

**Exploring the use of Information and Communication
Technology (ICT) in Open and Distance Learning (ODL): The
Case study of Botswana Open University (BOU)**

by

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Declaration of authorship

I declare that this thesis is my own unaided work. It is submitted for the degree of Doctor of Philosophy at the University of Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at any other University. All sources cited have been acknowledged by way of references that appear in the list of references at the end of the study.

Tebogo Angela Moreetsi-Magetse



30th Day of June 2024

Dedication

I dedicate this study to my late mother, Mrs. Anastacia Badiramang Moreetsi. When I started this journey you encouraged me to work hard and get to the end. Even when you were in hospital, I had to travel to Johannesburg and attend our quarterly PhD weekends because you pushed me to go, supported me and always promised that I would find you waiting. You believed in working hard and never giving up. This journey was not easy and your passing also made it harder. I worked till the end because I knew I had an angel in heaven making sure that I reached the end of this journey. This is dedicated to you as you believed in finishing what you started.

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List of acronyms

ADSL – Asymmetric Digital Subscriber Line

AECT – Association for Educational Communication and Technology

BEC – Botswana Extended College

BOCODOL – Botswana College of Distance and Open Learning

BOU – Botswana Open University

CIT – Centre for Instructional Technology

CTETL – Centre for Technology Enhanced Teaching and Learning

FAQs – Frequently Asked Questions

ICDE – International Council on Open Distance Education

ICT – Information and Communication Technology

ITS – Integrated Tertiary System

LA – Learning Analytics

LMS – Learning Management System

MEdEL – Master of Educational Management and Leadership

MOOCs – Massive Open Online Courses

MOODLE – Modular Object-Oriented Dynamic Learning Environment

ODL – Open and Distance Learning

SADC – Southern African Development Community

SCORM – Sharable Content Object Reference Model

STELTASS- Strategy for Technology-Enabled Learning, Teaching, Assessment and Student Support

TAM – Technology Adoption Model

UB – University of Botswana

Abstract

Open and distance education has become popular worldwide in the last century. It extends beyond normal school or university boundaries because it is flexible and instils lifelong learning. This method of learning is mostly used by students who are studying part-time. Access to education is made easier by the increased usage of technology (smartphones, computers, internet connectivity) in teaching and learning. Botswana, like many countries around the world, has not been left behind. Its first and only Open Distance institution, Botswana Open University (BOU), like other institutions of higher learning, embraced the use of information and communication technology (ICT) in teaching and learning and integrated ICT to be an integral part of the teaching and learning delivery process in 2014. Programmes were created to use technology online using a learning management system (LMS) and Moodle platform. Since many academics have written on the factors to consider when implementing ICT in teaching and learning and others have discussed the challenges faced by users of online learning platforms, the author of this study decided to investigate the application of ICT in ODL by focusing on the students enrolled in the Master of Educational Management and Leadership (MEDEL) course at BOU. The study followed a qualitative approach using semi-structured interviews, an open-ended questionnaire and a policy document review. The first phase of the research determined the current perceptions of students on the use of e-learning in an ODL programme. The next phase established the practices of e-learning in the online programmes at BOU to determine the degree of technical knowledge and skills, especially in the use of e-learning in ODL and further investigated the strategies that are used by BOU to motivate students enrolled in their online learning programmes. Purposive sampling was used to select 14 participants including a lecturer at BOU, the online managers, the tutors, as well as the students, some of whom were registered at BOU at the time of the study. Data collected through interviews and questionnaires were thematically analysed while data from the documents reviewed were descriptively analysed. The study provided significant evidence of challenges faced by users and custodians of the LMS. The challenges in the implementation of the online programmes included the absence or shortage of resources, including human resources, and the calibre of students enrolled. It further revealed that lack of skills and limited skills also impacted the use of technology in ODL. Despite these challenges, the university has implemented policies intended to support students during their studies. The findings of the

study revealed that although there are measures in place to support and assist students during their studies, they do not work for all students. It is necessary to support students, especially those in remote areas of the country where resources are limited. Furthermore, students enrolled in online ODL programmes need assistance when it comes to computer skills. The university needs to consider implementing a bridging course that will allow students to enhance their ICT skills and learn to navigate the learning space before the commencement of their main programme. Training on the use of the learning space needs to be enhanced, not only for students but also for tutors and lecturers born before computers arrived, as this will assist in ensuring that students receive the required support. There is also a need for the university to engage in an evaluation of the use of the LMS to identify areas in need of improvement. The implementation of a fully online learning programme entails having the necessary skills, resources, and most of all the support that will ensure the effective use and satisfaction of the user.

Key Words: Information and Communication Technology, Learning Management System, Open and Distance Education, Training and Development, Implementation, Self-efficacy

CHAPTER 1: ORIENTATION OF THE STUDY

1.1 Introduction and Background

In the last century, the world has seen many changes in the use of Information and Communication Technology (ICT). The coming of these changes had a great impact on the education sector, which led to a move from the traditional classroom setting, where teaching and learning were more teacher-centred, to more technology-aided teaching and learning which takes a more learner-centred approach. This evolution in the education sector has come with an explosion of new knowledge and an increase in population within educational institutions. New technologies also brought about new skills and problems solving strategies while maintaining print and digital information, (Oladele, Ayanwale, & Ndlovu, 2023). The increased exposure to information and knowledge has resulted in a desire to learn more and have access to more information. Furthermore, universities started to offer programmes that catered to the needs of potential clients by taking into account, working-class, women and staying up to date with the technological changes, (Fidalgo, Thormann, Kulyk, & Lencastre, 2020). This led to an increase in demand for education, which is now a challenge, especially in higher education.

According to Yusuf and Al-Banawi (2013), new ways of teaching and learning emerged globally, with the most important being electronic learning (e-learning). The widespread use of technology and new forms of communication to access information in teaching and learning led to changes in teaching methods. E-learning, as described by Fry (2001), in Arkorful and Abaidoo (2014), is technology-based learning which encompasses the use of the internet and other technologies to produce teaching and learning materials. These resources are also used to achieve the programme goals and regulate courses in institutions. In the last decade, we have seen an evolution in the technology-enhanced classroom, from personal desktop computers

(PCs) to more portable laptops, tablets, and smartphones which people can carry from one place to another. These new devices use wireless networks, which give them access to information in an instant through the use of the internet. The internet allows access to new information and learning. Thus, e-learning offers access to teaching and learning 24 hours a day, seven days a week. Goyal (2012) explains that there are factors that have an impact on the effectiveness of e-learning which include the media, learning context, technology, and learner characteristics. Institution of higher learning are constantly seeking ways of improving their teaching and learning in order to meet the revolutionary changes that are brought by new technologies in the teaching and learning space (Oladele, *et al.*, 2023). Furthermore, these factors do not necessarily mean that e-learning is more effective than traditional classrooms but can influence how students react to online learning (Goyal, 2012). This is supported by Balaji *et al.* (2016) who state that e-learning has become a new version of distance learning as it offers learning, regardless of the time or place, once there is internet connectivity. In this way, it has increased access to education, made learning more interactive, and facilitated learning material creation. E-learning allows for flexible learning, where learners choose their preferred time and location for learning, and this also allows instructors to provide information when it is required by the learners. The use of discussion forums and chats allows for the creation of relationships between learners. According to Arkorful and Abaidoo (2014), e-learning eases communication which can sustain learning. Furthermore, e-learning is cost-effective, there is no need for learners to travel to the institutions for information or interaction with instructors or other learners. The sole cost is that learners require access to the internet where they will be linked to the information they require.

Despite the advantages stated above, there are challenges that students and institutions face when e-learning is used for teaching and learning. E-learning still leaves students in isolation. For example, students in very remote areas may not always be inspired to interact with others.

According to Yusuf and Al-Banawi (2013), without regular structures of traditional classes, some students become confused about course activities and deadlines, find it hard to cope with course requirements, and may feel isolated from course instructors and other students. Students using e-learning may face constraints, such as a lack of internet connectivity, which may impact the different platforms they use for learning. Internet connectivity can also affect institutions offering online courses and teachers who are involved in the learning process. Balaji *et al.* (2016) state that there is constant and rapid change in the use of technology and this can cause difficulty in the use and access to the internet. Furthermore, students may face limited wireless bandwidth, which may impact their access to information for learning. This may also impact their interaction with their instructors and other learners.

Electronic Learning is seen as a new version of Open and Distance Learning (ODL). It offers learning regardless of time or place where there is an internet connection (Balaji *et al.*, 2016). ODL is a concept that was created to realize UNESCO's goal, Education for All (EFA). ODL is defined according to Paine (1989), in Fraser and Deane (nd),

... as both a process which focuses on access to educational opportunities and a philosophy which makes learning more client and student-centred. It is learning which allows the learner to choose how to learn, when to learn, where to learn and what to learn as far as possible within the resource constraints of any education and training provision.

ODL is a flexible type of teaching and learning where the students are in control of their learning and work within a space that is controlled by them. Accessibility in the case of ODL, is available to all students regardless of their geographical location. This mode of learning is characterised by strong support for those enrolled in the programmes offered.

In Australia, ODL has become recognised as a way of increasing access to the education system since the 1950s. According to Mitchell (2009), the education system seemed to have boundaries that were demolished by ODL, giving access to those who needed education. Furthermore, in post-war Australia, rehabilitation of returning military personnel included training through ODL.

In the United States, the University of Chicago was the first to introduce a correspondence programme. The Association for Educational Communication and Technology (AECT, 2001) states that this mode of teaching and learning was designed to provide educational opportunities for those who were not among the elite and could not afford full-time residence at an educational institution. AECT is an international organisation that values the diversity of thought, culture and people whose activities are directed at improving learning. The organisation is made up of colleges and universities with different professionals including researchers, professors, instructional designers and the like. In the past, ODL was regarded as inferior because students preferred to go to mainstream universities rather than enrol at an ODL institution. However, in other parts of the world, ODL was seen differently and according to the Southern African Development Community (SADC, 2009), ODL has provided a great advantage not only to students and institutions but also to governments and employers. ODL is seen as a platform for increasing access to learning and training opportunities that can be used to provide increased opportunities for updating, retraining, and personal enrichment and provide a cost-effective educational resource.

ODL in Europe has existed for more than 50 years through the British Open University (OU). Peck (1995) depicts that OU is politically funded and has over 200,000 students. Most of them come from countries such as Bulgaria, Hungary, Russia, and the Czech and Slovak Republics. The university offers programmes from undergraduate to doctoral degrees and a wide range of in-service and professional development programmes. According to Robinson and Bawden

(2002), the introduction of ODL to the Europeans resulted in significant changes which include the following: learning changed from childhood learning to adult and lifelong learning. Additionally, it liberated vocational education and transitioned from theory to practice. In Africa, particularly Southern Africa, ODL emerged in countries such as Zimbabwe, South Africa and Botswana. In Zimbabwe, ODL was established after the Williams Commission of 1981 and a feasibility study conducted by Zimbabwe Open University (ZOU). According to Njaya (2015), the Zimbabwean government realised that the University of Zimbabwe was not able to cope with the demand for university studies in the early 1980s. Currently, ZOU offers programmes from diploma to postgraduate courses. These courses are offered through ten regional centres in the provincial capitals that expand the scope to reach students who are in remote areas and other countries within the region.

Since the 1980s, distance education has seen tremendous growth. Open and distance education has evolved and moved from print-based materials into a world movement of using ICT. Latchem (2009) indicates that ODL technology, previously characterised by print, correspondence, the occasional audio cassette, and the even more occasional audio conference in the mid-1980s, not only transformed the learning environment for learners but also the teaching environment for the providers.

In Botswana, ODL came because of an Act of Parliament in 1998, which birthed the Botswana College of Distance and Open Learning (BOCODOL). It was designed to facilitate access to educational opportunities for out-of-school youths in the country. Initially, BOCODOL provided school equivalency courses, which comprised subjects and examinations from the secondary school Junior Certificate and the School leaving level known as the Cambridge O'Level. Furthermore, this also resulted in the establishment of the Botswana Extended College (BEC). According to Nage-Sibande and Visser (2005), BEC offered informal courses to teachers in rural areas and workers from different ministries who could not complete their

training and courses at the University of Botswana (UB) and other Teacher Training Colleges within the duration of the mainstream courses. BEC was later merged with BOCODOL and 19 years later it birthed Botswana Open University (BOU) which offers school equivalency courses and also tertiary courses. ODL in Botswana, like in many countries, provided opportunities not only for working adult learners but also for young people, who had not done well or had not completed their secondary school, to better their grades or go for further training. BOU offers both secondary school programmes and undergraduate and postgraduate programmes. According to Gatsha and Tau (2017), BOU's entrance into the distance education platform in Botswana ushered in a third generation of distance education. Furthermore, learning materials were more self-instructional and integrated with radio. The coming of self-instructed learning was also characterised by the use of ICT, CD-ROMs and videos. This was later replaced by more interactive ICTs which included the use of Moodle (an online learning platform), Google applications, Online Radio, Teleconferencing, Internet, the use of smartboards, etc.

In 2007, the Botswana government finalised the ICT policy called Maitlamo National ICT Policy. The National ICT Policy was created to enable the growth of the ICT environment and the provision of universal services and access to ICT facilities to make Botswana an ICT Hub (Sebusang & Esslaar, 2013). According to the Statistics Botswana Report (2016), the use of fixed telephone lines and cellular phones declined in 2015. Furthermore, there was a significant decrease of 25% in internet subscriptions which led to the revision of data costs in 2015. Asymmetric Digital Subscriber Line (ADSL)/fixed wireless internet subscriptions increased by 32.2% in 2016. This meant that more people were installing the Internet in their homes and workplaces. This practice remains more prominent in the cities and towns where there is access to roads, electricity and other infrastructures. Despite all the efforts by the government to provide services and access to internet facilities and broadband, usage remains low (Sebusang

& Esslaar, 2013). Remote areas of Botswana still experience challenges as there are places where access by road, electricity, internet, and the availability of ICT infrastructure for online learning remains non-existent.

Because BOU's programs are open and distance learning, its student body is spread throughout the country, including the most remote areas. These remote areas are characterised by a lack of resources such as reliable transport systems, infrastructure (roads), electricity and water supply, and effective network access. BOU has five regional campuses which are spread throughout the country. In addition, each regional campus has a centre in which it operates. There are currently five schools/faculties within the BOU structure, these are the Schools of Education, Social Sciences, Science and Technology, Business, and Open Schooling (whose main aim is facilitating secondary school programmes). The majority of these students work while studying part-time and many are parents or breadwinners in their families. Some students may be looking to upgrade their qualifications while others are looking to do courses of interest. The School of Education currently has four of its programmes online while the University Strategic Plan 2019 -2023 states that by 2023, all BOU programmes should be offered fully online. This then creates a challenge for some of the BOU students and staff members due to their backgrounds, which is the aim of this study's investigation.

1.2 Statement of the problem

In the last few decades, there has been an increase in demand for higher education. This demand has made ODL one of the most preferred means of qualifying as it caters to students' needs, both academic and social.

The penetration of emerging technologies has fostered important innovations in education, allowing access to different learning institutions. Technology has become a catalyst in helping to overcome the challenges faced in ODL. Kabir and Kadage (2017) indicate that distance

education is synonymous with technology. It has moved from print to educational radio, television, multimedia systems and internet-based systems. Al-Fahad (2009) argues further that distance education relies heavily on technology and therefore cannot exist without technology. Recent innovations in multimedia technologies offer many promises on how to facilitate individualised and collaborative teaching and learning. Saiyd and Sayed (2011) state that these technologies have improved the quality, diversity and availability of information and have altered teacher-student relationships. These technologies have created a new platform for learning called Virtual communities. In addition, the birth of e-learning widens borders with more developed communication technologies. E-learning also assists in dealing with the diversities that exist in communities by making education accessible and possible for all.

BOU, like other Open Distance providers, in its effort to expand and increase access to education, took the initiative to improve the quality of learning and access by launching its first technology-mediated, blended programme, called Master of Educational Management and Leadership (MedEL) in 2014, in the School of Education. Two more programmes, the Certificate for Distance Education Practitioners (CDEP) and the Postgraduate Certificate in Quality Assurance in Education (PGCQAE), which are both fully technology-mediated, followed. The University then decided that all tertiary programmes offered should be fully online by the year 2023.

This study then sought to investigate the challenges faced by BOU students from towns and the remotest areas of the country, who were enrolled in online programmes and who struggled to complete their degree on time. As I have alluded to previously, remote areas of Botswana where most of the BOU students come from, have limited access to the internet and the communities in these areas are still grappling with issues of e-learning. However, challenges surrounding issues on e-learning seem to be faced by all students at BOU, both from urban and

remote areas of Botswana. The study focused specifically on the Department of Educational Management & Leadership (DEML) students who were enrolled in the MEdEL programme.

1.3 Purpose of the study

The purpose of the study was to determine the challenges that BOU students, who are enrolled in an Open and Distance Learning (ODL) programme, have with online learning and to develop strategies to assist them. This is driven by the fact that students enrol in the ODL programmes, fail to complete their programmes on time, and often seek extended time to do so. As a result, only a small number of registered students graduate while others continue to complete components of courses, delaying their graduation.

