations	Frequency	Percentage
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Digital literacy training	5	19.23 %
Equitable distribution of resources	2	7.69 %
Flexible learning options	3	11.54 %
Support for low income families	1	3.85 %
Collaboration and resource learning	2	7.69 %
Universal design and learning	1	3.85 %
Assessment and feedback	2	7.69 %
Other	10	38.46%

Table: 4.9 Interventions that can be used to guarantee that every distance learner has an equal opportunity to use technology for learning.

A thorough analysis of suggestions meant to improve distance learning experiences reveals a variety of viewpoints from 38 respondents. Digital literacy training stands out as a top priority, as indicated by the five respondents (19.23%) who supported the achievement of the necessary digital skills to successfully navigate online learning environments. Two participants (7.69 %) recognized the necessity of an equitable distribution of resources. Three respondents (11.54%) supported flexible learning options.

One respondent (3.85%) acknowledged the value of supporting low-income families, Two participants (7.69%) also noted collaboration and resource sharing, which highlights the importance of cooperative partnerships and shared resources to enhance the educational process. One respondent (3.85%) supported Universal Design for Learning (UDL).

Two participants (7.69%) acknowledged the importance of assessment and feedback, emphasizing the need for continuous evaluation and helpful criticism to promote students learning and development. Lastly, 10 respondents (38.46%) offered additional suggestions, which included a wide range of extra tactics and interventions to improve the efficiency and inclusivity of online learning. This thorough research emphasizes how crucial it is to optimize distance learning through holistic and flexible techniques, guaranteeing fair access, engagement, and success for every student.

4.3.10 Recommendations from distance students

Category	Frequency	Percentage
Need for training and support	5	13.15 %
Equity and access	7	18.42 %
Improving communication and support	6	15.78%
Suggestions for improvement	7	18.42 %
Appreciation and miscellaneous	5	13.15 %
No recommendations/comments	8	21 %

Table: 4.10 Feedback and recommendations from distance learners.

The frequency and percentage of replies obtained from a survey across six categories are summarized in the table. Remarkably, "No Recommendations/Comments" is the category that receives the most responses (8 responses), making up about 26.67% of all the input that was received. On the other hand, with only five replies apiece, the categories "Need for Training and Support" and "Appreciation and Miscellaneous" accounted for the least amount of comments overall (16.67%). With a variety of viewpoints visible in each category, this breakdown offers insights into the respondents' general emotion as well as their areas of interest.

4.4 Analysis of qualitative results from online lesson observation and semi structured interview

As already presented in Chapter 3 (Sections 3.5.2 and 3.5.3), qualitative data was collected by means of online lesson observations done through observing distance learners attending virtual lessons on Google Meet and Moodle platforms. Semi-structured interviews were also done through phone calls and in person. During the qualitative phase of the study, the researcher observed five online lessons for education distance learners on Google Meet by each of the five distance learners coded as OL1, OL2, OL3, OL4, and OL5. The researcher also interviewed five distance learners coded as DL 1, DL 2, DL 3, DL 4, and DL 5. These learners were selected

based on their preference for sharing their perceptions of technology usage amongst distance learners. Lesson observation data were collected by means of an observation form when the learner was attending the lesson. The observation forms were scanned and compiled into a PDF. Interviews were also recorded by means of phone calls and phone recordings.

4.4.1 Distance learner's demographic descriptions for online lesson observation.

Distance learner	Gender	Level	Technology resources used by the learner
OL1	Female	Year 2	Cellphone
OL2	Female	Year 1	Laptop
OL3	Female	Year 3	Laptop
OL4	Male	Year 2	Laptop
OL5	Male	Year 2	Cellphone

Table 4.11 Learners demographic descriptions for online lesson observation.

Distance learner	Gender	Level	Technology resources used for the interview
DL1	Male	Year 1	Cellphone
DL2	Female	Year 1	Cellphone
DL3	Female	Year 2	Cellphone
DL4	Female	Year 4	Cellphone
DL5	Female	Year 2	Cellphone

Table 4.12 Distance Learners demographic descriptions for semi structured interviews

4.5 Analysis of qualitative results from lesson observation

4.5.1 Finding from lesson observations

The researcher observed three home economic lessons titled “Food and Nutrition,” “Family Studies,” and Resource Management,” as well as two macroeconomic lessons.” Six distance learners attended each Home Economics lesson, while two attended each Macroeconomic lesson, all conducted on the Google Meet and Moodle platforms. Following the lessons, the researcher categorized the results into themes and topics related to the perceptions of technology usage in distance learning.

Theme 1: Technology integration in distance learning

Category: In structural resources

The researcher saw the significant influence of technology integration on the learning environment while observing the lesson. Learners were able to access a variety of educational materials, such as videos that were shared via screen sharing. The learning process was significantly enhanced by the addition of multimedia content. It was also clear that real-time communication tools, such as chat features, were being used. This feature allowed for instant communication between students and lecturers, which helped to quickly clear up any confusion and build a sense of community in the virtual classroom.