1.4 Significance of the study

The significance of the study is elucidated by the benefits it provides to the parties involved, how it can improve current practices, and how it can help identify crucial areas that researchers were unable to investigate but that will enable the educational process (Regoneil, 2015). In the Botswana context, the use of ICT in teaching and learning has focused on mainstream teaching and learning. Studies by Moalosi and Molwane (2008) focused on the use of technology as a resource rather than a new method of teaching and learning, for example, they focused on the use of equipment in design and technology and the introduction of new medical equipment.

This study assisted in identifying challenges faced by Open-Distance students enrolled in an online programme at BOU. In addition, it helped programme developers with the strategies to use when developing programmes that are ODL in nature and mediated the use of online technologies. According to Rottmann and Rabidoux (2017), teaching and learning in a fully online environment can be difficult when you are not sufficiently prepared and when you have little knowledge about your student. The study was the first of its kind as most of the studies

conducted in the Botswana context did not address the method of teaching and learning in ODL programmes.

1.5 Rationale for the study

I embarked on this study to curb the challenges of students who mostly resided in the remotest areas of Botswana, and also included those that come from the urban areas who also struggle with ODL. According to Mokeresete & Esiefarienrhe (2021), despite initiatives by government to create hotspots to tackle access to internet in some areas in Botswana, it remains a challenge as some areas are not connected to electricity or not connected to either 3G or 4G networks. Furthermore, looking at the number of students enrolled or registered for programmes at the beginning of the academic year, I wanted to determine why only a insignificant number were able to graduate. This would assist with the development of strategies that could be employed to assist students in achieving their goals, which in this case was to complete a programme.

1.6 The aim of the study

The study aimed to explore the impact of ICTs in an Open Distance Learning institution, focusing on Botswana Open University, to identify the challenges as well as the opportunities experienced by students and programme developers.

1.7 Research Objectives

1. To explore MEdEL students' perceptions of E-learning in ODL
2. To establish operational practices of E-learning in a MEdEL programme
3. To investigate MEdEL students' e-learning technological knowledge and skills
4. To propose strategies that could keep students motivated in their learning process

1.8 Main Research Question

The main research question of the study is phrased as follows:

How does ICT impact students who are enrolled in an online ODL programme?

1.8.1 Sub-research questions

- What are MEdEL students' perceptions of e-learning in ODL?
- What are the operational practices of e-learning in the MEdEL programme?
- What are MEdEL students' e-learning skills and technological knowledge?
- What effective engagement strategies are used by online lecturers and tutors to motivate students to learn?

1.9 Definition of Terms

Attrition – the reduction of students in a learning programme as the course continues

Blended Learning – an approach of teaching and learning where online educational materials are used together with face-to-face interaction

Online Pedagogy – an effective student-centred approach to teaching that motivates students to become active in an online programme

Learning Management System – a software application that is used for the administration, documentation, tracking, reporting, and delivery of educational courses, training programmes, or learning and development programmes

Technology-enabled learning - an initiative by the Commonwealth of Learning (COL) which aims to increase access, by supporting policy formulation and innovation using ICT in teaching and learning

Technical Knowledge – this is defined as one’s knowledge of modern technologies and their applications.

1.10 Tentative Chapter Division

An outline of the 6 chapters comprising this study is provided below:

Chapter 1

This chapter is an overview of the study. It includes the introduction and background of the study, significance of the study, rationale for the study, statement of the problem, aim, research objectives, research questions that guided the study, and definition of terms.

Chapter 2

This chapter presents the literature that was reviewed for the study. The main focus of the literature review was on e-learning and ODL practices from different contexts which included an international perspective, an African perspective, and Southern Africa and Botswana perspectives. Technical knowledge, the pedagogy of e-learning, and the theoretical framework that underpinned the study are also discussed.

Chapter 3

Chapter 3 presents the methodology that was used in the study. The research design used is justified and thoroughly explained. Social constructivism as a research paradigm is explained on how it relates to the aspects that are derived from the theoretical framework that guided the study. The population and sampling techniques are outlined. Data collection methods are explained, and the research setting is discussed. The limitations of the study and trustworthiness are outlined. Finally, issues of ethical consideration are addressed.

Chapter 4

In this chapter, the data is presented according to the participants’ responses and the findings are presented. Research questions are revisited to clarify responses recorded during the study.

A brief summary of the procedure that was followed to collect data is outlined, including the challenges faced while collecting data. The instruments used for data collection are discussed and for each instrument, the findings are presented.

Chapter 5

Chapter 5 outlines the analysis of data presented in Chapter 4. Data from the interviews was analysed thematically while data from the student questionnaire was descriptively analysed. From the findings, a new model was developed.

Chapter 6

Chapter 6 discusses the main findings of the study by taking a glance at the research questions that guided the study. It also looks at the limitations that were experienced by the researcher during the study. The chapter further looks at the contribution to the body of knowledge and suggests possible future research based on this study.

1.11 Summary

This chapter has outlined the background of the study which relates to the use of information technology in ODL, with a focus on the MEdEL students at BOU and the challenges they face. Furthermore, I discussed the significance of the study, the rationale, and the statement of the problem. The objectives and questions that guide the study were also outlined. The next chapter presents the literature that was reviewed covering the different aspects of technology in teaching and learning.

CHAPTER 2: LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.0. Introduction

In the previous chapter, I discussed the background of ICT in education, particularly in ODL. I examined e-learning, its definition and the advantages and disadvantages that it has for students and lecturers. The problem of the study and the research questions were also outlined. This chapter discusses e-learning, particularly in ODL, its history, implementation, and perceptions and research related to e-learning.

2.1 History of E-learning

Referred to as both software-based and online learning, e-learning was first used in the military and training sector for a range of online practices (Nicholson, 2007). In the past 40 years, e-learning has been embraced by other sectors such as business and education. Campbell (2004) explains that the concept of e-learning has different meanings which are normally based on the contexts in which it is used. The author explains that in business, higher education and training sectors, it refers to the flexible delivery of internet-based content and programmes. In business and training, e-learning is characterised by the idea of improving productivity and reducing costs, while in higher education it is characterised by bringing in a new teaching and learning paradigm that aims at globally expanding territory to reach more students, accommodating their social learning models, and getting them engaged. Alkharang and Ghinea (2013) explain that e-learning emerged as an intervention to meet the demands posed by the development of information technology. This was done to provide access to information. E-learning became very popular, it was adopted in developed countries and became the model that other countries later followed. However, the adoption and speed of adoption of e-learning technologies vary

from country to country due to several factors, including but not limited to, the availability of resources, infrastructure, culture, societies, etc.

2.2 Evolution of E-learning

With the coming of technology, especially in education, emerging and new pedagogies started surfacing and these brought about a new landscape to education, changing it in breadth, depth, and opportunities for learning. Learning changed from being teacher-centred to a new learner-centred approach characterised by learning organisation, LMS and e-learning. According to Bezovski and Poorani (2016), students are not only in control of the appearance of the virtual elements but also in full control of the learning process. In a quest to address some of the Global Development Agenda's Millennium Development Goals, such as those that promote gender equality and access, ICT in education has been increasingly encouraged and recognised. Universities and other institutions of higher learning have not lagged in incorporating ICT in their teaching and learning due to their desire to attract and retain more students (increasing access). ICT is growing fast and influences people's daily lives and society in general (Kiche, 2023). During the 1980s and 1990s, there was a significant increase in the demand for education, particularly higher education, and students enrolled in large numbers for part-time study or part-time programmes (MacCann *et al.*, 2012). Lifelong learning, especially among women, and women going back into the workforce, became very common.

2.2.1. Definition of E-learning

The term E-learning covers a wide range of technology-mediated applications and processes. These include computer-based learning, web-based learning, virtual classrooms and digital collaboration (Eke, 2010). Computer-based learning is a new form of learning that encompasses the use of the Internet for the delivery of learning materials and programmes to students all over the world. E-learning embraces and brings about new pedagogies that use

different platforms for teaching and learning. Furthermore, these new pedagogies encourage student interaction and collaboration. E-learning is also defined as a concept of teaching and learning that takes place with the aid of technology. According to Alshaher (2013), e-learning can take different forms such as ODL, online learning, blended learning, and flexible learning. Furthermore, learning on these platforms is characterised by connectivity, flexibility, interactivity, collaborations, and extended opportunities for both teachers and students. Some forces encourage the growth of e-learning, and these include increased access to cheaper ICTs and capacity building with the ICT to support and enrich educational practices (Naidu, 2003).

According to Arkorful and Abaidoo (2015), e-learning is classified according to the level of interaction. The authors further state that the classification can also depend on the extent of the engagement of the users. Figure 2.1 below outlines the E-learning model.

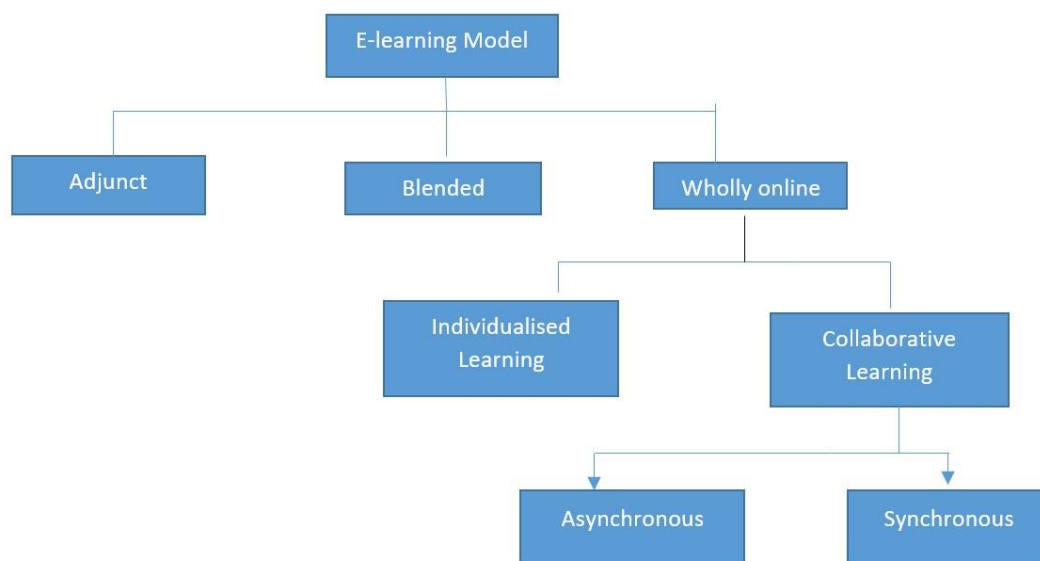


Figure 2. 1 Model for e-learning in education (Source: Algahtani (2011))

From Figure 2.1 above, it is evident that there are three types of e-learning models: Adjunct, Blended, and Wholly online. According to Algahtani (2011), the Adjunct model adopts the notion that technology is used to assist in the traditional classroom. Furthermore, this model

provides independence to students, for example, with this approach the teacher will make use of PowerPoint slides to project information during a learning session. Here technology is only used to aid in the learning process. The Blended model entails the integration of technology with aspects of traditional classroom methods. Hameed *et al.*, (2008) explain it as learning in which face-to-face and online learning are used at the same time. This approach may take different forms and is considered common in most higher education institutions as it allows all students to take part in the learning process. Hameed *et al.* (2008) state that blended learning is learning through information, learning through collaboration, learning through the classroom, and learning through interaction. This model of blended learning has been very common in higher education and is termed mixed learning or hybrid learning. The purpose of blended learning is to address the disadvantages of both traditional classrooms and pure online learning. Blended learning has been growing in popularity among instructors and provides satisfaction among students in achieving learning outcomes. The third approach is Wholly online or purely online and entails learning online. The learning environment is well designed, effectively interactive, a students-centred approach, and flexible, since it can be accessed anywhere, anytime, and makes full use of internet connection and digital technologies. The instructional sessions are online with the use of the learning management system (LMS). According to Arkorful and Abaidoo (2015), the Wholly online model creates room for either collaborative or individual learning. Collaborative learning can be either Synchronous or Asynchronous.

These two categories are classified according to their use, timing and interaction. Asynchronous e-learning supports work relations between students and teachers where participants cannot be online at the same time (Hrastinski, 2008). This includes and is not limited to the use of electronic mail (e-mail) and discussion forums/boards. E-learning promotes the use of technology and other online tools to produce learning materials and

teaching using a variety of technologies. One of the most common uses of Asynchronous learning is discussion forums where a thread is posted, and students respond to the posted thread. This allows for multiple responses and even allows for a response to another peer's response. Asynchronous learning benefits students as it allows them to dig deeper into the learning material and gain a better understanding of concepts because a post may be made and students are given several days to respond to it (Varkey *et al.*, 2022). Students work at their own pace and are allowed to reflect on their learning. Basri *et al.* (2021) further support this by stating that an Asynchronous learning platform promotes convenience where students work independently and are given time to think and understand materials without pressure. Google Forms and Screencast-O-Matic are examples of tools used in Asynchronous learning.

Synchronous e-learning on the other hand relates to real-time communication between students and teachers (Perveen, 2016). This is more socially orientated, and it includes videoconferencing, webcasts, telephone conferences, interactive learning models, and chats. Normally, asynchronous online activities require support and Web-based training. Web-based training brings about technical knowledge which is discussed next. Synchronous learning and teaching allow for multiple ways to interact, share, ask questions (real-time), and collaborate. Unlike Asynchronous e-learning, Synchronous e-learning requires online facilitators (tutors and lecturers) to have skills and experiences with technology to ensure that they effectively deliver virtual activities. It requires both facilitators of learning and students to be motivated to engage in the online space for learning (Politis & Politis, 2016).

2.2.2 E-learning in Higher Education

E-learning is seen as a fundamental part of learning by students in higher education. Minimal research is available on the comparison of online and face-to-face learning and how they both assist students in achieving learning outcomes. However, according to Ellis (2009), there is an

increase in the use of e-learning to support face-to-face learning. Universities that have not embraced e-learning technologies are seen as left behind in pursuit of globalisation (Singh & Pereira, 2005). Furthermore, universities that are maximising their potential for e-learning as a way of delivering higher education must be aware of critical success factors concerning the introduction of models for online learning. They need to select a model that will not only yield profits for the university but also success for their students. According to Khan and Badii (2012), following an increase and growth in the use of technology in higher institutions of learning, there has been a shift in the way learning is delivered. The increase in demand for distance learning is forcing educational stakeholders to revisit how they deliver programmes to students. Furthermore, the new approach to programme delivery has resulted in higher educational expenses and in certain cases, cost-cutting measures by the institution to accommodate e-learning. People are also using technology more and more, and since they have access to the internet and the cyber world, their computer literacy has increased. According to Górska (2016), the ever-changing world has prompted universities to introduce new ways of studying by combining classes of various disciplines with modern technologies, e-learning, having various disciplines, and involving managers of the economy. Higher education is now possible at any time and from any location thanks to e-learning, which also makes use of internet access to enable the collaboration of different learning aids (Górska, 2016). In Poland, the Ministry of Science and Higher Education has recognised and supported the need for institutions of higher learning to integrate ICT into education for many years. The use of technology was authorized in July 2005 by Higher Education Law Article 164: S3 in education and distance education and at the same time regulations were authorized on how the use of technology in education will be conducted by institutions. These regulations indicated that there should be proper accessibility and appropriate methods and techniques should be used by all students, part-time or full-time, in online and distance education. Currently, the same

regulations are still being used in Poland for e-learning and they were last amended in November 2011. The number of hours spent on lecturing and exercises for both part-time and full-time students using e-learning may not be greater than 60% of the number of hours used in a specific training programme (Górska, 2016). Furthermore, the regulations indicated that for a university to offer online programmes, they need to ensure that the students and academic staff have access to the appropriate infrastructure and have internet connectivity.

In the European sphere, the use of e-learning in higher education was well embraced and found to be a viable solution to the problems they were encountering in sending resources to students who were enrolled in lifelong learning programmes. Furthermore, e-learning improved information access and sharing, increased enrolments, and improved students' computer skills and literacy, a prerequisite that must be met before they begin working (Ayu, 2020). According to Nacheva & Jansone (2021), European Higher Education through universities offers many opportunities for its member states, which allow them to ensure that academics and students have a uniform qualification framework, mobility, access to international research cooperation, and access to education. This has led each country to carry out significant reforms in education to meet the principles and ensure that modern education and scientific fields are included. E-learning was also part of the modern education that institutions were expected to implement and the European Commission identified areas that needed to be developed concerning e-learning. Digital Agenda Europe was then established through the Digital Education Action Plan 2021-2027, where skills, European Education areas, resilience, and social fairness were to be achieved by 2025 (Nacheva & Jansone, 2021). This digital strategy was considered to provide access to education and lifelong learning, as well as the integration of technological and digital skills in the adult educational process. The use of e-learning was, however, not new in Europe. For many years institutions of higher learning in Europe have been using technology such as the internet, CD-ROM, intranet, videotapes, extranet, TV, personal organizers, and cell

phones to aid in the learning process. However, with time this evolved to cater for student and academic needs. This allowed for the adoption of new technologies that were emerging, including an increase in distance learning. Institutions of higher learning were expected to participate in projects in a variety of ways and interact through implementing the following: teaching training, providing necessary equipment and infrastructures, delivery of quality service and content, promoting digital literacy, launching European virtual campuses (done through the internet), and encouraging cooperation and networking (Uzunboylu, 2007). The use of e-learning in the European context accommodates all students, including those with learning disabilities and those who are disabled. Regarding access to higher education, Uzunboylu (2007) states that the European Digital literacy programme was developed to include those who were unable to access traditional education or training campuses due to socioeconomic status, geographical location, or special needs.

In Asia, e-learning acceleration is driven by major regions or cities like Taiwan, Singapore, Hong Kong, and Beijing. E-learning in this area was done to enhance the quality of education (Kong *et al.*, 2014). Their approach to policies on promoting e-learning in the education sector, particularly in higher education, differs due to their different cultural background. Kong *et al.* (2014) further state that there were three general stages of e-learning policy development over the recent two decades in Asia. The first stage was the ICT Masterplan for Education which was developed for the period 1997 to 2002. This plan was to put in place the physical infrastructure and mindset change within the population to make them more ICT-orientated. When the Masterplan had been implemented, the use of ICT in Singapore, particularly, was at a good level. At that level, the most that needed to be done was to integrate ICT into teaching and learning. The government on the other hand had to ensure that universities were equipped with the necessary ICT infrastructure. The government provided wired networks, at least two computer labs, ICT support, and digital resources for teachers. The government then developed

“Edu Mall” which is a one-stop solution to meet the needs of schools and universities. According to Lee and Koh (2008), in ICT’s next stage of the plan, which was from 2003 to 2008, the government ensured that the use of ICT in education was launched, that the internet was available in the classroom for teaching and learning, and that ICT was integrated into the curriculum. Furthermore, the plan made sure that the e-services that were being provided were user-friendly. This is the environment in which e-learning flourished and was embraced by many.

In the third stage, which was from 2009 to 2014, the goal was for institutions to achieve 90% home broadband usage and 100% computer ownership (Kong *et al.*, 2014). Today, the use of technology and e-learning is widely used in Asia Pacific universities and many of them have identified a new form of learning, distance education. Many projects are done to enhance the use of technology in education and Bandalaria (2018) predicted that the population in higher education would increase from 9.4% to over 14.4% by 2030. This compels universities within the region to provide ample opportunities for its people to enrol in different programmes. According to the International Council on Open Distance Education (ICDE) (Bandalaria, 2018), there was a need for recognition of educational needs globally. Asia needs to respond to the global agenda, and the post-2015 global agenda stated that educational technology in higher education should address and shape issues of “equity, quality learning outcomes and access”.

In the USA, the use of technology in education, increased significantly, where between 2020 and 2021 67% of the institutions moved to online learning (Irwin, *et al.*, 2021). Where e-learning is provided, major training has been provided to both the lecturers and the staff who work in assisting students through learning. This training was provided within a short period when the e-learning model was introduced.

In Africa, the use of technology in teaching and learning, particularly e-learning, has been making strides. However, this progress is clouded by the many challenges that it faces. Furthermore, e-learning in Africa varies significantly across regions and countries. Issues of beliefs, expectations and values are relevant where Africa is concerned. The advances in e-learning are resulting in debates on whether or not technological tools in education are culturally neutral, representative, and inclusive (Kinuthia, 2023). E-learning led to changes in educational practices and provided new possibilities for learning. Furthermore, e-learning is seen as the best option when compared to traditional education. According to Ansong *et al.*, (2017), African countries, particularly developing countries that are low to middle-income countries, are increasingly showing interest in the use of ICT and have broadened their participation in education at higher learning institutions. The use of technology is seen in some African countries as an opportunity to network for learning purposes and as a way to overcome obstacles and weaknesses posed to education by physical disability, employment, social unrest, etc. (Nwagwu & Abanihe, 2006). In the early 2000, research showed that 47% of tertiary institutions in 27 countries, in Africa, were using technologies in their practices (Gakio, 2006). In addition, another study shows that by the end of 2012, 52% of 447 institutions were using e-learning systems in their institutions of higher learning (Isaacs, 2014). E-learning is seen as an alternative for the distribution of education in Africa, breaking barriers such as distance, a lack of manpower where there are shortages of teaching staff, and increased opportunities for women to enrol in higher educational institutions. According to the literature, unlike in other parts of the world, the coming of e-learning or technology in education faced many challenges that ranged from infrastructure to cultural issues. Infrastructural challenges included internet access, bandwidth, and access to electricity which historically has been an obstacle to the use of technology and other services in Africa. The cultural issues, on the other hand, include where

women were only seen as homemakers rather than possible candidates to enrol in online programmes.

In northern parts of Africa, some countries started promoting e-learning through government initiatives. These steps included encouragement of the use of digital tools in teaching and learning through policy development, providing financial support, and investing in infrastructure (Blurton, 2017). Higher Educational Institutions in the northern part of Africa use various e-learning resources and platforms to facilitate remote learning. These include online course modules, a learning management system (LMS), collaborative tools, and video lectures (Isaacs, 2014). Adaptation of content and delivery methods that suit local language and culture is always a sign of successful implementation of e-learning. It is believed that for educational material to be effective online it must be fully customised to meet the needs of end users. According to Blurton (2017), there was a need for intensive capacity building in North Africa for the effective use of e-learning tools. Professional development became necessary to enhance digital literacy and teaching skills in the online environment. There was also a need for collaboration between universities, governments and the private sector to ensure the fast growth of e-learning. One of the most common practices, not only in Northern Africa but in Africa as a whole, was the forming of partnerships with international organisations and institutions of higher learning to exchange best practices and resources (Blurton, 2017).

The effectiveness of e-learning in Northern Africa's higher education sector depends on addressing technological and multifaceted approaches, and educational and cultural aspects. Governments need to continue to enhance infrastructure which plays a vital role in the successful integration of e-learning in the region. According to Ravjee (2007), the use of e-learning in Africa is seen as having the potential to revolutionize education on the continent by making quality learning resources more accessible and affordable for all.

Like the Northern Part of Africa, Southern African countries also have issues with internet access, which vary from one country to another. This is purely due to the unavailability of resources and infrastructure. Remote areas in certain countries do not have electricity or network connections. However, the use of technology in education, in Southern Africa, is seen to enhance and improve the quality of education. Furthermore, e-learning was seen to help bridge the gap between urban and rural areas by providing equal education opportunities regardless of location (Ravjee, 2007). It also allowed for collaboration between students from different regions, fostering a sense of community and shared learning experiences. According to Damoense (2003), in Southern Africa, academic teaching and learning and the adoption of the Internet have grown rapidly. The author outlines that the growth of e-learning in 2003 was estimated to be at US\$300 Billion and was expected to expand to US\$365 Billion by the end of that particular year. In southern Africa, by the end of the year 2000, over 360,000 students were expected to have enrolled online in different institutions of higher learning. This number was expected to have increased in an era of globalisation. Despite the expected technological advancements, the use of technology presented major challenges for both educators and students. One of the outstanding outcomes of online teaching and learning is changing roles and skills that traditionally were needed for educators (Damoense, 2003). South Africa, which stands as one of the fastest growing economies in the south, became one of the leaders in the implementation of the use of technology in higher education and experienced major trajectories and transformations that pose challenges. Technology-based learning and teaching are seen to motivate and encourage collaboration and participation in teaching and learning. It brought about flexibility, supported and enhanced traditional teaching practices and catered for various learners' learning styles and abilities.

Africa Virtual University, established in 1997 and funded by the World Bank, is made up of more than 30 higher educational institutions from 17 countries. Its primary objective was to

facilitate online learning in universities, and it was perceived as erasing the traditional distinction between contact-mode and distance-mode institutions. According to Blurton (2017), dual-mode increased more in African developing countries. A new kind of e-learning collaboration emerged which involved a combination of public and for-profit partnerships which created remote branch campuses for international students, for example, Monash University in Australia has branches in South Africa and the University of Sunderland has programmes accessible through Botswana Accountancy College, etc.

2.2.3 Advantages and disadvantages of adopting e-learning in higher education

The adoption of e-learning in higher education resulted in a considerable increase in the use of computers. As a result of leaving the traditional classroom, students now find themselves in a situation where they are using computers and laptops more frequently. Reactive and passive learning has given way to more active and interactive learning (Raja & Nagasubramani, 2018). According to Arkorful and Abaidoo (2015), the use of e-learning brought about access to information resources that have the potential to transform higher education. E-learning breaks down geographical barriers that allow access to the global world. Students from different countries can enrol in courses all over the world, without the need to relocate. It also brought about cultural diversity, where students from different countries, with different cultures, come together for a common goal, which is learning through technology. E-learning removes the issue of time and place constraints and since it is flexible, students study at their own time and pace and from the comfort of their homes, offices, etc. This allows students to choose the best places where they can effectively learn. Educators load course information, resources and learning materials online which students can access wherever there is an Internet connection. The flexibility allows working professionals and those who have other commitments to access education. In some countries where women were inclined to stay at home to take care of the family, the coming of e-learning allowed them to pursue educational courses or programmes

of their choice (Kinuthia, 2023). Kinuthia (2023) describes how the introduction of e-learning in Germany, in 1999, dismantled gender-based learning barriers that had been imposed by traditional learning. This was the era of political equality, which allowed for equal chances for men and women in all levels of public administration, from the community to the federal government. The adoption of e-learning in higher education increased competition among educational providers. This is because distance is no longer a barrier to student enrolment. Students are no longer limited to institutions in their immediate vicinity but can now enrol in universities all over the world that provide their desired programmes or courses. This increased partnerships and collaborations between institutions. Universities in different countries or even continents have or offer programmes in other countries, using e-learning and e-learning technologies.

Another advantage of e-learning in higher education is that it encourages students to take responsibility for their learning. Students are given learning materials and learning platforms with set deadlines and they are expected to meet these deadlines. According to Raja and Nagasubramani (2018), e-learning platforms allow students to progress at their own pace and use online course materials when needed. Furthermore, this approach caters for different learning styles and ensures a complete understanding of concepts. Students' self-esteem, self-confidence and self-knowledge are enhanced. The online learning platforms further allow for interaction which keeps the students engaged and effective in their learning.

Despite all the advantages of the adoption of e-learning, there is a need to examine the negative aspects or disadvantages that come with it. One of the most outstanding disadvantages of e-learning is the lack of the human element which had been previously experienced in the traditional classroom. Students enrol in programmes that they are interested in, sometimes without even consultation or counselling, and this may later lead to difficulties in coping with the programme selected (Raja & Nagasubramani, 2018). When students are struggling to keep

up with online programmes, they may feel isolated, and this may lead to students dropping out of their selected courses or programmes. In a study conducted on 11 students studying at Nottingham Trent University, it was found that the students were so emotionally frustrated by their experiences when studying online that they eventually made decisions that led to their exiting the programmes they were enrolled in (Sharpe & Benfield, 2005). This indicates that there is a need for counselling and orientation on the mode of delivery of online learning. Another disadvantage of e-learning highlighted in the literature, is the high failure rate. According to Raja and Nagasubramani (2018), the distance mode of learning that comes with the use of e-learning technologies leads to students being isolated and not motivated to learn. Students have issues with time management when it comes to engaging with the learning materials on their own and some even experience technical problems which cause them to attempt assessments without much knowledge and failure of their assessment components. This is further supported by Alrawashdeh (2023) who says that e-learning leads to students lacking self-regulation, where they do not dedicate enough time to their academic work and end up not doing and submitting assignments on time, submitting poor quality work and in some cases not submitting at all, which results in failure. In another example, students at Nottingham Trent University indicated that they expected to be guided by their tutors and university technical teams to navigate the learning platforms. They found it difficult to cope with the demands of the courses and programmes and did not do well.

The language barrier is another problem. In most institutions of higher learning, the medium of instruction is English and students from non-English speaking countries or backgrounds may fail to enrol or if they manage to enrol may struggle to cope with course demands because of the language used (Akhter *et al.*, 2021). Institutions should take note of the language issue and assist these students accordingly. While some authors argue that the use of e-learning may give students access at all times, this may not be true for some students. Students who enrol in

distance learning on a part-time basis, while working or carrying out family and community responsibilities, must balance their academics with these obligations to complete their studies on time. These students need to constantly be supported in their study journey; hence the element of support becomes essential for students studying through e-learning. Therefore, Sharpe and Benfield (2005) conclude that success cannot be attributed solely to access.

Students may face technical problems due to a lack of familiarity with technology which leads to limited participation in their assigned activities (Alrawashdeh, 2023). Students and other e-learning platform users require computer knowledge, skills, and exposure to enable them to deal with technical problems that they may face online. Online learning or e-learning requires that users have internet connectivity to access the platforms they use for their learning or teaching processes.

After careful examination of the advantages and disadvantages of the adoption of e-learning in higher education, we must consider the elements that are required to implement e-learning.

2.2.4 Elements needed for the adoption and implementation of e-learning in higher education

The literature suggests that in the last decade, institutions of higher learning have noticed a substantial increase in the demand for education because information is easily available and with the coming of e-learning and lifelong learning through distance education, universities have gone global and are looking for potential students all over the world (Chow & Croxton, 2017). Universities compete with one another for recognition, students and research funding, not only locally and regionally but also globally. Thus, it is essential to consider what elements are required for the implementation and adoption of e-learning, particularly in higher education.

2.2.4.1 Infrastructure and Resources

The use of technology in education requires adequate infrastructure and resources for both educational providers and users who are students, teachers or lecturers and those that offer support in the teaching and learning process. The required infrastructure and resources must be available, reliable, usable, and accessible. According to Kong *et al.* (2014), it is important to build infrastructure on campus that integrates ICT and the curriculum to holistically develop student learning.

Infrastructure refers to the set of digital buildings, software applications, hardware and services that are used in the provision of teaching and learning on online platforms (Al-Ansi, 2021). Nawaz and Khan (2012) apply the term “infrastructure” to features such as intranet, user interfaces, internet, hybrid delivery platforms, offline and remote access capabilities, and customized and personalized features. E-learning resources on the other hand refer to the things that users or stakeholders need to take part in the online teaching and learning process. These resources may be hardware, software, digital tools, and learning platforms, where all the learning materials, learning tools, etc. are housed and used for educational purposes. These are normally accessed using computers, desktops, laptops, tablets, smartphones etc. via internet connectivity. Since resources are used online and, in some cases, housed online, they are referred to as e-resources. These are normally automated or digital, such as e-journals, e-library, e-books, e-databases, etc. and enable users to view them online using any device or computer that has connectivity. It is anticipated that e-resources will enhance or simplify teaching and learning (Odili *et al.*, 2020). Institutions need an effective strategic plan for the implementation of educational technology. According to Nawaz and Khan (2012), a solid technology infrastructure and a new roadmap that clearly outlines which technologies are required and suitable for teaching and learning must be in place to smoothly implement and adopt e-learning. The authors further emphasize that there is a need for institutions to establish whether the infrastructure is fully functional and invest in central support like helpdesk,

documentation, training, authentication, registration, etc. This is vital where staff and students are involved in an online setup as they are mostly working on their own. Omidinia *et al.* (2011) argue that infrastructure, particularly in education, is more than network and internet connection. It entails the building and supply of electricity and network connections that enable the use of technology in teaching and learning. The authors point out that even policy development is covered in this aspect as it includes laws and regulations that govern the use of technology. This is true because governments in countries where institutions of higher learning are located, are mostly responsible for the infrastructure development, and in most cases, they partly or fully own the institutions, thus it is vital for governments to assist in the development of infrastructure to ensure that educational institutions provide good quality education.

2.2.4.2 Organisation Structure, Culture & Policy

Organisational structure addresses the hierarchy that exists within an organisation. Organisations continue to increase their technology use and rely heavily on keeping up with the ever-changing technological trends. E-learning brings about changes such as flexible learning that meets organisational and individual needs. According to Wang *et al.* (2010), e-learning is designed to meet the organisation's performance which is always based on the vision and mission of the organisation. Ismail (2001) states that organisations normally have to employ strategies that encompass a common goal with a common language and vision; policies that have governing principles; a system that links with the existing system; a new technology that is standard-driven; a solid support system that is well defined and based on student profiles, competencies and interests; and content that is relevant to the target audience. This is true, as the organisational structure needs to be defined and address relevant people to achieve the organisation's vision and mission. O'Neill *et al.* (2004) state that the degree of student completion of programmes in institutions of higher learning is determined by the structure of the students' virtual experience. The authors point out that as organisations

transition from one structure to another, they need to consider the needs of students and the support that they provide to the students in an online or e-learning setup. Organisational culture, on the other hand, refers to the system that exists within the institution of higher learning or university, the assumptions, beliefs or norms that members agree on and follow. This is where the staff, both academic and non-academic, develop working systems that allow for the use of e-learning and technologies in teaching and learning, thus establishing the digital culture (Priatna *et al.*, 2020). A digital culture is comprised of two mechanisms: a Primary mechanism, for example, setting up rules and regulations in an institution, monitoring, allocation of resources, etc. and a Secondary mechanism which deals with the history of events which are important to the organisation, organisational procedures and systems, physical arrangements of the organisation, the philosophies, charter and slogans of the institution. Both mechanisms form the institution's culture that is embedded in the academic community's awareness through daily activities and tasks directed at the implementation of e-learning in university programmes.