Using Google Docs for peer-to-peer talks and collaborative projects is one noteworthy example. Students were able to study together and share knowledge through the use of this online collaboration tool, creating an interesting and dynamic learning environment. Furthermore, speech recognition software was utilized to translate spoken language into text, meeting the needs of students who gain from reading and listening at the same time. This creative use of technology enhanced the learning experience by offering alternate avenues for comprehension and engagement, in addition to fostering diversity.

Theme 2: Online participation and engagement

Category: Communication and navigation

The researcher discovered that effective engagement of all distance learners depended heavily on clear communication about online involvement. Notably, some students come from hectic homes; therefore, they require a lot of room to be able to show their faces on their video feed without other people seeing them. In response, it was stressed that all distance learners should have equal access to course materials and resources by integrating accessibility features like screen readers, captioning, and movable font sizes into online platforms.

Additionally, in order to suit different schedules and time zones, asynchronous learning solutions were also offered, such as recorded lectures, guaranteeing accessibility for distant learners with conflicting commitments. In order to promote cooperation and a sense of community among the students, a five-minute group discussion including the students's faces on screen was used to construct a peer support network during the session. Inclusion, accessibility, and student assistance were given top priority in this encompassing approach to online learning, which enhanced the effectiveness and engagement of the learning environment.

Theme 3: Technical challenges and support

Category: Connectivity issues

Throughout the lesson observation, a number of opportunities to raise student involvement were identified. One area that may be improved is the lack of audience response mechanisms and interactive polling. The professor addressed this by encouraging the use of discussion boards for continuing communication and by facilitating live video conferences for tailored feedback. Furthermore, it was shown that including multimedia components increased engagement. Additionally, the significance of structured virtual group activities on the Google Workspace and Microsoft Teams platforms in fostering collaborative learning experiences was acknowledged. By putting these tactics into practice, universities may improve student connection and engagement in the virtual classroom.

Theme 4: Accessibility and inclusivity

Category: Diverse formats

While observing the lesson, the researcher came across a number of technological and connectivity-related difficulties. One student's ability to participate in the online course was hampered by a connectivity issue. In order to help them, the instructor gave them access to phone calls and emails so they could make up any lost content. A different student experienced problems with the required browser's compatibility, which hindered their ability to access specific areas of the online platform. The lecturer responded by telling the student to restart their device and come back to class so they could fix the problem and take part completely.

The students also had problems with screen sharing, which made it difficult to share important slides or images. To ensure that all students could access the teaching materials, they quickly resolved the issue by moving to a new screen-sharing platform. Despite the technical difficulties, these proactive actions made the learning process go more smoothly. The student had issues accessing the online platform due to a lost password. The student was able to renew his password and enter the lesson late by ten minutes.

Theme 5: Continuous improvement

Category: Feedback and evaluation

The lecturer used a number of proactive strategies to improve accessibility and student learning during the lesson that was observed. In order to accommodate students with impairments, this involved following universal design principles, setting up frequent communication channels and virtual office hours, and emailing documents to make sure all students had the essential information. The professor was approachable in spite of outside disturbances like noise from nearby homes. In order to promote equal participation, flexible assignment deadlines and alternative assessments were also offered to meet a range of schedules. By fostering a supportive learning environment, these inclusive strategies enabled all students to participate fully in the educational process.

4.5 Finding from Semi structured interviews

The researcher interviewed five distance learners; the results were then arranged according to the distance learners's pseudonym names (DL1–DL5 at each theme).

1. General view about technology in distance learning

Theme: Opportunity and accessibility

Responses from DL1 to DL5 indicate that technology has revolutionized distant learning by providing affordability, accessibility, and flexibility. DL1 stated that "Regardless of physical location, technology has provided opportunities for high-quality education." While DL2 stated that "technology provides flexibility in distance learning, allowing us to learn at our own pace and convenience," DL3 emphasized connectivity through data and airtime and sees technology in distance learning as tools similar to phones and laptops. According to DL4, technology in education lowers costs and increases accessibility and affordability. DL5 emphasizes how crucial it is to use technology to facilitate remote learning in order to create vibrant, engaging settings that encourage interaction between instructors and students.