Regarding Policy in the implementation of e-learning in an institution of higher learning, a set of programme plans, activities, rules and regulations are put in place to solve problems that may arise and define the working conditions and guidelines to help the organisation reach its set goals and objectives through its vision and mission. The Policy regulates what should be done. When e-learning policies are in place they bind the community to use e-learning. The use of university technologies and resources needs to be controlled by the use of policies. To maintain the effectiveness of these policies, the university needs to ensure that there is enough capacity for both academic and non-academic staff and resources so that e-learning can effectively and efficiently be executed.

2.2.4.3 Technology

Technology is another crucial element in the implementation of e-learning. E-learning has encouraged self-study and the use of technology among students. There are new collaborative and web-based learning resources which include blogs, podcasts and wikis. Raja and Nagasubramani (2018) explain that the impact of technology is mostly felt in the education sector. The authors indicate that students prefer to use technology in their learning processes. It allows for student interaction and activities that encourage collaborative teaching and learning. Technology enables education without boundaries or borders, where students and facilitators can engage with programmes that are not only beyond their universities but also their country's borders. The use of technology can also allow its users to evaluate their teaching and learning. Because of its student-centred approach, students are fully engaged in their learning and get useful feedback on their work. Likewise, facilitators can get feedback from students, for example, in an online chat session, the facilitator can post a topic of discussion or question and because online chats happen in real-time, students can respond and give feedback. Technology has barriers that affect its use. These include its users' lack of time and access possibly due to ineffective electricity or internet connectivity (Nawaz & Khan, 2012). There are also insufficient resources because not everyone who desires to enrol in an online programme has facilities such as a laptop, computer, etc. There is also a deficiency in expertise or skills on how to use the computer or even access the learning platform. Lastly, support is absent. Users of technology need support to achieve set goals or objectives.

2.2.4.4 Human Resource & Development

Human Resources mostly relates to the staff, academics and non-academics, employed by an organisation or institution. These employees may be engaged on a full-time, part-time, contract, and in some cases, sessional basis. According to Henningsson and Geschwind (2022), the recruitment of academic staff is a vital part of the university, and it is instrumental in the

research and management aspect of the institution. The university staff must be knowledgeable in a specific field and with the coming of technology, staff need basic technical skills to carry out activities online. Technological knowledge is seen as a significant factor that has an impact on the staff's capability to share knowledge (Govender *et al.*, 2018). Universities are tasked with identifying gaps in skills and knowledge that exist within their institutions.

Human Resource development helps universities or organisations and employees to improve or develop their knowledge, skills and abilities in their area of specialisation or interest (Florea, 2010). This process is seen as a lifelong exercise that organisations or universities need to engage in. With constant changes in technology and technological development, it has become imperative for institutions to keep up and in some cases, compete to lead in their use of technologies. Regarding the use of e-learning in teaching and learning in higher institutions, universities are compelled to ensure that their staff are trained and competent in their area of specialisation and also in the use of technology. According to Islam *et al.* (2015), the training of academics and other staff members in the use of technology in e-learning ensures the correct and effective use of technology. Furthermore, this fosters confidence in academics which in turn creates a successful learning experience for the students enrolled in the different programmes.

Users of technology need to experience two types of training to claim that they can effectively use it. Firstly, they need to undergo in-depth training, which in most cases is characterised by being detailed, thorough and specific to what the trainee needs to know and do. This kind of training takes time and continues over a period, while the second kind of training is short-term and characterised by providing trainees with ideas about the concepts, teaching them how to use the technology, and allowing them to learn as they go (Islam *et al.*, 2015). It is thus important for universities to have a comprehensive training program for staff (part-time or full-time) on e-learning and technology use, especially the online teaching practices and

instructional design principles of the learning platform (Tairova & Tazhina, 2021). Keeping up with trends and emerging technologies and providing professional development in e-learning becomes another important aspect that the universities have to cater for. Staff within the organisation or institutions should also be encouraged to take part in activities that are technology-related and form networks where they will be able to collaborate with other staff to enhance their online skills.

The human resource department should have a clear performance management system that outlines their expectations for online lecturers and staff. They also need to have an institutional strategic plan as a guide containing key performance indicators for staff to work towards. Mustafa *et al.* (2021) state that staff who work according to set goals and objectives are more motivated to carry out their duties and work hard to achieve their goals and objectives. Expectations of online teaching staff also extend to students. Students expect that their learning materials will be available online when they start their programmes. They also expect teaching staff to give them full support as they carry on with their online learning. This is where the universities use evaluation to assess and monitor the performance of teaching staff and those who support students online.

2.2.4.5 Training and Support

Training and support in e-learning for online users remains a crucial part of the teaching and learning process. This is important because institutions of higher learning need to ensure that there is continuous effective use of the learning platform and other resources. Unlike face-to-face training platforms, there is a need for online users to have a good understanding of the learning environment. According to Lawn *et al.* (2017), information processing habits differ with online learners because they conceptualize and reflect while face-to-face learners learn by doing. Knowledge of the online user's background, particularly on the use of technology, is

necessary to determine how extensive their training and support should be. Burns (2005) states that certain strategies and practices need to be considered for providing training and support to online users in an e-learning environment. These strategies include ensuring that there is adequate access to learning resources. Self-paced learning requires learning resources available online. Videos on the use of the online learning platform are necessary for users to follow to understand the online learning platform. The literature also states that responsive support channels could assist students and other online users 24 hours 7 days a week (Ulanday *et al.*, 2021). Flexible teaching and learning online explores modalities of programmes delivered online which include assisting students and users even after normal working hours. According to Ulanday *et al.* (2021), teachers should be able to assist students by paying close attention to the questions asked, reacting and responding to questions and taking note of the challenges that the students face online. The idea of student assistance is also extended to the custodians of the learning management system (LMS). This is where students obtain assistance when they face technical issues. The authors further suggest that there is a need for institutions to form Community forums and live chats with an interactive space where students, academic staff and technical support can get involved in question-and-answer sessions, collaborate with peers, and share tips. Institutions of higher learning need to keep up with the trends by engaging staff in workshops and webinars. Furthermore, there is training that allows users to achieve skills and proficiency in their use of technology (Adedoyin & Soykan, 2023). The author further emphasises that institutions should have personalised training plans for students, academic staff, and other users.

2.2.4.6 Adequate technical support

Technical support is necessary for an e-Learning programme as it ensures that students and other users have adequate access to the learning platforms to continue their learning without any interruption. Support for e-learning users' needs to be provided 24 hours 7 days a week to

assist students from different time zones who are enrolled in a learning programme. E-learning programmes allow students from different regions in a country to study, and in some cases, students may be in different time zones. Some students work and therefore can access the learning platform after working hours. Institutions of higher learning need to employ multiple support channels to assist or support students in different ways when they are online. Students can be supported through email, live chats, help desk, phone services, etc. and these services need to always be available. Furthermore, students and other users of the learning platform should be provided with self-help resources. These self-help resources are videos and slides available online or on the institution's website that give step-by-step guidance on how to access services or functions on the learning platform. The use of Frequently Asking Questions (FAQs) online, where students ask questions and the technical team or teachers respond, could also be used by students and users to solve problems that they experience in the learning process. Adedoyin and Soykan (2023) emphasize that the Support system within an e-learning platform should be proactive with constant system updates and automated notifications which will allow for quick response. The authors further outline that the technical support in an online learning environment should be knowledgeable, well-trained and able to deal with students and users patiently. A tracking system or close monitoring system is also necessary, where the learning management system custodians can keep track of the challenges that students and other users face online. The online team can give periodical reports that would make them aware of the support provided, the response times, and user satisfaction.

2.2.4.7 Faculty Training on e-learning Platforms

The training of academics is essential as they need to have the required knowledge and skills to effectively teach on an e-learning platform. Academics need to be able to utilise the available teaching tools and also be able to assist students when they encounter problems or challenges in their learning process. The navigation of the learning platform is also an important aspect of

the training. Academics should be able to use the interface, be able to navigate the learning space and be familiar with shortcuts of the learning space (Ulanday *et al.* 2021). Most importantly, e-learning faculty trainers need to ensure that their training content is accessible and inclusive. The material used must cater for all, including people or students with disabilities. Lawn *et al.* (2017) state that online teaching must be interactive, where both students and teachers engage and where students themselves interact despite their geographical location, ability and disability. Furthermore, despite online learning being flexible, the element of time management also needs to be factored in. Students need to be supported to be able to meet set deadlines. Faculties need to have clear guidelines on how students are supported by both academic and technical staff.

2.3 Student orientation and support

Institutions of higher learning have a responsibility to ensure that their strategic plans for IT and e-learning are fully workable and well-structured. According to Alkhanak and Azmi (2011), universities should have a well-structured IT infrastructure that aims largely to impart knowledge. Furthermore, the infrastructure should advance and meet the needs of its users, offering access to information technologies and having a system that will allow users to deal with different challenges that they may face. According to studies conducted, e-learning implementation needs to cater for student needs and educational materials need to be well-organised, complete, and engaging online (Zuvic-Butorac *et al.* 2011). The online aspect of the IT infrastructure should have well-structured support. It is important to understand support from the e-learning or online perspective. It is explained as a well-organised online learning platform that consists of teachers who are well-trained and fully engaged online. Teachers should be able to manage online activities, have regular communication, and be able to provide students with regular feedback.

2.4 Pedagogical Strategies

Despite the take-over of e-learning, little information is available on how e-learning has enhanced teaching and learning. According to Mehanna (2004), the literature on technology in higher education is provided by practitioners and others who are said to be key experts in understanding the use of technology, and little or no evidence is available on the effectiveness of e-learning compared to conventional methods of teaching and learning. New technologies lead to a new understanding of pedagogies that are specific to context. The e-learning pedagogies and strategies are explained as new ways of teaching and learning. Zaitseva and Bule (2011) explain that the new technologies have changed traditional education to distance education which is a more open education that is flexible and referred to as lifelong learning. Students are exposed to new ways of learning, new environments, different learning management systems and learning platforms. This entails using self-paced learning, collaborative learning, and open and distance learning. Other authors (Curran, 2004) mention different e-learning pedagogies and strategies, encompassing the supplementing of teaching on campus with e-learning, where computer-based learning takes place, thus teaching that uses technology to enhance the learning process. Curran (2004) mentions e-learning support centres where different learning platforms are available for e-learning users to obtain assistance. Other strategies are hybrid and blended, where blended learning uses both technology and face-to-face processes of teaching and learning. Collaborative networks, innovative pedagogy, and integrated pedagogy are some of the strategies that can be employed in e-learning.

2.4.1 Designing Engaging Online Courses

Online courses do not refer to only web-based learning but also the use of the web for learning, where effective well-designed educational systems with organisational, pedagogical and technological features contribute towards achieving goals. According to Brown and Voltz

(2005), for the design of online courses, educators need to be well trained, particularly in the use of technology or the learning management system which will allow them to design computer-based materials and develop learning contexts that are multifaceted for interaction among students, the broader community on the internet, and between students and educators. Khan *et al.* (2017), state that crucial key components in online learning platforms and material development for instruction purposes, include student assessment, time management, discussion management, student engagement, and frustration handling. Active learning strategies require that students be fully engaged, universities need to create a learning environment that is student-centred, be able to provide relevant and timely feedback, and promote the exchange of ideas between students and their peers and between students and the academic staff. There is also a need for students to have clear course expectations, students also need to understand community building and finally, there is a need for both students and staff to be able to utilise online tools for effective online interaction (Wang, 2007).

2.5 Technical Knowledge

Technical knowledge is defined as one's knowledge of modern technologies and their applications (Raja & Nagasubramani, 2018). This includes portals like the Internet. The Internet makes teaching and learning easy by providing resources for research and learning for both teachers and students (Patil, 2018). For effective use of technologies, there is a need to have technical knowledge of how to use these technologies, to know how to navigate the internet and most of all how to relate pedagogy to the appropriate technology. According to Rossi (2009), electronic learning covers applications, processes and learning methods. It is therefore imperative to have technical skills and knowledge on how to use the technology. With the constant and rapid changes in technology, it is important that online users, regardless of their role in the learning space, need to know and keep up with the changes. According to Alhomod and Shafi (2013), there should be sufficient training for staff and students to enable

them to navigate the learning platform or LMS. Furthermore, the institutions of higher learning should be committed to the implementation of the online learning platform. This form of commitment should be in the form of providing the necessary skills and ensuring that all the required infrastructure and resources are available. When online learning users are fully equipped with the necessary tools, their confidence in the use of the learning platform and their attitude towards the use of the resources are noticeable (Patil, 2018).

2.6 Open and Distance Learning

The Open and distance learning (ODL) concept is based on an education system where education and training access have no constraints of time and place and offer flexibility in learning opportunities to students. ODL is an education system that is rapidly growing and has a substantial impact on all education delivery systems (Ghosh *et al.*, 2012). Over the years, ODL was a system that was created for adults or full-time working students who wanted to upgrade their skills and who were motivated by several factors. However, in recent years, school-age children and the youth who are unable to attend ordinary schools have also been enrolling at both primary and secondary school levels (Patru & Khvilon, 2002). ODL and conventional learning are contrasted, where conventional learning involves face-to-face teaching and learning while ODL has four main phases which include, a correspondence system, an educational television or radio system, multimedia systems, an internet-based system, and a single-mode institution. In recent years, we have seen more interest in technological methods of teaching and learning in ODL. ODL institutions have also formed many partnerships with different organisations where they can obtain funding and equip their institutions with high-earned technologies and assistance with the training of teachers, to enable them to effectively run online or technology-mediated ODL programmes. With the coming of technology, ODL students no longer had to wait for study materials to be delivered to them, instead learning materials and course information were now available online, where they could

access them when they had internet connectivity (Ngubane-Mokiwa & Letseka, 2015). Students in ODL remain the centre of teaching and learning, where learning materials are focused on them, the assessment component takes their needs into account, and the learning platform nurtures their positive learning experience and critical thinking skills.

2.7 COVID-19 and the world response in higher education

With the outbreak of COVID-19 in 2020, educational institutions at all levels were forced to embrace and use information technology in their teaching and learning and the provision of service. The pandemic affected the education system negatively and brought about different challenges (Sharma *et al.*, 2023). Governments worldwide imposed restrictions on their nationals and this came with constraints that closed not only different institutional buildings but also borders that prevented face-to-face interactions and transmission of the COVID-19 infection. In China, thousands of schools had to close and with an enrolment of 91.3 %, there was a need to ensure that teaching and learning were taking place. Furthermore, schools and institutions of higher learning were now forced to use WebQuest, Google Classroom, and other online sites (Toquero, 2020).

2.8 Student perception on online learning in ODL

Student perceptions on online learning particularly on in a ODL setting is necessary to explored. In a study done on students in Portugal, students believe that use of technology in ODL has allowed them access to information by allowing them to be able to explore the internet for information and also allow collaborative activities online. According to Syauqi, *et al.*, (2020), Online learning encouraged and allow students to take responsibility for their own learning, students are able to explore knowledge at their own speed and comfort. Students further believe that the use of technology, comes

with better performance, productivity and better knowledge, which makes learning easy (Syauqi, *et al.*, 2020). Students indicated that the online learning keeps them motivated, this is because feedback from tutors is prompt and they are able direct them in their learning. Students perceived that communication between, instructors and other administrators was more effective online, however students feel that communication among themselves tend to be less (Fidalgo, *et al.*, 2020). Student technical knowledge of the learning resources and learning platforms, have a great impact on performance, in a study on students in Turkey, more experienced students and instructors believed that they performed better than those that had no experience on the use of technology (Fidalgo, *et al.*, 2020). The study further indicated that, the students with no experience would be less motivated and result in them dropping out of the programmes they are enrolled in.

Students believe that online learning may be costly as it requires them to be connected to the internet, and that they have specific resources such as computers or laptops to be able to carry out learning activities (Syauqi, *et al.*, 2020). The availability of resources and infrastructure, in some areas where students are studying online may remain a challenge, however some students believed that, because of the flexibility of mode of learning, online, they would be able access the required resources such as internet that they need to be able to carry out online tasks or activities. This is by traveling to where the resources are available for them. On the other hand, lack of resources was seen as demoralising and demotivating for students and they opted to dropout of the learning programmes.

2.9 Theoretical Framework: Attrition theory

In this study, Attrition theory was used as a working model that underpinned the study and resulted in a model that would be best used for similar students who enrol at BOU. Attrition theory is described as a process where several factors influence an individual to decide to leave or drop out of a university or college programme in which they are enrolled (Boton & Gregory, 2015). Understanding attrition in online courses is important because of two issues: Firstly, it allows for assessment of the effectiveness of the cost of online learning compared to traditional classroom-based teaching and learning. Cost implications affect educational planning and the value of investment in distance online learning for learners and their sponsors (Tyler-Smith, 2006). Secondly, attrition allows the university to reflect on students' retention and progression which further allows universities to come up with strategies that will keep students motivated and enable them to progress in their learning until the completion of their programmes. Therefore, the said framework will be used to address BOU students' issues which cut across the cost of the programme, the accessibility to the university portals and engagement with their facilitators. According to McCubbin (2003), there is a significant link to attrition between the way students learn and their financial situation. Students invest in their education through the resources and time that they spend in the process of completing their studies. Furthermore, universities would also prefer to spend money on students who complete their courses. Similarly, attrition provides an approach that will be best suited to increase learner interaction in the learning process for effective online distance learning.

The literature also suggests that culture, the learning management system (LMS), motivation, and online pedagogy play a major role in the attrition rates in higher education (Boton & Gregory, 2015). Culture can be defined as customs and social behaviour that are particular or unique to a group of people or a society. With the education system being diverse and

universities trying to attract students worldwide, universities are attracting international students who are knowledgeable and from different cultures. Universities need to create a learning environment that is inclusive, accessible and flexible. Researchers suggest that online courses should ignore cultural differences in learning behaviour but fail to address the diversity of the learners (Botton & Gregory, 2015).

LMS used in online learning can also have a significant impact on the attrition rate. These technological tools and pedagogies need to be fully understood by both the learners and teachers who use them. LMS can provide a wide variety of learning activities and tools that allow for their management and facilitation (Naidu, 2003).

According to Botton and Gregory (2015), despite the popularity of online offerings in higher education, programmes offered do not always meet learners' expectations or needs. Furthermore, for a strong-rooted pedagogical offering, there is a need for a good foundation. Course offerings shifted from knowledge transformation to a more knowledge-building approach due to the use of technology. Consequently, researchers have been introducing connectivism, which Siemens (2004) defines as an integration of principles derived from theories of chaos, networks, complexity and self-organisation. This means that the acquisition of new knowledge occurs through networks and is processed through online social networks. Siemens (2006), in Kop and Hill (2008), states that due to the exponential growth and complexity of information available on the internet, there are new possibilities for people to communicate across global networks and for the ability to aggregate different information streams.

Motivation can also be a cause of attrition in online courses. It is imperative to know the users when designing learning materials for students. Knowing the students entails understanding their characteristics, learning styles, and emotional and cognitive stages. If these traits are

neglected at the programme development stage, there could be a disconnection between students and their online programmes (Kop & Hill, 2008). The connection will make it easy to be actively involved in the learning process and get them engaged. When students are active and engaged, they are motivated to complete their courses. Motivation is an integral component of online courses (Timms *et al.*, 2008).

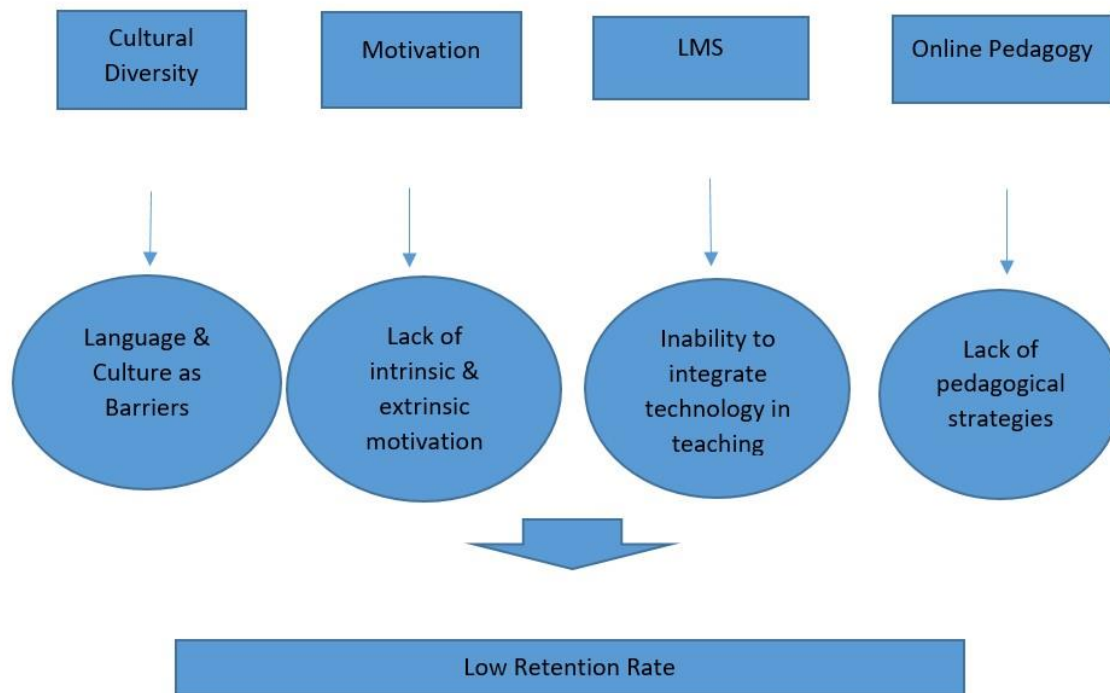


Figure 2. 2 Four engagement Areas (Source: Boton & Gregory (2015))

Figure 2.2 demonstrates how Cultural Diversity factors, the use of language and different cultural beliefs, can be a barrier when learning is taking place. Motivation in this instance is not used as a theory, but rather as a contributing factor towards learning. Motivation impacts the rate of attrition. It is a prerequisite of any act of communication (Kopke *et al.*, 2007). This implies that the motivation behind every contact is something that comes from within the individual or from their surroundings. The LMS should be used and navigated with technical knowledge and comprehension. This means that within the online learning space, students

should have technical knowledge or computer skills, and this also applies to tutors or teachers assisting and involved in the learning space. Thus, a deficiency in these abilities might result in students falling behind and not finishing their courses on schedule, or in situations where instructors or tutors find it challenging to provide online instruction. Sound online pedagogical design is necessary for an effective learning session. The LMS requires the employment of the necessary skills for appropriate learning pedagogy online. The main challenge that educators are faced with, in trying to promote 21st century skills and encourage self-directed learning, is linking students' needs, technology and pedagogy to construct an interactive and engaging environment (Parker *et al.*, 2013). It therefore indicates the need for educators to have diverse pedagogical strategies that would work in an online learning environment. Despite the benefits of online-mediated programs, students have a low retention rate. Students who are new to a programme are most likely to drop out in the earlier part of the semester and those who have taken too long are unmotivated to complete their programme (Bawa, 2016). It is therefore imperative to examine why students enrolled on online programmes find it easy to drop out at any given time.

Attrition theory identifies four factors that affect the attrition of distance students; academic, environmental, background, and defining variables.

Academic variables include study habits, course availability, previous academic track record, and individual fit between the learner and the subject (Musinagfi *et al.*, 2015). Environmental variables include finances, working hours, family responsibilities and outside encouragement. Background and defining variables cover, age, educational goals, and ethnicity. The student attrition phenomenon is often explained in terms of the student's characteristics, shortcomings, and personal attributions (Aljohani, 2016). In addition, the literature suggests that attrition among online students relates to culture, motivation, online pedagogies and the effectiveness of the LMS (Baton & Gregory, 2015).

2.9 Summary

This chapter provided the literature review that this study focused on to foreground the study and its problems in the context of the BOU students. The attrition theory was also discussed as the underpinning theory of the study. The next chapter presents the research methodology of the study.

CHAPTER 3: METHODOLOGY

3.1 Introduction

In the previous chapter, I discussed the literature that I reviewed on e-learning and the theoretical framework that guided the study. This chapter discusses the research method and design that were used in the study as well as the research paradigm of the study. The sampling procedure and data collection techniques are also discussed. Lastly, ethical considerations and issues about the trustworthiness of the study are also covered.

3.2 Research Method

A research approach refers to the overall strategy or plan chosen by a researcher to integrate different components of a study coherently and logically (Brannen, 2017). Badke (2021) thinks that research strategies act as a blueprint for data collection and analysis. The choice of research methods—be it surveys, experiments, or case studies—is often dictated by these strategies, which in turn resonate with overarching research philosophies and paradigms, such as positivism or interpretivism (Patten, 2016). Essentially, research methodologies can be clustered into three main pillars:

Quantitative Approach: Anchored in the positivist tradition, this method underscores the importance of garnering and deciphering numerical data (Hirose & Creswell, 2023). It aims to lend statistical backing to theories or propositions. To achieve this, it often leans on structured observations, comprehensive surveys, and controlled experiments. A quantitative approach is based on experimentation and disclosure of causes and results through numerical data (Creswell, 2008). Quantitative research describes trends in which the research problem can be answered most effectively when the researcher seeks to establish the tendency of responses

from those taking part in the study (Creswell, 2008). The characteristics that are associated with the quantitative approach are that it emphasises analysing information as numbers and that there is a distinct measure for attributes of individuals. Furthermore, quantitative analysis emphasises a procedure of comparing related factors about those taking part in the study, correlational studies, and surveys (Creswell, 2014). According to the literature, the quantitative approach is suitable when dealing with large samples and further allows for the generalisation of results based on large populations. In the quantitative approach, data are consistent and can be repeated across different studies to obtain results (Savela, 2018). The quantitative method uses standardised procedures, it is uniform when collecting data, precise, and can control variables and measurements. There is reduced bias when using the quantitative method because the use of structured instruments such as experiments, surveys, etc., reduces researcher bias. There are also disadvantages to using the quantitative research method. Because of its structured nature, the quantitative method can limit adaptability and flexibility in the research design. Eyisi (2016) explains that when using surveys, especially with fixed responses, options might not capture the thoughts and feelings of the participants. Furthermore, there is a strong possibility for complex phenomena to be oversimplified to fit numerical data. In addition, this research method can be costly and time-consuming since the researcher must design, test and implement it. There is significant dependency on the use of instruments, and this could lead to unreliable data if the instruments are poorly designed because the accuracy and reliability of data are heavily dependent on the quality of the instruments used, for example, surveys or tests. The quantitative method tends to lack depth. Savela (2018) states that the method often fails to provide an in-depth understanding of human behaviour and complex issues.

Qualitative Approach: This approach delves into the intimate experiences and subjective interpretations of its participants (Denzin & Lincoln, 2011). It usually finds its footing in

interpretivism or constructivism. Instead of a deluge of numbers, the emphasis is on gathering non-numerical assets like interview scripts, observational notes, and visual recordings. Common tools for this approach encompass in-depth interviews, focus groups, ethnography, and content parsing.

Mixed Methods Approach: This is where the quantitative and qualitative approaches converge. By marrying the two, it offers a holistic lens to the research puzzle. It's a go-to when a single data strain might fall short in addressing the research query or when amalgamating the robustness of one with the nuances of the other proves beneficial (Creswell, 2013). The mixed method, as alluded to earlier, encompasses collecting data using both qualitative and quantitative methods in a single study for both analysing and reporting, based on the sequence and priority of the information (Winn, 2003), which does not suit this study. Therefore, this study opted for a qualitative approach because the study aimed to understand the phenomenon of issues related to ODL in an online university like BOU. The advantages of the mixed method approach are that it allows for a wide range of data gathering and consequently a comprehensive data collection because mixed methods use both quantitative and qualitative insights. Because a variety of methods are used, triangulation is possible. Data collected qualitatively allows for depth to the numerical data which leads to nuanced interpretations. Eyisi (2016) states that the approach can capture complex research problems by looking at individual experiences and numerical trends. Another advantage of a mixed method approach is that convergence of the results from qualitative and quantitative data can intensify the reliability and validity of the findings. The disadvantage of the mixed method approach is that it can be time-consuming and complex due to the use of designing and implementing two approaches, namely, qualitative and quantitative methods. Researchers also face the possible challenge of integrating findings from different data types and need sophisticated analytical

techniques (Eyisi, 2016). Compared to a single-method study, the mixed-method approach requires more time and resources, and the researcher needs to have a full understanding of both qualitative and quantitative methods. Interpretation of results may be challenging as data from both methods may be conflicting making interpretations difficult. The analysis of this method is complex and the researcher needs to be able to synthesize the types of data to draw coherent conclusions.

The chosen research approach for this study is qualitative. The following outlines the reasons for selecting the qualitative approach over the quantitative or mixed methods approach and supports these reasons with relevant literature. The qualitative research approach is fundamentally exploratory, aiming to delve deep into participants' perspectives, feelings, and experiences (Noble & Smith, 2015). Given the study's focus on the subjective experiences of male learners, a quantitative approach which tends to be more structured and less flexible in its exploration may not capture the depth and nuances of their narratives (Johnson & Onwuegbuzie, 2004). Mixed methods, while comprehensive, might introduce complexities not essential for this investigation (Greene, 2007).

Smith (2010) posits that qualitative research is particularly suited for topics that require an understanding of human experiences in their natural settings. This is supported by Johnson and Onwuegbuzie (2004) who highlight that quantitative research can sometimes overlook the richness of individual experiences due to its structured nature. Furthermore, while mixed methods offer the benefits of both qualitative and quantitative approaches, Greene (2007) cautions researchers about the potential pitfalls in terms of the methodological challenges and extended time required. For this study, the qualitative approach's ability to probe into individual experiences, societal influences, and intricate narratives made it the most fitting choice. By

focusing on in-depth interviews and e-questionnaires, the study aimed to unravel the experiences of ODL in an online university like BOU (Patton, 2015).

The characteristics of the qualitative approach are that it takes an exploratory and descriptive focus, its data is collected from a natural setting, and it emphasises humans as instruments. Creswell *et al.* (2007) state that there are five strategies of inquiry in qualitative research that are in line with the research design, these are case studies, ethnographies, narratives, phenomenological studies, and grounded theories.

Qualitative research is defined as an inquiry that is useful when used to find and understand a central phenomenon (Creswell, 2014). According to Denzin and Lincoln (2005), qualitative research involves an interpretive, naturalistic approach to the world. This means that the researcher seeks to find the natural setting of things and tries to make sense of or interpret the meaning it has for people. With the qualitative research approach, the researcher seeks comprehensive responses from participants and collects their views in the form of words or images. Similarly, Patton (2005) states that the goal of qualitative research is to illuminate and enhance understanding of the in-depth information by obtaining details that highlight processes and meaning that are not measured or examined experimentally but rather produce data that can be applied to a variety of contexts. The approach also includes steps from broader assumptions to complete the entire data generation, analysis, and interpretation (Creswell, 2014). It considers the views, experiences of humanity, and opinions. Qualitative research provides more subjective rather than objective data.

Maree (2013) and Boland *et al.* (2022), aver that qualitative research is based on a naturalistic approach that seeks to understand phenomena in real-life situations. Hence, the study employed

a qualitative research approach that can facilitate the production of in-depth and rich data. Moreover, Cresswell (2013) concurs with Andreassen, Christensen and Møller (2020) that the use of qualitative research allows the researcher an opportunity to engage intensively with participants employing face-to-face interactions. Furthermore, the qualitative research approach produces a thick (detailed) description of participant's feelings, opinions, perceptions, and experiences and interprets the meanings of their actions (Rahman, 2016). In addition, qualitative researchers are interested in people's perspectives on their beliefs, experiences, perceptions, and meaning systems (Flick, 2022; Mohajan, 2018). Likewise, Ritzer and Stepnisky (2021) state that the root of qualitative research lies in social and cultural anthropology, philosophy, psychology, history, and sociology. According to Mohajan (2018), the goal and purpose of qualitative research are to describe and interpret issues or phenomena systematically from the point of view of the individual or population being studied and to generate new concepts and theories. The study further asserts that the choice of methodology is directed by the questions being raised. Likewise, qualitative research is a situated activity that locates the observer in the world. In addition, Denzin and Giardina (2023) claim that qualitative research consists of a set of interpretive, material practices that make the world visible, and these practices transform the world. Similarly, Denzin and Giardina (2023) agree with Leavy (2014) that the epistemological landscape in qualitative research is as diverse and complex as the various disciplines that employ qualitative methods.

3.2.1 Strengths of a qualitative approach

Moreover, Ndoziya (2014) and Merfeld *et al.* (2019) outline the strength of a qualitative approach that provides an in-depth, intricate, and detailed understanding of meanings, actions, non-observable as well as observable phenomena, attitudes, intentions, and behaviours, and these are well served by naturalistic inquiry. Hence, the rationale for choosing this approach is to explore the use of ICT in Open and Distance Learning at Botswana Open University. Further

to this, Mwita (2022) opines that qualitative research aims at understanding, explaining, exploring, discovering, and classifying situations, feelings, and perceptions of a particular group of people. Moreover, King (2021) claims that one of the strengths of the qualitative approach is the recognition that data must always be understood within the context of their production. In addition, the qualitative approach allows the researchers to discover the participants' inner perceptions and to figure out how meanings are shaped through and in culture (Rahman *et al.*, 2022). Further to this, the study asserts that the most common qualitative data-generation techniques are participant observation, unstructured interviews, direct observation, and description recordings.