2. Hindrances to the use of technology in distance learning

Theme: Access and connectivity challenges

Views on the difficulties posed by technology in distance learning were expressed by DL1 to DL5. In order to highlight the obstacles caused by poor internet and a lack of computers, DL1 stated, "Insufficient access to computers; like myself, I didn't own a laptop at the beginning of the year, and the internet is sometimes slow." Remarkably, DL2 observed, "Students are not receiving adequate technical support due to slow internet." Even though I am aware that not everyone can obtain assistance, there are situations where problems arise with the Wi-Fi pockets we were given by the school. In these situations, the school should be able to provide us with alternate devices or repair the ones we already have. "During the class, sometimes the lecturer also has no clue of what's going on when the students are struggling to join the class or when one student's voice can't be heard. I think they need training," said DL3, emphasizing the need for lecturer training in handling technical issues during online classes. "In my opinion, insufficient administrative assistance for the incorporation of technology in distance learning can have a harmful influence on the implementation and effectiveness of technology," DL4 stated, in addition to raising concerns about administrative support for technology integration. These observations from DL1 to DL5 illustrate the need for better infrastructure and support systems by illuminating the intricacies and difficulties involved in using technology in distance learning.

3. Benefits of technology in distance learning

Theme: flexibility and accessibility

Insights into the advantages and opportunities that technology offers in distance learning were given by DL1 to DL5. "We can now access educational materials and resources from anywhere with an internet connection, removing geographical constraints and allowing for more flexibility in learning schedules," stressed DL1, underscoring the revolutionary effect that technology has had on accessibility and flexibility. In addition, DL2 highlighted the role that technology plays in enabling interactive learning experiences by saying, "As distance learners, we can improve our knowledge of complicated subjects by participating in interactive activities through Google Meet, and WhatsApp also offers group calls now."

"Technology allows us to exchange ideas, cooperate on projects, and learn from one another despite our physical distance," said DL3, highlighting the collaborative potential of technology. This statement demonstrates the ability of technology to promote cooperation and knowledge exchange. In addition, DL4 underlined the useful uses of technology in group activities by saying, "We can simply use Google Meet to share the screen during group activities so that everyone can see what's happening. We also communicate as a group through Facebook groups," the speaker says, illustrating how digital platforms enable easy cooperation and communication. "We access a variety of support services on Moodle, including online tutoring and academic advising," DL5 expressed at the end, underscoring the wide range of online support tools that are accessible.

4. Institutions assistance with technology for distance learning courses

Theme: Support and training

"Yes, the university provides extensive training sessions aimed specifically at familiarizing distance learners with the technology tools and platforms utilized in their courses," DL1 emphasized, underscoring the university's dedication to providing thorough training for technology use. DL2 presented an opposing viewpoint, showing a need for more individualized support, saying, "No, while the school provides basic technology instruction, additional support

tools such as one-on-one assistance could help distance students learn more effectively." DL3 confirmed. DL4 expressed frustration with limited support services; on the other hand, DL5 was upbeat about the university's continuous attempts to update its IT resources. These viewpoints show different experiences and opinions about how the university supports the use of technology in distance education.

4.6 SUMMARY OF FINDINGS

4.6.1 Findings from the questionnaire

Findings showed that distance learners saw significant benefits to employing technology in distance education programs. For example, technology gave distance learners more freedom in terms of when and where they could access educational resources. Technology helps students and lecturers communicate and collaborate, resulting in more effective and enjoyable learning experiences.

One possible conclusion from the questions posed is that distance learners may face challenges when using technology for their online classes. According to the findings, these difficulties include problems with technological access, such as a poor internet connection or insufficient equipment. Furthermore, distance learners encountered issues with the usability of some technologies, such as sophisticated user interfaces and a lack of technical support. These obstacles have a negative impact on their learning experiences and outcomes, emphasizing the need for effective solutions to these issues.

To ensure that all distance learners have an equal opportunity to study with technology, interventions may be required. The University of Namibia's learners have issues with broken Wi-Fi pockets. The university may intervene by fixing or giving alternative devices, ensuring that all students have the necessary equipment to engage in online classes. Furthermore, distance students suggested that the university might need to offer training and support to help students build the digital literacy skills required to effectively use technology for learning. Overall, distance learners satisfaction with the University of Namibia's distance learning technology and technical support varies. While some students report excellent experiences, others see room for improvement. Finally, using technology in education has the potential to

improve distance learners learning experiences and outcomes. However, it is critical to address the difficulties that students may have when using technology in their studies. The University of Namibia can fully realize the promise of technology to assist student learning by implementing effective solutions, providing more technologies, and ensuring equitable access to digital resources.

4.6.2 Findings that emerged from online lesson observations

According to the findings, incorporating technology into the class provided an important support mechanism for student engagement. Throughout the lessons, a variety of digital tools were used to provide content, increase participation, and provide multimedia resources. To accommodate a variety of learning styles and preferences, multimedia presentations and collaborative internet platforms were used. The seamless integration of these technology resources facilitated comprehension while also creating a dynamic learning environment in which students could actively participate and interact with the subject.