Furthermore, because it may be formed and reconstructed to a greater extent, the qualitative research approach has a flexible structure (Ruslin *et al.*, 2022). During the data collection process, this approach therefore enabled me to be flexible, for example, I had a conversation rather than a formal interview with the participants, thus making them feel at ease. This significantly contributed to the study's ability to provide a thorough description of the phenomenon. Moreover, Tracy (2019) claims that researchers can put more effort into painting a larger picture of the phenomenon thanks to qualitative research. This claim supports skill perception, and I tried to comprehend the participants' lives in terms of cultural, linguistic, socioeconomic, and political elements that might have an impact on their workplace (Myeza & April, 2021; Stronach & Clarke, 2016). Therefore, after sending consent letters, this study sought participant profiles to understand their well-being in terms of what kind of students were enrolled at BOU. This helped the study establish connections with the conceptual framework that served as its foundation, giving the findings—which are covered in the upcoming chapters—more significance. Additionally, the study utilised user-friendly methods of gathering data like one-on-one semi-structured interviews and e-questionnaires (all of which are further discussed in the relevant section of this chapter). Participants in qualitative research

are treated as primary sources of data, implying that data gathering, including data analysis, is dependent on the discoveries made by the participants. In addition, it is important to note that participants are referred to as subjects rather than objects (Creswell & Poth, 2016; Fowler & Kress, 2018). Furthermore, Youyou *et al.* (2015) claim that data is generated using human instruments rather than questionnaires and machines. This emphasises the significance of social human beings collaborating in research for change and empowerment. In support of the preceding assertion, this study includes individuals rather than machines as participants. In short, data were generated mostly from students, a lecturer, and BOU officials to understand their perceptions of the use of ICT in ODL programmes. Comprehending their social behaviour, ideas, acts, and experiences as well as their perceptions required my skill perception. Hence, I was not imposing my knowledge of the phenomenon on the participants.

In addition, qualitative research entails fieldwork, which necessitates that researchers visit the participants' site, location, or institution to observe and gather data in natural settings (Fujinuma *et al.*, 2022; Van de Ven & Poole, 2017). In addition, Krause (2017) agrees with Creswell and Poth (2016) that by getting first-hand information from participants in their native environments through fieldwork, assumptions about the study can be avoided. In other words, the study can feel and comprehend the social evils and challenges that the participants experience daily, which enables the study and the participants to develop solutions for the problems they encounter (Asher & Hibbard, 2020; Madden, 2021). Thus, in qualitative research, perceptions of expertise and skill impact fieldwork. It was also evident when I had to construct semi-structured interviews for the data-gathering procedure and include field participants so that I could be flexible in developing interventions or solutions for the phenomenon as it unfolded (Gray, 2021).

3.2.2 Weaknesses of a qualitative approach

Bernstein *et al.* (2018) concur with Thomas (2022) that the weaknesses of the qualitative approach are such that it produces findings not arrived at by statistical procedures or other means of quantification. Moreover, qualitative research tends to use small samples and may make the data collection process difficult and less manageable (Braun & Clarke, 2021a). In addition, replication in a qualitative study is indeed challenging since people have varied feelings, experiences, perceptions, and backgrounds, and therefore producing similar results may not be practical in some cases (Berman *et al.*, 2017; Mwita, 2022). Furthermore, Chirambwi (2024) agrees with Spencer (2024) that participants in qualitative research may decide to deliberately create an environment that may force a researcher to record information that is not exact compared to the actual situation through voice tone and facial expression. As a result, I overcame this weakness by using guided analysis to analyse data generated from the participants because Padgett (2016) and Creswell (2017) outline that the qualitative approach is interested in analysing subjective meaning. In other words, the qualitative approach helped me to produce a thick (detailed) description of participants' feelings, opinions, and perceptions as well as an informed interpretation of the meanings of their actions when using technology to supervise the curriculum. In addition, Rahman *et al.* (2022) assert that policymakers might not view conclusions from a qualitative approach with much confidence. In dealing with the qualitative approach's flaws, I carefully prepared and implemented the approach, considering factors such as the phenomenon under exploration, sampling, sample size, limitations, credibility, dependability, suitable data analysis, and the duration of this study (AL Hilal, 2023; Filmlalter & Steenkamp, 2022). Further to this, I also ensured the credibility of the study by using the viewpoint from the participants (Cypress, 2017). In addition, Sovacool *et al.* (2018) declare that to avoid bias and subjectivity, it is wise to use multiple methods to balance any potential weaknesses that might have been raised in conducting the study. Following this view, Dai and Moffatt (2021) state that in a qualitative approach quoting words from the various

participants presents different voices and reflects different perceptions which ensures credibility. Thus, I used reflective activity and face-to-face semi-structured interviews to minimise bias (Heneghan *et al.*, 2021). Moreover, I followed trustworthiness procedures such as credibility, transferability, confirmability, and dependability to ensure the accuracy of this qualitative approach and the delivery of quality work (Bengtsson, 2016; Rose & Johnson, 2020). Additionally, Creswell and Poth (2016) suggested that in using these four factors of trustworthiness, I had to think beyond specific processes to recognise the lens I used in this study and the paradigm assumption I chose. Further to this, I used emerging settings that were adaptable to the people and locations under exploration, as well as inductive data analysis to establish patterns and themes (Mohajan, 2018). Thus, this study did not aim to generalise but to study a natural setting (Kankam, 2019). This enabled me to gain information about natural situations and meanings based on data interpretation rather than generalisation (Enders, 2022; Shuman *et al.*, 2013). Furthermore, the qualitative research approach was chosen based on its suitability for the goal of this study (Smith & McGannon, 2018). As a result, in this study, I avoided interfering with the natural flow of the participants' behaviour in all its details, allowing the behaviour to occur spontaneously and holistically (Antwi & Hamza, 2015; Zuma, & Rooijackers, 2020).

3.3 Research Design

The architectural plan of each research project is the research design, which specifies how data is gathered, analysed, and interpreted (Dannels, 2018). A research design is described as a type of inquiry in which different research methods provide a specific direction for research (Creswell, 2014). A case study was used in this study. Noor (2008) explains a case study as an empirical inquiry that investigates a contemporary phenomenon within its real-life context using various sources of evidence. I was able to conduct an in-depth inquiry about a particular group of people in the institution to obtain a better understanding and gain information on an

existing situation. Case studies are used to find out “why” and “how” things happen and are not used to control behavioural events (Teegavarapu *et al.*, 2008). Therefore, this research was a single case study that involved one online learning institution, BOU, to explore the use of ICT in ODL.

Moreover, according to Yin (2016), a research design is defined as the conceptual blueprint within which research is conducted. Further to this, the latter study claims that the research design enables the researcher to draw conclusions about the spontaneous relationships between the variables under study by providing a coherent model of evidence. In a similar vein, the research design includes attitude perception (that serves as a bridge), skill perception (arrangements and plans to generate data), and knowledge perception (forming a research piece). In addition, Creswell and Poth (2016) assert that a qualitative research design can be used to identify and appreciate the meaning that individuals or groups assign to a social or community dilemma. In addition, Döringer (2021) supports Blanche *et al.* (2006) who posit that a research design is a plan that guides the arrangement of conditions for the generation and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure. Thus, the plan outlines the components of a piece of research, including the variables, participants, relationships among them, and the methods used (sampling, measures). Moreover, Köhler *et al.* (2022) declare that a research design is a strategy or blueprint for how you propose to carry out the research. Further to this, Yin (2016) defines a research design as a strategy that directs the researcher in the process of generating, analysing, and interpreting results. As a result, a research design enables the researcher to make inferences about the spontaneous relationships between the variables under study by providing a coherent model of evidence (Dutilh *et al.*, 2019; Lorenz-Spreen *et al.*, 2023).

Furthermore, Cohen and Bradford (2017) agree with Sparkes and Smith (2013) that finding and comprehending the meaning that individuals or groups attribute to a shared or social

challenge is possible using a qualitative research design. This is relevant to the challenges that the participants have in the use of ICT in their programmes that are offered in a distance learning mode. Thus, to find a solution to this problem, a research study must be carried out. Likewise, developing inquiries and processes are part of the research process (knowledge perception) to gather the information that comes up spontaneously at the participants' site. The facts on frequent topics are provided by research and the researcher then explains the information (attitude perceptions). In addition, Yin (1984) concurs with Yin (2016) about explaining the strategy of research as dealing with four questions: 1) What questions must be studied? 2) What data are significant? 3) What data must be generated? 4) How must results be analysed? This calls for a comprehensive report with a flexible framework. Furthermore, Creswell and Poth (2016) emphasise that persons who participate in this type of study support a research approach that values an inductive process, an emphasis on personal meaning, and the significance of accurately expressing the complexity of the situation.

Furthermore, Cohen and Bradford (2017) claim that the research design has a rich description. As a result, the final product of qualitative research is fully descriptive. Similarly, instead of using numbers to describe the phenomenon, the researcher uses words and images instead. In addition, data is presented as document excerpts, field notes, and participant interviews. Further to this, the results of the study are always supported by quotes from videotapes, internet communication, or a mix of these. Similarly, the qualitative design is smooth and emergent, adapting to shifting study settings. In addition, to demonstrate and interpret the data in this study, tables and figures were employed. For gathering data, the study made use of semi-structured, one-on-one interviews and document analysis.

In addition, Mertens and Wilson (2018) agree with Creswell and Poth (2016) that a research design is a strategy or plan that shifts the focus from the core theoretical assumptions to selecting the participants, the information-gathering techniques to be employed, and the data exploration to be carried out. Shared studies (ethnography, case studies, phenomenology, grounded theory/critical, non-interactive design, concept analysis, and historical analysis are all examples of study designs used in qualitative modes of inquiry (Lee, 2018; Uğur, 2019). Bell, Bryman and Harley (2022) opine that the design issues in the case study resemble several research designs and inquiry methodologies. Furthermore, Mertler (2019) concurs with McDonnell and McNiff (2016) that, like action research, the focus of case study design is on gathering data to support a particular practice or piece of material rather than generalising findings across the board. However, Ivankova and Wingo (2018) declare that a case study addresses specific practical issues, whereas action research focuses on solving problems or informing individual and community-based knowledge in a way that impacts the use of ICT in ODL programmes. Furthermore, Yin (2016) declares that the methodological procedure for gathering data typically includes multi-data gathering techniques and is gathered from multiple sources such as focus groups, reflective activity, and one-on-one semi-structured interviews. A case study is thus a research project that aims to delve deeply into a current situation. As a result, in this study, I gathered data from twenty-one participants who were and are registered at BOU and interact with the online system for their studies. Their different contexts provided rich information and aided me as the researcher in conducting a thorough examination of the issue. Furthermore, a case study was employed as a method for this study because it is concerned with how the participants engage with the ICTs that are needed for their learning and the challenges they face with ICT tools in learning and teaching (Nhlongo, 2020).

Moreover, as with any research methodology, there are always benefits and drawbacks to employing methods to conduct a research study. Jena (2020) asserts that there are benefits to using a case study, but there are also some drawbacks that researchers should be aware of. One of the disadvantages of using a case study is that case studies do not generalise their findings. Furthermore, Maxwell (2021) concurs with Mariotto *et al.*, (2014) that transferability is achievable in case studies only if a researcher can create a detailed description of the case to transfer conclusions from one case to another, based on similarity. Other students, tutors, and lecturers may have similar problems with ICT in their ODL programmes, but because people's perceptions are context-reliant, we cannot generalise from the findings. As a result, a study of this type is required to be undertaken at these specific institutions to understand the problem(s) at hand within their current context. Further to this, Harrison *et al.* (2017) explain that a case study seeks to situate a case in its historical, social, and cultural context. For instance, although the topic may be the same, the case in BOU may differ from the case at another similar university with ODL programmes. Another advantage or feature of a case study is that it focuses on a single situation, allowing a researcher to gather a huge amount of data (Yin, 2012, 2015). The latter studies further assert that a case study is advantageous because of the richness of information that results from the intensive focus on one situation. Similarly, Harrison *et al.* (2017) argue that the case study is intensive since the researcher focuses on one instance of the phenomena to analyse it in depth. Moreover, this study used a case study because it did not generalise its findings and instead relied on first-hand knowledge from the individuals. In conclusion, Zuma and Rooijackers (2020) and Yin (2015) declare that there are three types of case studies, namely, explanatory, descriptive, and instrumental. The following section provides a brief overview of the types of case studies.

3.3.1 Explanatory Case Study

An explanatory case study explores the varying degrees of relationships between existing variables (Hyldelund *et al.*, 2023). Piekkari and Welch (2018) concur with Welch *et al.* (2020) that an explanatory case study indicates positivism, it is based on testing the theories and indicates knowledge perception. Moreover, Kotusev (2018) states that an explanatory case study is typically used to answer ‘how’ and ‘why’ questions about a particular phenomenon. The latter study further emphasises that as the name implies, the focus is on explanation rather than mere description, such as how and why a programme’s expected outcomes were or were not attained. Thus, an explanatory case study is irrelevant for this study.

3.3.2 Descriptive case study

A descriptive case study describes the characteristics of the phenomenon and relations between variables or phenomena as accurately as possible (George, 2019; Ridder, 2017). In addition, Hancock *et al.* (2021) support Kyffin and Gardien (2009) who consider a descriptive case study as a design that retains a role in the sharing of innovations and initial ideas. Furthermore, a descriptive case study is a study that looks at the background of a person or groups of people and uses a descriptive narrative about how they deal with problems (Cattrysse, 2014; Mohajan, 2018). Nevertheless, Yin (2012, 2014, 2015) claims that a descriptive case study should be referred to as a description with a call to action. Thus, a descriptive case study is not appropriate for this study.

3.3.3 Instrumental Case Study

Ehrenpreis and DeLooper (2022) declare that an instrumental case study aims to provide insight into an issue or refine a theory in which the case itself is secondary and might be atypical of other cases. Further to this, an instrumental case study uses a case to gain insights into the

phenomenon (Owens *et al.*, 2021). In addition, Yilmaz (2013) agrees with Ridder (2017) that an instrumental case study takes a supportive role in deepening our understanding to select a case and identify attributes of interest first. Moreover, the instrumental case study conducted by Wakeman (2021) at the University of Northern Colorado explored 12 public school teachers' perceptions of mandatory professional development (PD) during times of educational reform efforts in the state of Colorado. The participants in this study represented five unique school districts in suburban and semi-rural settings who had experienced 14 hours or more of mandated PD on a single topic in the past 24 months and had at least five years of classroom experience. Two research questions guided this case study: 1) What are teachers' perceptions of professional development that is mandated as part of a district-wide instructional improvement initiative? 2) What do teachers say they need in mandated professional development to increase the likelihood of improving their instruction? The data collection method included 45-60 minutes of individual, in-depth interviews with questions that were informed by PD elements, adult learning theory, and self-determination theory. A hybrid approach to thematic data analysis was used to identify final themes which were aligned to direct quotes that created teacher participants' views. The findings of the study reveal that many of the teachers in this study had unfavourable perceptions of professional development as mandatory. Respondents shared barriers they faced in realising and implementing the required PD and described the essential features, thoughts, and planning they wanted to be embedded in their schools and districts. This suggests that by employing the instrumental case study, I would explore and understand how the participants in this study explore the use of ICT in ODL programmes at BOU. Based on this study, transferability is possible since an instrumental case study produces a thick description of the case (Conerly, 2020). Demuth (2018) asserts that the researcher's use of an instrumental case study allows for the transfer of results based on suitability from one case to another. In addition, Battaglino (2022) claims that detailed

information is provided through instrumental case studies, increasing its adaptability and breadth. Likewise, when compared to other research methodologies, the data gathered from this study (which is on how BOU students, lecturers, and LMS officers explore the use of ICT in ODL programmes) is significantly richer. Thus, this study employed an instrumental case study because it concentrates on one situation. This provides a researcher with the potential to produce a lot of data. Thus, to focus on one instance of the phenomena, which is the use of ICT in ODL programmes, explore the phenomenon thoroughly, and produce a significant amount of data, an instrumental case study was used. In addition, Gaya, and Smith (2016) claim that an instrumental case study offers fresh insight into previously accepted ideas. Additionally, it demonstrates the misconceptions surrounding the concept as well as the difficulties the researchers confront, and it is more truthful regarding the concept. This case study facilitated comprehension of why BOU students, tutors, and lecturers are not excelling in the LMSs.