Despite the numerous benefits provided by technology, it became clear that some help was required to enable the successful involvement of distance learners's classes, as some learners struggled to join classes. To address this, proactive steps such as delivering technical support, alternative access methods, and ensuring compatibility with a variety of devices were needed. By prioritizing accessibility, educators may reduce obstacles and guarantee that all students have an equal opportunity to participate in the learning process.

Furthermore, the lecturers played critical roles in encouraging participation and interaction through technology. The lecturers actively encouraged student participation by employing creative educational tactics and strategically using digital resources especially discussion forums.

Technological issues were not completely absent from the lesson observation. Both lecturers and students experienced periodic faults or disruptions, which ranged from program malfunctions to connectivity concerns. Fortunately, these issues were quickly rectified through debugging, alternative communication lines, and contingency planning on some lessons.

Furthermore, in terms of technological accessibility, the lecturers took a proactive approach to maintaining inclusion and supporting the diverse needs of remote students. Attempts were also made to enable flexible content access alternatives, such as asynchronous learning and other communication routes like emails.

Looking ahead, there are various areas for development in the study of technology use among distance learners. Additionally, continual professional development activities for lecturers may improve their expertise in efficiently employing technology to promote distance learning.

Finally, the observation of an online lesson demonstrated the critical significance of technology in improving distance learning experiences. Educators may develop inclusive and dynamic learning environments that promote student achievement by utilizing digital tools to support learner engagement, promote interaction, and solve accessibility challenges.

However, continuous reflection, adaptation, and improvement are required to fully realize the potential of technology in meeting the changing demands of distance learners. The integration of technology into distance education through collaborative efforts has the potential to create transformative learning experiences and fair opportunities for all students.

4.6.3 Findings from interviews

To begin, participants were asked to discuss their general opinions on technology in distance learning. Across the board, respondents had a favorable attitude toward the role of technology, emphasizing its transformative potential in expanding educational opportunities outside traditional classroom settings. Many distance learners mentioned technology's convenience, flexibility, and accessibility as important benefits, allowing them to pursue their educational aspirations while balancing other commitments.

When participants investigated the consequences of technology use in distant learning, they discovered a number of advantages that had a significant impact on their educational journey. The opportunity to access a varied range of learning resources suited to their specific learning preferences was the most important of these. Participants also emphasized the significance of

technology in enhancing communication and collaboration with classmates and lecturers, transcending geographical barriers.

Furthermore, participants discussed how technology improves their activities as distance learners. Technology played a critical role in optimizing their academic endeavors, like obtaining course materials. Questions about institutional support for technology use in distance learning were also expressed during the interviews. Some participants were concerned about the level of assistance provided by the university in negotiating technological hurdles. Suggestions for improvement included providing thorough training and support services and creating clear communication channels for technical assistance.

Looking ahead, participants were invited to imagine the future of technological integration for online learning at their university. A constant theme in their comments was the expectation of further breakthroughs in educational technology. Furthermore, there was a desire for continued support services to ensure that students had access to cutting-edge digital resources and technical assistance.

Finally, the interviews with individual distance learners provided useful insights on how technology shapes the landscape of distance education. While participants unanimously recognized the numerous benefits of technology in improving their learning experiences, they also expressed concerns about institutional support and the need for continual innovation.

4.7 Chapter summary

In this chapter, we set out to investigate distance learners' opinions of technology usage, concentrating primarily on the context of the University of Namibia. We got useful insights into the complicated link between distance learners and technology in the African higher education environment by analyzing and interpreting data collected from interviews, surveys, and lesson observations.

The study's findings shed light on the many views, experiences, and obstacles that distance learners face when using technology for educational purposes. Participants articulated a

comprehensive perspective of the role of technology in defining their academic journey across multiple dimensions, ranging from general attitudes about technology to the effects of its use on learning outcomes.

The analysis revealed that distant learners had an overwhelmingly positive view of technology. Participants expressed gratitude for the ease, flexibility, and accessibility provided by digital tools and resources, acknowledging its revolutionary potential for expanding educational opportunities beyond traditional bounds.

However, amid the enthusiasm for technology, participants raised concerns and difficulties that educational stakeholders should address. One of the most important requirements is proper institutional support to ensure optimal technology integration and use in distance learning environments. Participants also emphasized the need of comprehensive training and technical assistance.

Furthermore, the findings highlighted the significance of taking a comprehensive approach to technology integration that stresses accessibility. Looking ahead, the findings from this study have important implications for policy, practice, and future research in the field of distant education at African universities. By embracing technological opportunities while addressing the problems and concerns expressed by distant learners, educational institutions can realize digital learning's full potential to improve educational access, equity, and quality across the continent.

In conclusion, this chapter has presented a thorough examination and interpretation of distance learners's opinions of technology usage at the University of Namibia. Through examination of the data and findings, we have gained a better understanding of the dynamics shaping the intersection of technology and distance education in the African context, paving the way for informed strategies and interventions to improve distance learners educational experiences and outcomes across the continent.

CHAPTER 5: Conclusion and Recommendations

5.0 Introduction

In this chapter, the researcher will provide a detailed overview of the important findings, discussions, implications, conclusions, and suggestions derived from the exploration of distance learners's perceptions of technology usage at the University of Namibia. Through an in-depth examination of data obtained from interviews, surveys, and observational studies, the researcher unearths the different viewpoints, experiences, and obstacles that distance learners face when using technology for their educational pursuits. By combining these findings, the researcher will provide valuable insights and actionable recommendations for educational stakeholders looking to improve technology usage and encourage more inclusive and effective distance learning experiences in African universities. Furthermore, the chapter will explain the findings of the study, offering a full review of the insights collected and their implications for the field of distant education.

5.1 Key Findings and Discussions

The researcher collected and analyzed quantitative and qualitative data to address the study's four sub-questions and primary research topic. The summary of findings is organized based on the research sub-questions.

Several major findings arose from exploring distance learners perceptions of technology usage at the University of Namibia. The researcher will explain the findings using the study's theoretical framework, the Technology Acceptance Model (TAM). TAM holds that perceived utility and perceived ease of use are important predictors of people's attitudes and intentions to accept and use new technology.

5.1.1 What are the opinions of distance learners towards the use of technology in their own learning?

Examining how distance learners at African universities, with the University of Namibia as a case study, perceive their use of technology has led to a variety of conclusions and conversations that clarify the complexities of technology integration in distance learning environments. In general, the study revealed a number of aspects of students's perspectives, encounters, and difficulties in using technology for learning. Results show how much distance learners use technology to help them in their academic endeavors when access, usability, perceived utility, attitudes, and support systems are taken into account.

According to the technology acceptance model's perceived usefulness, participants agreed that technology improved their learning experience, indicating that distance learners thought it was helpful for their education. This implies that students understand how important technology is to advancing their education. While perceived ease of use, participants in the research said that technology was user-friendly, indicating that distance learners typically found it straightforward to use. This suggests that students are able to use the technology with ease and proficiency.

Furthermore, on the attitude towards technology, some participants indicated that they would be willing to use technology for learning, indicating that distance learners had a good attitude about it. This shows that distance learners are comfortable utilizing technology and think of it as an important teaching tool. On behavioral intention, some participants said they planned to utilize technology for learning in the future, indicating that distance learners intended to use it more frequently. This suggests that students are dedicated to using technology and will keep doing so.

The study emphasizes how crucial technology is to improving distance learners educational experiences. The results imply that distant learners have a favorable attitude toward technology and believe it to be helpful and simple to use. This is critical to the success of distance learning programs since motivated learners are more inclined to interact with technology. The study also highlights how important it is for educational institutions to give distance learners the support and training they need to use technology efficiently. This entails making sure that learners can easily navigate technology and that they have access to tools and support to help them resolve any technological problems they might run into.

The study concludes by highlighting the value of technology in distance education and the significance of comprehending how distant learners see the use of technology. Universities can create plans to improve overall educational outcomes and the quality of education for distance learners by identifying the elements that impact technology adoption and usage.

5.1.2 What are the barriers towards the effective use of technology by distance learners?

Examining the obstacles to efficient use of technology by distance learners in African universities using the University of Namibia as a case study produced information and conversations that shed light on the difficulties associated with using technology in distance learning. The study revealed a number of barriers and limitations that distance learners face while trying to fully utilize technology. These obstacles include problems with digital literacy, infrastructure, access, and institutional support systems.

The study found a number of obstacles that prevented distance learners from using technology effectively, such as inadequate network accessibility or internet connection, which affected communication and online resource access. A lack of computers and tablets for online learning hindered students capacity to participate completely in online learning activities. Some students struggled with computer accessibility, which made it difficult for them to use technology effectively during online lessons. Data costs and erratic home power supplies presented difficulties for students attempting to participate in online education.

According to the study s findings, all institutions and learning centers should make sure that the necessary internet services are available. It suggested looking into ways to encourage students to take part in online learning and working with pertinent groups to give underprivileged students the gadgets they need for internet access. It was imperative to tackle issues including data expenses, unstable power supplies, and inadequate computer proficiency in order to enhance the efficiency of technology utilization for distance learners.

In summary, the study clarified the favorable attitudes that distance learners have regarding the use of technology in their education while also pointing out important obstacles that must be overcome to improve the efficient use of technology in distance learning.