3.3.4 Strengths of a case study research design

In addition, Creswell and Miller (2000) claim that the case study research design has a rich description. As a result, the outcome of qualitative exploration is therefore richly descriptive. Likewise, Merriam and Grenier (2019) support Mlaba (2020) that words and pictures, rather than numbers, are used to convey what the researcher has learned about the phenomenon. Similarly, Erickson (2012) agrees with Reissner and Whittle (2022) that data is presented in the form of quotes from documents, field notes, and participants' interviews. In a qualitative research design, issues can be examined in detail (Dorfman, 2023). In other words, interviews are not restricted to specific questions and can be guided/redirected by the researcher in real time (Kebede, 2019; Wilson, 2022). This implies that the research framework and the direction can be easily revised as new information emerges (Safdar *et al.*, 2016). According to Maree (2015) and Ackermann and Eden (2020), the case study research design is a strategy or plan

that expands beyond the basic theoretical assumptions to specify the participants to be used, the information-gathering techniques to be employed, and the data exploration to be carried out. Similarly, this research design offers the ability to involve several subjects at a single point in time to achieve data saturation (Braun & Clarke, 2021b; DeJonckheere & Vaughn, 2019). In addition, Rassel *et al.* (2020) cite research showing that various variables can be measured, and current datasets can be correlated.

3.3.5 Limitations of case study research design

Siponen *et al.* (2020) emphasise the flaws in the research design because there are no effective controls. Further to this, the equipment used in the research design is outdated or inappropriate (Busetto *et al.*, 2020). As a result, Lakens (2022) declares that if the statistical analysis is too simplistic or has not received adequate consideration it is unlikely to yield accurate and clear-cut methods. This study used reflective activity, focus group discussion, and semi-structured interviews for data generation. Thus, this research design was qualitative and comprised non-interactive (concept analysis and historical analysis) and shared studies (ethnography, case study, phenomenological, or grounded theory) (Khaldi, 2017). In addition, Hew (2016) concurs with Garcia-Ruiz *et al.* (2023) that a case study's weaknesses include that it is based on a single case (the exploration of the use of ICT in ODL programmes) which could involve many people as participants. Similarly, Clark *et al.* (2021) argue that many authors see the case study as an irregular social research design. In the same vein, Rahman (2018) claims that some limitations and obstacles might be encountered in a case study. Furthermore, Scheffler *et al.*, (2022), declare that one of the downsides of a case study is that it is based on a single case that may involve numerous people as participants. Even though it depends on participants' perceptions to overcome a case study's constraint, I relied on literature that presented different perceptions on the topic being studied. Participants provided information based on their perceptions and

the literature expanded on that information by providing more information on similar difficulties encountered globally. Rather than assessing the data in the case study, I let it speak for itself (Befani & D'Errico, 2020). Rather than paraphrasing, I used direct quotations to demonstrate transparency (Massaro *et al.*, 2021). As a result, I was able to do the exploration without interfering with the data generated.

3.4 Research Paradigm

A paradigm is defined as an interpretative framework that is guided by a set of beliefs and feelings about the world and how it should be understood (Guba, 1990). These beliefs might either be ontology, epistemology or philosophical assumptions (Denzin *et al.* (2006); Gall *et al.*, 1996). A research paradigm is a philosophical worldview with underlying assumptions about the nature of knowledge and the cosmos that underpin the research endeavour (Kuhn, 1962). This includes data analysis strategies, which have major implications for the choice of procedures and the interpretation of results. Additionally, interpretivism is a research paradigm emphasizing the understanding of human behaviour through the subjective meanings individuals assign to their experiences and social contexts (Alharahsheh & Pius, 2020). This research had as its theoretical starting point the idea that people create their realities in response to their experiences with other people and their surroundings. This study relied largely on the interpretivism paradigm. By shifting to this paradigm, researchers may probe participants' judgments down to their underlying experiences, motivations, and social narratives. The interpretivism paradigm, which denies the existence of an objective reality, is predicated on the philosophical notion that there are several competing realities (Crotty, 1998). The paradigm adds to our understanding of human phenomena by stressing the significance of the setting and point of view in making sense of events and actions.

Interpretivism was chosen for this study because it emphasizes the understanding of human behaviour through the subjective meanings individuals attribute to their experiences (Nelson *et al.*, 2014). Unlike other paradigms that may seek objective realities, interpretivism recognizes multiple competing realities shaped by individual perspectives and contexts (Crotty, 1998). To examine the complex challenges facing the students, tutors, and a BOU lecturer, several factors highlight the viability and usefulness of the interpretivism paradigm, which led to its selection for this research. This paradigm allowed for an in-depth investigation of the said challenges, which is crucial for appreciating the nuances of social, economic, and cultural factors that either encourage or discourage the participants when it comes to ICT in an ODL programme (Cohen *et al.*, 2007). It also simplified the research's overall holistic approach, which accounted for the nuances and complexities of human behaviour and its societal repercussions. The fundamental argument against the interpretivism paradigm is that it is too reliant on individual stories, which might introduce bias and prevent the results from being generalised (Bryman, 2012). The proponents of this paradigm argue, however, that considering different viewpoints and context-specific realities provides a deeper and more complex picture than a simply objective approach could (Denzin and Lincoln, 2011). Bryman (2012) and Denzin and Lincoln (2011) have a debate that is pertinent to this area in which Bryman criticises the possible subjectivity and bias in interpretive investigations. Denzin and Lincoln (2011), on the other hand, support the variety and depth of data that can be gathered using this strategy. Examining these viewpoints, the study acknowledges the interpretivism paradigm's potential drawbacks but argues that the nuanced understanding it fosters is essential for examining the challenges in ICT adoption in an ODL programme at BOU.

3.4.1 Ontology

Moreover, Martín-de Castro *et al.*, (2019) support Creswell (2014) that ontology is defined as a concept concerned with the existence of and the relationship between different aspects of

society such as social factors, cultural norms, and social structures. For Bhatti and Sulaiman (2022) as well as Al-Saadi (2014) ontology is the assumptions we make about the kind and nature of reality and what exists. In addition, Zoirov (2021) and Berryman (2019) also define ontology as the nature of the world and what we can know about it. As ontology is defined as the nature of reality, this study relied on the idea that participants' lived experiences and perceptions of the world should be used to evaluate reality. As a result, this kind of ontological standing assumes that there are different realities, each of which is created by perception and experience. Furthermore, Pérez-Vázquez and Bonilla-Campos (2023) as well as Javillonar and Elma (2021) support each other when they claim that perceptions/experiences are continuous. Consequently, continuity is viewed as an ontological issue in a narrative inquiry. Further to this, Mayo (2022) argues that a narrative inquiry can reveal in-depth details of a situation or life experiences/perceptions. In addition, the purpose of the study conducted by Luo (2011) at Central China Normal University was to review qualitative research in the field of educational technology through the lens of ontology, epistemology, and methodology. The findings of the study reveal that three qualitative research methods are prevalent in the field of educational technology: ethnography, case study, and design-based research. To ensure ontology in this study, I used a case study and qualitative research, considering its characteristics, strengths, and limits. As a result, I overcame the constraints and capitalised on its strengths to secure the ontology of this study. This suggests that ontology in this study is aligned with Knowles' attitude toward social perception.

3.4.2 Epistemology

In addition, the term epistemology comes from the Greek word *episteme*, which means knowledge. Epistemology is the philosophy/theory of knowledge, or how we come to know things (Pritchard, 2023). Moreover, Creswell and Poth (2016) as well as Creswell (2014) define

epistemology as the nature of knowledge. This study was based on school managers' perceptions of how they construct and interpret meanings and symbols in the context in which they are located (Skinner *et al.*, 2020); Ziakas & Boukas, 2014). In addition, Krauss (2005) concurs with Absolon (2022) that epistemology describes the methods employed to acquire knowledge while epistemology discusses how we come to know that reality. Further to this, Antwi and Hamza (2015) claim that epistemology poses the following questions: What is the relationship between the knower and what is known? How do we know what we know? What counts as knowledge? As a result, the constructivist viewpoint holds that knowledge is established through the meanings attached to the phenomenon under study, that researchers interact with study participants to gather data, that inquiry alters both the researcher and study participants, and that knowledge is context- and time-dependent (Antwi & Hamza, 2015; Levitt *et al.*, 2017).

Moreover, conducting a qualitative study suggests that researchers try to get as close to the participants as feasible within an epistemological premise. Since these contexts are crucial for comprehending what participants are saying, qualitative researchers typically conduct their studies where respondents live and work (Creswell & Poth, 2016; Ormston *et al.*, 2014). In ensuring epistemology in this study, I spent more time in the field to get to know and understand the participants and the phenomenon I was exploring, namely, the participants' use of ICTs in ODL programmes. I used an instrumental case study which was relevant to the study. Mathorne *et al.*, (2020) argue that an extended stay at the research location is necessary for a good case study. Thus, by cooperating with the participants and spending time in the schools with the participants while gathering data, I tried to reduce the distance or objective separateness (Dutta *et al.*, 2019; Salvador, 2016) between myself and those under inquiry. This suggests that

epistemology in this study is aligned with knowledge perception because its processes require scholarly knowledge.

3.4.3 Axiology

The word axiology originated from *Axia*, a Greek word that signifies quality, value/esteem, which is a hypothesis of significant worth (Anwar *et al.*, 2020). Danaher (2021) agrees with Dewantara and Efriani (2020) that axiology is the branch of philosophy that studies values and how those values come about in a society. Further to this, Castleberry and Nolen (2018) agree with Creswell (2014) that all researchers bring value to the study, but qualitative researchers make their values known in a study. In addition, Anwar *et al.* (2020) claim that axiology intends to seek answers like: What is esteem? Are esteems fundamental? What is ethical quality? Whether profound quality is defined by our activities or our considerations? What is beauty? What is wonderful? The latter studies further declare that axiology addresses our reasoning about how the students, tutors, and lecturers at BOU engage with ICTs in their ODL programmes. Likewise, Skowronski (2018) argues that axiology addresses one of the fundamental needs of people, the requirement for aesthetic satisfaction.

3.4.4 Strength of the interpretive paradigm on perceptions

In addition, Rose and Johnson (2020) claim that the main strength of the interpretivist approach is that it is more humanistic for political study when compared to the positivist approach. The latter studies further insist that instead of limiting the research questions to what is, the interpretivism approach through qualitative research understands the nature of human emotions. Similarly, Pham (2018) states that the interpretive approach diversifies the views, and the researcher cannot only describe objects, humans, or events but also needs to deeply understand the variables and data in the social context. By using qualitative research methods,

interpretivists can ensure a high level of validity in their research findings (Hays & McKibben, 2021). In addition, I sought to comprehend the participants' inner lives, which necessitated their lived experiences in the use of ICT in ODL programmes. Likewise, the sociocultural element arises because it invites attitudes, thoughts, and viewpoints on phenomena (perceptions). This study attempted to elicit participants' inner thoughts about enacting and comprehending technological and pedagogical knowledge in ODL programmes. Furthermore, in this study, I was able to see how participants interacted throughout the interviews and noted their displayed grasp of the role performed by technological knowledge during the enactment process. In this manner, I was able to see how participants conveyed their opinions about the set of questions designed to elicit their perceptions/experiences.

3.4.5 Limitations of Interpretive Paradigm

One of the weaknesses of the interpretive paradigm is that the ontological view tends to be more subjective than objective (Rahman, 2017). Thus, the findings of the study may draw from the researcher's beliefs and biases (Kivunja & Kuyini, 2017). In this study, this could be addressed by describing data, displaying the process of data analysis, and describing how I reached the conclusions (Bertram *et al.*, 2018). However, Kivunja and Kuyini (2017) assert that one of the strengths of the interpretive paradigm is that by using diversified views to explore the phenomenon, the researcher is not limited to describing objects, events, or humans, instead they can deeply understand them in a social context. Similarly, in this study, the interpretive paradigm helped me to not only understand the perceptions of the participants when using ICTs in ODL programmes but also the challenges that they encountered with the LMS. Moreover, the main disadvantages associated with interpretivism relate to the subjective nature of this approach and the large possibility for bias on behalf of the researcher (Punch & Oancea 2014; Thorne, 2016). Likewise, Ormston *et al.* (2014) affirm that primary data

generated in interpretivist studies cannot be generalised since data is heavily impacted by personal viewpoints and values.

Furthermore, the purpose of the study conducted by Pervin and Mokhtar (2022) in Malaysia was to give a high-level overview of the interpretive research paradigm. The study began with a summary of the components of the interpretivist research paradigm, with an emphasis on ontological and epistemological viewpoints from interpretivist researchers. Next, it addressed the challenges interpretivist researchers face while conducting research under the interpretivist paradigm and what characterised the components in this paradigm. The findings of the study reveal that the interpretivist paradigm is not devoid of its own set of obstacles and challenges. Moreover, not all participants or data sources might be equally reputable, fair, or understandable regarding the phenomenon (perceptions) of interest, or they may have an unspoken political agenda, which can lead to misinformation or erroneous perceptions according to the discussed literature. As a result, to overcome these challenges I made sure that I had sufficient funds and created enough time to search for the whereabouts of the participants until I reached them. I spent more time with the participants to build mutual trust so that participants would likely provide complete and honest data on their challenges in the use of ICTs in their ODL programmes. In addition, I ensured that I was not judgemental and influenced by biased contextual notions. Consequently, my generated data was trustworthy. The choice of an appropriate case study was paramount for this study.

3.5 Population and Sampling

3.5.1 Population

A population is defined as the aggregate or total of the subjects that conform to a set of specifications. The term "population of study" in research methodology refers to the total group of people or things that the investigation is focused on (Stratton, 2021). The target population of a study refers to the entire group of individuals, events, or objects to which the research aims to generalise its findings (Bryman & Bell, 2015). This demographic also included academics, tutors, and students who are associated in one way or another, with the BOU ODL programme. To capture the diversity of experiences, viewpoints, and views that existed within this group, this study examined the different experiences of the students, tutors, CTETL officers and the sole lecturer at BOU. It sought to elucidate the intricate network of enabling and restricting elements that shaped the decisions made by this cohort.

Furthermore, it is the total number of items or objects that fall under the universe of the research study (Yaya, 2014). By 2019 Botswana Open University had a population of 12058 (Secondary Students) and 2640 (Tertiary Students). The staff composition was made up of 176 (non-Academic Staff), 49 (Academic Staff) and over 60 (Part-time tutors).

3.5.2 Sampling

Sampling, according to Saunders *et al.*, (2019) is a crucial stage in any research process. It is the act of choosing a portion of the targeted population for participation in the study, from which the results would be extrapolated to the entire population. Depending on the nature of the research issue and the study's methodological framework, several sampling procedures may be used. Sampling is about deciding on the population, setting, and events to take place in the study (Bertram & Christiansen, 2014). Sampling is an act that allows for the selection of a suitable representative part of the population, in the case of this study, MEdEL students who

were enrolled as either active or non-active, custodians of the LMS, lecturers, tutors, and administrators. The literature depicts that sampling helps the researcher conclude participants from a sample which in turn helps them to reach the desired results (Bertram & Christiansen, 2014).

A convenient purposeful sampling technique was used in this study to select 21 participants to take part in the study. This sampling procedure entails selecting individuals and sites to learn and understand the central phenomenon (Creswell 2008). The data collected is meant to contribute to a better understanding of the theoretical framework that guides the study (Etikan *et al.*, 2016). The researcher, in this case, identified participants based on the fact that they are currently enrolled in an online distance learning programme, are either active or non-active, and willing to take part in the study. Furthermore, the participants had to be fully engaged in the online programme. Creswell (2014) states that the researcher makes a deliberate choice of the participants, based on the qualities the participants possess. For this study, only 21 participants participated. It should be noted that since data was conducted during the COVID-19 outbreak, we had to get the go-ahead from the sites where the participants were to verify the participation. Therefore, from all the sites that were targeted, the agreed participants came up to be 21 and they did honour their availability. These included the following:

Table 3. 1 Participants of the study

Participant	Number	Role
Active MEdEL student	7	Students currently active on the system
In-active MEdEL student	7	Students on the system but in-active
BOU officer	2	They deal with and manage the LMS
Tutor	2	They assist registered students with tasks
BOU lecturer	2	Facilitators of online courses

Administrator	1	The one who oversees the activity of students on the LMS
TOTAL	21	

3.5.3 Research setting

The study took place in various places in Botswana. It covered 5 regional areas in the country where participants were located. This is due to the nature of the programme where students are based in towns, villages, and even remote areas of the country.

3.6 Data collection instruments

3.6.1 Interviews

Creswell (2014) states that an interview is a person-to-person interaction between two or more people with a specific purpose. Interviews are a method of collecting data through planned questions in person-to-person interaction (Creswell, 2014). Cohen *et al.*, (2003) define an interview as a two-person conversation initiated by the interviewer for a specific purpose to obtain information about specific research. It can either be done face to face or through other mediums such as the telephone or video calls. This method allows the participants to immediately give feedback when they are participating. The questions used were semi-structured questions which allowed the researcher to probe and obtain further information that would be beneficial for the study. Semi-structured interviews are a popular technique used in qualitative research, where a schedule of questions is created that is sufficiently open-ended to allow possible expansion, re-ordering and digression on new avenues for further probing to be undertaken (Cohen *et al.*, 2003).