5.1.3 How can technology support distance learner's day to day academic activities?

According to the research findings, technology is essential for improving a number of features of distance learning by providing flexibility, accessibility, and ease. Participants emphasized how important it is to use online resources, including learning management systems, to access course materials and turn in assignments. The study also demonstrated the value of communication tools in facilitating interactions between students and lecturers and quickly responding to academic inquiries. Examples of these tools include discussion boards and video conferencing. In general, technology is seen as a critical facilitator for distance learners, enabling them to effectively manage their academic endeavors in spite of geographic obstacles.

5.1.4 How better can distance learners be supported to harness the benefits of technology in their learning?

Initially, the participants underscored the need for customized technology literacy initiatives to furnish distance learners with the essential competencies to proficiently employ technology in their scholarly endeavors. The study also emphasized how important it is to create a friendly online learning community by using different virtual platforms and activities.

One of the most important aspects of support that evolved was giving all distance learners devices. In order for students to participate completely in online learning activities, it is imperative that equal access to the appropriate technological tools be provided. Through the provision of equipment like laptops, tablets, or on-campus computer access, UNAM can successfully close the digital divide and enable all students to engage in technology-mediated learning.

The ability of distance learners to effectively utilize technology is significantly enhanced by the support they receive from their professors. When it comes to using digital resources efficiently, obtaining course materials, and navigating online platforms, lecturers can always provide direction and support. Furthermore, in order to address students' questions and concerns and create a helpful learning environment that supports the incorporation of technology, lecturers must communicate with them promptly and provide timely feedback.

In conclusion, enabling distance learners from the University of Namibia to fully utilize the advantages of technology in their education necessitates a multipronged strategy that includes giving all students access to devices, encouraging support from instructors, and providing extra resources like technical assistance services. By putting these tactics into practice, UNAM can enable its remote learners to successfully use technology to further their academic goals.

5.2 Educational implications of the study

This study's findings have various implications for policy, practice, and future research in distance education at African universities. To begin, universities should prioritize investment in technical infrastructure and support services to guarantee that all students have equal access to digital resources. This includes offering high-speed internet access, low-cost devices, and extensive technical support services to effectively eliminate technological barriers.

Second, universities should adopt a comprehensive strategy for technology integration that stresses inclusivity, accessibility, and learner-centered pedagogies. This includes ensuring that technology learning materials are developed to cater to varied learning requirements and preferences, including those of students with disabilities or little technology competence.

5.3 Conclusions

This study gave useful insights into the attitudes toward technology usage among distance learners at the University of Namibia. While participants showed overwhelmingly positive attitudes toward technology, they also identified a number of obstacles and issues that educational stakeholders should address.

Despite the obstacles, technology has enormous potential to improve distance learning experiences and increase educational access at African universities. By addressing the issues raised in this study and taking a proactive approach to technology integration, universities can realize the full potential of digital learning to empower students and encourage inclusive and equitable educational opportunities.

5.4 Recommendations

Based on the findings of this study, the following recommendations are recommended to improve technology usage among distance learners at the University of Namibia:

1. To ensure that all distance learners have equal access to technology resources, make significant investments in support services and a robust technical infrastructure. In order to effectively engage with digital learning resources, it is imperative that all learners have equitable access to the hardware, software, and internet connectivity that they require.
2. To assist distance learners in navigating digital learning environments and overcoming technological obstacles, provide thorough training and support services. By offering specialized training courses and continuous assistance, educators may enable students to acquire critical digital literacy abilities and use technology with assurance in their academic pursuits.
3. Ensure that technology learning resources are relevant, high-quality, and easily accessible to improve the learning experiences of distance learners. The creation and duration of digital resources that are interesting, accessible to a wide range of learners, and in line with academic curriculum objectives ought to be a top priority for universities.
4. When implementing technology in online courses, give inclusiveness, accessibility, and customized learning experiences a priority. By using individualized learning strategies and inclusive design principles, distance learners' varied needs and preferences can be met, creating a welcoming and inclusive learning environment.
5. In order for distance learners to successfully use technology for their studies and overcome obstacles, lecturers should instruct and assist students in developing technological literacy abilities. Teachers are essential in helping students build their technical literacy, and they should offer advice and support as required.
6. To find the best strategies for integrating technology and understand how technology impacts the outcomes of distant learning, more research is required. Evidence-based approaches for using technology to improve distant education experiences and learning outcomes for students at

African universities like the University of Namibia can be informed by ongoing research and evaluation.

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APPENDIX 1: INTRODUCTION LETTER

#DigitallyTransforming
HigherEducation

25



Ref: 05/LTR/GBR/PGL/2024

Date February 26, 2024

TO WHOM IT MAY CONCERN

RE: REQUEST FOR PERMISSION TO CONDUCT RESEARCH

Dear Sir /Madam

This is to confirm that **Patrisia Shingoya** Student ID Number is **2229700** and national ID number **93041700654** is a student at Botho University, studying for Masters of Education in Higher Education (MEDHE) at Botho University.

The student would like to conduct research under the topic "Exploring the perceptions on technology usage amongst distance learners in African Higher Education: A case of University of Namibia."

In light of the above, Botho University, kindly seeks your permission to allow the student to carry out this research and accord her the necessary support, by issuing the student a research permit letter from your organization.

The information collected by the candidate will be solely used for the purpose of completing her/his study. The confidentiality and privacy of the individual(s) as well as institutions will be duly protected. Research will be conducted and reported ethically. The information collected will be used solely for this research and will be treated with a high level of confidentiality.

Sincerely



Strike Mbulawa

(PhD, Msc, Bsc, CIMA, PGDHE, Adv Cert.Tax)

Assistant Professor and Manager:

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APPENDIX 2: BOTHO UNIVERSITY ETHICAL CERTIFICATE

**#DigitallyTransforming
HigherEducation**

11/LTR/GBR/PGL/2024
March 14, 2024

Patrisia T.M Shingoya
Faculty of Health and Education
Department of Education and Language Skills
Botho University

Dear Patrisia

**Project Title: Exploring the Perceptions of Technology Usage amongst Distance Learners in African Universities:
A Case of the University of Namibia**

Botho University Institutional Review Board (BU IRB) has approved your request to conduct a study with the aforementioned title. The approval is in line with the mandate given to the University by the Department of Research Science and Technology on 03 December 2019 (REF: DRST 7/2/13 XXIII (24)) to issue research permits.

This permit applies specifically to your topic and the research proposal that you provided together with your application. The permit is valid for 6 months from the date written at the top of this letter.

Please observe the following:

1. You need to request for consent from your study participants before collecting data from them
2. You need to ask for permission from the institution/ department/unit from where you intend to collect your data
3. You may not change any aspect of your research without permission from the BU IRB
4. You are required to notify the BU IRB in writing, of any unforeseen circumstances including an unintended termination of the study
5. You should allow the BU IRB access to the study at any time for purposes of auditing
6. At the end of the study, you are required to submit to the BU IRB, a hard and soft copy of your approved research report.

Please note that failure to fulfill any of the above requirements will lead to the immediate revocation of your research permit.

We wish you a pleasant research experience.

Chairperson, BU Institutional Review Board

Sincerely,



Strike Mbulawa
(PhD, MSc, BSc, CIMA, PGDHE, Adv Cert.Tax)
Assistant Professor and Manager.






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APPENDIX 3: RESEARCH PERMISSION LETTER

CENTRE FOR RESEARCH SERVICES

Office of the Pro-Vice Chancellor: Research, Innovation & Development
University of Namibia, Private Bag 13301, Windhoek, Namibia
340 Mandume Ndemufaya Avenue, Pioneers Park, Office F223 - Block, Second Floor
☎ +264 61 206 4673; ✉ mail:rcs@unam.na; URL: <http://www.unam.edu.na>



RESEARCH PERMISSION LETTER

Date: 14/3/2024

Researcher's Name: Patrisia, T.M. Shingoya

Academic Institution Registered with: Botho University

Academic Program: Master of Education in Higher Education

Approved Research Title: *Exploring the Perceptions of Technology Usage among Distance Learners in African Universities: A Case of the University of Namibia*

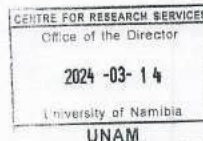
TO WHOM IT MAY CONCERN

I hereby confirm that the above-mentioned researcher has requested to be issued with the Research Permission from the University of Namibia, having already obtained an Ethical Clearance Certificate & Research Permission Letter from the University the student is currently registered with, namely, Botho University, based in Botswana.

Permission is hereby granted to carry out the research as described in the approved proposal.

Best Regards


Dr. AEE Shikongo
Head: Postgraduate Research Support Services
Tel: +264 61 206 3129
E-mail: aeshikongo@unam.na



APPENDIX 4: CONSENT FORM

1

Data collection instruments for the topic: **Exploring the perceptions on technology usage amongst distance learners in African Universities: A case of the University of Namibia.**

Survey title: Perceptions on technology usage amongst distance learners in African Universities: A case of the University of Namibia.

Consent form

Consent: By filling the form below , you attest that you have read the contents of this consent form and that you are willing to take part in the research project titled "Exploring the Perceptions of Technology usage amongst Distance Learners in African Universities: A Case of the University of Namibia. Kindly note that your identity will not display all students are replying as anonymous.

Thank you so much for your contribution

With all due respect,

Patrisia Shingoya

APPENDIX 5: SURVEY QUESTIONNAIRE

The image shows a Google Forms interface for a survey. The browser address bar at the top displays the URL: `docs.google.com/forms/d/1yz1HUU7YQHUMTRbtzjgg...ctsYpqtzmuxRPDyU-8A/edit`. The form's title bar reads "Survey title: Perceptions of technology usage amongst distance learners in African Universities: A case of the University of Namibia". Below the title bar, there are tabs for "Questions", "Responses" (with a count of 24), and "Settings". The main content area is labeled "Section 1 of 6" and contains the following text:

Survey title: Perceptions of technology usage amongst distance learners in African Universities: A case of the University of Namibia

B *I* U

• Consent form

Consent: By filling the form below, you attest that you have read the contents of this consent form and that you are willing to take part in the research project titled "Exploring the Perceptions of Technology Amongst Distance Learners in African Universities: A Case of the University of Namibia. Kindly note that your identity will not display all students are replying as anonymous."

On the right side of the form, there is a vertical toolbar with icons for adding new questions, deleting questions, duplicating questions, and other editing functions. A small question mark icon is visible in the bottom right corner of the form area.

APPENDIX 6: SEMI STRUCTURED INTERVIEW

Semi structured interview

Introduction

1. Good day, My name is Patrisia Shingoya, I am a student doing a Master of education in higher education at Botho University, I am collecting data for the research topic titled: Exploring the perceptions of technology usage amongst distance learners in African Universities: A case of the University of Namibia. For confidentiality I will name you DL1. Please note that participation is voluntary and you may withdraw anytime if you feel uncomfortable. Please keep the answers brief.

2. What is your general view about technology in distance learning?

3. What effects technology use in distance learning?

4. How does technology benefit distance learner's activities?

5. Do you believe the institution provides you with enough assistance when it comes to using technology for your distant learning courses?

APPENDIX 7: LESSON OBSERVATION FORM

Paragraph	Styles
Online lesson observation forms	
Online lesson observation form	
Observer details	
Name of Observer: Patrisia Shingoya	
Subject: Home Economics	
Lesson title: Nutrition needs for lactating mother	
Number of distance learners in class: 4	
Number of distance learners observed: 1	
Distance learner name: OL5	
Observation Date: March 2024	
1. How did technology support the learners learning during the lesson?	
Real-time communication technologies, such as chat capabilities during the lesson was recognized, encouraging instant contact between learners and lecturers allowing for speedy clarification of questions and establishing a feeling of community in the online classroom.	
2. Assistance needed to help distance learners attend online lessons successfully?	
Integration of accessibility features into online platforms, such as screen readers, captioning, and adjustable font sizes, to enable fair access to course content and resources for all distance learners.	
3. In what ways did the lecturer promote involvement and interaction using technology?	
Facilitated a live video conference in which learners can have one-on-one talks with the lecturer to receive feedback on their progress.	

APPENDIX 8: INTERVIEW ANALYSIS SAMPLE

Interview analysis

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	A	B	C	D	E	F	G	H	I	J
1										
2	Interview	Theme	Code	Quote						
3		Opportunity and Accessibility	SA1	"Okay, my view of technology in distance learning is that it has changed education by giving students quality education oppor						
4		Access and Connectivity Challenges	SCC1	"Insufficient access to computers, like myself, I didn't own a laptop at the beginning of the year, and the internet is sometimes						
5		Flexibility and Accessibility	SA1	"We can now access educational materials and resources from anywhere with an internet connection, removing geographical c						
6		Support and Training	ST1	"Yes, the University provides extensive training sessions aimed specifically at familiarizing distance learners with the technol						
7		Opportunity and Accessibility	SA2	"Technology provides flexibility in distance learning and it allows us to learn at our own pace and convenience"						
8		Access and Connectivity Challenges	SCC2	"Slow internet, lack of technical support for students I know it's not easy to assist all of us but sometimes the issue is with Wi-						
9		Flexibility and Accessibility	SA2	"As distance learners, we can improve our knowledge of complicated subjects by participating in interactive activities throug						
10		Support and Training	ST2	"No, while the school provides basic technology instruction, additional support tools such as one-on-one assistance could help						
11		Opportunity and Accessibility	SA3	"Technology in distance learning is the tools used to learn from home like phones and laptops. It's made possible by using dan						
12		Access and Connectivity Challenges	SCC3	"During online class sometimes the lecturer also has no clue of what's going on when the students are struggling to join the cl						
13		Flexibility and Accessibility	SA3	"Technology allows us to exchange ideas, cooperate on projects, and learn from one another despite our physical distance"						
14		Support and Training	ST1	"Yes, the university has a dedicated IT support team ready to help distance learners with any technical issues or questions they						
15		Opportunity and Accessibility	SA4	"My view is that the use of technology in distance learning has considerably decreased cost burdens on us and our University,						
16		Access and Connectivity Challenges	SCC4	"According to my opinion, Insufficient administrative assistance for the incorporation of technology in distance learning can l						

APPENDIX 9: QUANTITATIVE ANALYSIS SAMPLE