Interviews allow the researcher to collect as much data as possible from the participants with greater understanding. Interviews are more personal, and the researcher is in full control of the sessions. However, when a large volume of interview data has been collected, it might be

tiresome for the researcher to analyse. Literature also states that interview data may be deceptive and only present data that the interviewee wants the researcher to hear. In this study, the lecturer, LMS custodians, tutors, as well as administrators were interviewed (see Appendix A and B). This entailed one-on-one interview sessions to obtain first-hand information from the said participants about the students, based on their experiences when dealing with them.

During the interview data collection process, to avoid biases, a colleague from another department/school was appointed to conduct interviews on behalf of the researcher.

3.6.2 Questionnaires

These are a set of questions that are given to participants to gather information for the study. It may be argued that questionnaires are more suited for quantitative data gathering rather than qualitative research, however, open-ended questions may allow respondents to provide unique answers as opposed to a list of predetermined responses to select from (Creswell, 2014). This approach allows the respondent the freedom to say how they feel about the topic, allowing for unforeseen opportunities or issues. Eckerdal and Hagstrom (2016) state that a qualitative questionnaire, like other qualitative methods of collecting data, forms a record of memories, opinions, and experiences.

In this study, an electronic open-ended questionnaire was developed (see Appendix C) and distributed for completion to the 14 active and non-active students via email. E-questionnaires are methods of collecting data through the web. According to Karaganis & St-Denis (2012), e-questionnaires help the researcher collect vast data from participants since they cover a wide range of areas where there is internet connectivity. This was a better approach for my study as I did not intend to collect too much information, hence the e-questionnaire was not too long.

The use of web questionnaires was also in line with the fact that the MEdEL course is online and therefore students would easily adapt to it.

During the data collection process, a colleague was appointed to assist in the data collection process on my behalf. The students used were mostly first-year Masters students with who I had little or no interaction, as I am currently working with students who are enrolled in other programmes that are offered by the department.

3.6.3 Document Review

In qualitative research, document review entails obtaining information from existing records about participants or sites. In the case of this study, records of students' performances and personal information were collected. Data were collected from these records, about the site (BOU), and in some cases the location where the students reside. Newspapers, policy documents and other sources available were used to collect data (see Appendix D). According to Creswell (2014), the use of valuable information helps the researcher to better understand the central phenomena. Documents represent a good source of word data for qualitative research (Creswell, 2008). These documents are normally in a language that is easy to understand and ready for analysis without transcription. However, there is a possibility that archives are placed in distant places that the researcher may not have access to. It might also be difficult to locate information, some may be incomplete and not provide accurate data for research.

3.7 Data analysis

Data analysis is a process where data collected is reduced and grouped according to themes, providing meaningful insights. There are several approaches to data analysis and these include ethnographic, narrative, phenomenological and constant comparative approaches (Kawulich, 2004). The open-ended nature of data in qualitative research is somewhat of a challenge since

data is collected using various methods such as interviews, transcripts, document reviews, and questionnaire responses (Nolen & Castleberry, 2018). Thematic Analysis (TA) is a better strategy to analyse and report themes with the data collected. Nolen & Castleberry (2018) state that a theme reduces data flexibly, in a way that dovetails with other data analysis methods. In this study, thematic analysis was employed to analyse data from the interviews, e-questionnaires and document analysis which was informed by the constructivist approach. Thematic analysis was used to analyse the interview transcripts and the documents (BOU policies, records, etc.) that were reviewed in this study. According to Creswell *et al.* (2007), thematic analysis entails identifying, analysing and reporting themes that appear in the data acquired. The researcher must become acquainted with the data by revisiting the data from time to time to understand and be able to interpret it well (Braun & Clarke 2012). Furthermore, Braun & Clarke (2012) state that thematic analysis is a flexible and useful research tool that provides a rich and detailed, yet complex, account of the data.

Thematic analysis is suitable for analysing data generated from semi-structured interviews (Evans & Lewis, 2018) and consists of specified steps in identifying themes and patterns within a data set (*ibid*). By its nature, thematic analysis requires more involvement and interpretation of the researcher, furthermore, it moves beyond moving through phrases and words and focuses on describing and identifying both explicit and implicit ideas within data as themes (Guest *et al.*, 2012). In this study, a thematic analysis was conducted in six steps. Firstly, the researcher organised and prepared data by transcribing audio-recorded interviews. Secondly, intensive reading of verbal transcripts and asking participants to verify transcribed information to make sense of the data collected. Thirdly, the researcher then assigned codes to transcribed material. Fourthly, related codes were put together to form a theme or category. Each category was then labelled. In the fifth step, findings were discussed concerning themes. Lastly, research findings were integrated and converged based on the literature.

The advantage of thematic analysis is that it is suitable for large amounts of data sets. Themes and codes can be developed from data. It is only applicable to research questions that go beyond the experience of an individual (Evans & Lewis, 2018). The disadvantages of thematic analysis are that if the researcher is not careful nuanced data can be missed and thematic analysis may be used in a vacuum. If TA is not based on a theoretical framework, it can limit the interpretive power. TA does not allow researchers to make technical claims regarding language use, unlike narrative or discourse analysis. The flexibility of thematic analysis makes it difficult for the researcher to focus on aspects of data. Lastly, thematic analysis makes it difficult to make sense of the continuity of data because of its focus on identifying themes in the data at hand (Guest *et al.*, 2012).

In the meantime, the documents that were reviewed were analysed descriptively by revealing what each document entails and how the documents or policies affected the study.

3.8 Ethical considerations

Research undertaken that involves people interacting with each other has an ethical dimension (Stutchbury & Fox, 2009). Before the collection of data for this study, I applied for ethical clearance from the University of the Witwatersrand ethics committee. I received feedback, reacted to it and submitted my application for a second time before the study was approved. I also had to seek permission from the Botswana Open University to use their site, different regions, and their students and staff.

The students and other participants received letters with information about the study and consent forms which they had to complete. In the case of the e-questionnaire, the study information and the consent were embedded in the digital form they received via email which had a check box they had to tick to show that they gave consent. By ticking the check box that sought consent, it meant that they agreed to take part in the study. In these letters, information

explaining how the study was to be conducted, was detailed. Participants were assured that they were free to withdraw from the study at any time if they so wished and they were also informed that the information that they shared would remain confidential. Pseudonyms were used to protect the identity of individuals, locations and institutions. Data collected was kept on a computer that was password-protected, and transcribed scripts and questionnaires will be kept in a lockable cabinet for 10 years before being disposed of.

3.9 Limitations of the study

The limitation that I faced during my study was access to the participants from whom I was collecting data. Akanle *et al.* (2020) state that limitations of a study are those factors that may impact or challenge the process of the study. The authors further explain that while a study may be well conducted or planned, there are limitation issues that may be methodological or theoretical that the researcher could face during the data collection process. According to Theofanidis and Fountouki (2018), these limitations are normally out of the researcher's control and are associated with funding constraints, the chosen research design, or other factors. During the period when data collection was taking place, there was an outbreak of COVID-19. This had a significant effect on the data collection process. The application for use of BOU, its staff and students was approved in 2021 and ethical clearance was approved in August 2021. However, despite this approval, because of COVID-19, there was a national shutdown in all sectors including universities and schools in the country which meant that there was no access to students or staff who participated in the study. In April 2022, there was a gradual return to the places of work, which meant that arrangements for the interviews of BOU staff could commence while access to students remained forbidden. My first attempt at sending the e-questionnaire to students via email, with the assistance of a staff member as previously indicated, was done in October 2021. Email usage by nature did not require contact with students and since I planned to use an e-questionnaire, this seemed appropriate. During that

time, due to the national shutdown, no student responded to the e-questionnaire sent via email. I took the initiative to ask the assisting staff member to assist me in sending WhatsApp messages to student participants and there was still no response. After two weeks, another message was sent to remind them, and students did not respond. In the November 2021 period, another attempt was made and students still did not respond. This was done by sending emails, calling them, and sending WhatsApp messages. At this point, only 2 students responded to the e-questionnaire, and this was done by active students while non-active students did not respond at all.

In May 2022 students were gradually allowed to start interacting with various areas of the institution. During this time, I consulted with my supervisor to change from an e-questionnaire to a hard copy questionnaire for data collection, seeing that there were only 2 students who responded to the e-questionnaire. This meant that an around-the-country trip had to be taken to collect data from students using a questionnaire. I embarked on the journey with a colleague who assisted in the distribution and collection of the questionnaires. This process lasted two weeks during which questionnaires were distributed and collected before we returned to Gaborone.

For the officers who were interviewed, interviews were done outside the normal working hours. Because of the COVID-19 protocols, the interviews were done virtually using Google Meet. Times were arranged and sometimes, due to other commitments, they were rescheduled to accommodate participants. In some instances, connectivity was an issue with video feedback which was not always clear. In addition, since very few previous studies have been conducted on the area of research in Botswana and in general, it was difficult to obtain literature on the area of research.

3.10. Trustworthiness

The following five criteria: authenticity, credibility, confirmability, dependability and transferability are used to define trustworthiness in qualitative research (Creswell 2014).

3.10.1 Authenticity

The gathering of information for this study was authentic by dealing directly with participants. I gathered and presented stories that the participants gave in their own words. Since I gathered information from participants, particularly students, through collecting data using a questionnaire, I was able to make meaningful interpretations of what they were sharing.

3.10.2 Credibility

Credibility is defined as confidence that is based on the truth of the research findings (Anney, 2014). Credibility defines whether or not the findings represent information that is gathered from the participants (original data). Anney (2014) states that a researcher must establish rigour of inquiry by adopting credibility that entails strategies such as prolonged and varied field experiences, flexibility, triangulation, member checking, etc.

I embarked on visiting participants where they were based, thereby immersing myself in the world of participants. This helped me gain insight into the context of the study. For example, those who were in remote areas helped me to experience how they dealt with being in online and ODL programmes. For triangulation, I used different methods of collecting data. Member checking is another strategy that I used to ensure that the data and interpretations were tested as they were derived from participants.

3.10.3 Confirmability

Confirmability refers to member checking which deals with asking participants to correctly confirm the information that they had given. This helped to ensure that I interpreted the

information that they had given. The member-checking strategy allowed for a collaborative or coherent review of information to ensure that the correct interpretation of data was done effectively. The procedure of collecting and interpreting data was also reviewed by my supervisors to ensure that the correct process was followed.

3.10.4 Dependability

This refers to the stability of the findings over a period. It involved participants evaluating the findings, interpretations and recommendations. It was supported by an audit trail which consisted of raw data from the interview, raw transcripts, questionnaires, codes and themes found. These were audited for sincerity.

3.10.5 Transferability

This is described by Shenton (2004) as the extent to which the findings of the study can be applied to other situations, demonstrating that results can be applied to an even larger population and providing full details of how the findings were reached.

3.11. Summary

The chapter has outlined the research method and design that was used in the study. It has also outlined the research paradigm. The population and sample size as well as techniques have been extensively discussed. The research setting and data collection instruments, ethical considerations, limitations of the study, and trustworthiness were discussed.

CHAPTER 4: DATA PRESENTATION

4.1 Introduction

The previous chapter provided a detailed presentation of the research methodology, where the research approach, design, and research paradigm were discussed. The sampling procedure and the study population were also discussed. In this chapter, data is presented as gathered from participants. The study adopted a qualitative approach because of its nature of understanding student practices with the use of Information and Communication Technology (ICT) in Open and Distance Learning (ODL). According to Mayer (2015), a qualitative study tends to take issues from their natural settings and tries to make sense of them, according to the way people understand or experience them.

Since the study was about exploring the use of ICT in ODL at Botswana Open University (BOU), the qualitative approach was deemed relevant for interpreting the events as they unfolded. The ODL in this instance was given the same treatment as e-learning because they are synonymous. The study aimed to find challenges experienced by students who are enrolled in online programmes and challenges faced in familiarising themselves with the online system of BOU. The focus is on students enrolled in Master of Education, and Educational Management and Leadership (MEdEL) courses. A social constructivism approach considered participants' experiences and their understanding of the world context. This is to say, culture and context as created in their knowledge, reality, and learning.

The following research questions guided the study:

1. What are MEdEL students' perceptions of e-learning in ODL?
2. What are the operational practices of e-learning in the MEdEL Programme?
3. What are MEdEL students' technological knowledge and skills towards e-learning?

4. What effective engagement strategies are used by online lecturers and tutors to motivate students to learn?

4.2 Summary of procedure

Data was collected through the following: Due to the outbreak of COVID-19, interviews were virtual and one-on-one with the participants. The Interviews (see Appendix A) were conducted with employees of BOU, these included officers from The Centre for Technology–Enhanced Learning & Teaching (CTELT), formerly called the Centre for Instructional Technology (CIT), and with a lecturer and tutors (see Appendix A). The interviews used open, probing questions (see Appendix A & B). Sah *et al.* (2020) state that virtual communication has facilitated the connection between gatekeepers and researchers and equipped them with guidelines that address confidentiality, anonymity, and autonomy of research during data collection. They further point out that there is a need for researchers to play their role as researchers and leave that role to gatekeepers. Roles and limitations need to be clear during this process (Sah *et al.*, 2020). The interviews were recorded and later transcribed with the permission of the participants. During the interview, the researcher probed and sought clarification to fully understand the responses.

Data was also collected using a questionnaire. A questionnaire was distributed to students through an electronic medium, an e-questionnaire. A total of 14 students enrolled in the MEdEL programme were purposely selected and this comprised of both active students (those participating in all activities of the programme) and non-active students (those enrolled in the programme but who had not met some of the academic activities or set deadlines for activities of the programme). Only 13 students were able to respond to the questionnaire. The e-questionnaire link was first sent to students via email. This was followed by a WhatsApp message to alert them of the e-questionnaire link sent to their email. Students' daily life

encompasses the use of WhatsApp and according to Rahmadi (2020), the daily life context includes their experiences, familiarity and frequency of using WhatsApp. Furthermore, Susilo & Sofiarini (2021) explain that learning through the use of social media is associated with student support. The authors further warn that there may be misuse of these media and this can have a substantial impact on the learning process. The use of social media can also be used to evaluate learning activities and because of its daily use, students can respond promptly (Rahmadi, 2020). The students' contacts were acquired through the student database which is housed in the Office of the Academic Registry. With the help of the Faculty administrator, a request for information was made and permission was granted. Costley (2014) states that using technology causes students to be more engaged, and further allows students to retain information because most of the current generation are regarded as digital natives. The link contained information that expressed confidentiality and allowed students to give consent for taking part in the study. The e-questionnaire was sent at the beginning of October 2021. During the first two weeks, no response was received from the students. Another email was sent to remind them of the link. By November none of the students had responded. I then requested the faculty administrator to individually call the students, who then received feedback that they would participate. Some students indicated that they wished to print and respond to a hard copy which they would send to me. A copy was sent, however, only one student responded. I then decided to travel around the country to collect data from the students. During this time there were strict restrictions that prevented face-to-face contact or interaction with the students. Furthermore, there were movement restrictions due to the outbreak of COVID-19. To deal with issues of bias, with the researcher being a member of BOU, participants were informed that participation was voluntary and that should they feel a need to withdraw from participation, they were free to do so. Participants were also informed that participation in the data collection

was not going to have any effect on their academic studies and no incentives were to be expected.

In February of 2022, I embarked on an around-the-country trip where I was following students to distribute hard copy questionnaires. A schedule (see Appendix C) with times and places was shared with students. During the trip, students showed up and completed the questionnaire. Where students needed more time, I allowed them to keep the questionnaire and let me know when it had been completed and was ready for collection.

The final data collection came from the documents reviewed. The documents in this case included policy documents, reports on the BOU strategy, etc. An analysis template (see Appendix D) was used to guide the collection and coding of the data. The analysis of the documents constituted the coding of content to create themes, as is done in interview transcription and focus group analysis (Bowe, 2010).

4.3 Discussion of the Instruments

The interview questions comprised 13 semi-structured questions which were conducted with the Centre for Technology Enhanced Learning and Teaching (CTELT) Officers working at BOU, a lecturer, and tutors. Semi-structured interviews allow the researcher to have a set of questions which leaves room for them to probe the participants for responses (Peters & Halcomb, 2015). This provides information on participants' insights into their experiences, opinions, and perceptions (Peters & Halcomb, 2015). The collection of data using interviews was scheduled but the arrival of COVID-19 meant that conducting face-to-face interviews was impossible. The use of virtual tools or meetings then became necessary. The interviews were conducted via Google Meet which allowed recording of the interviews that were later transcribed to obtain exact, verbatim responses of the participants. The participants were interviewed one-on-one since the university had closed and the staff were asked to work from

home. Furthermore, movement restrictions also meant that the researcher could not arrange physical meetings with participants.

When it came to the issue of collecting data from the students, they were given a questionnaire that comprised both close-ended questions (for demographic information) and open-ended questions. There were 4 close-ended questions and 15 open-ended questions.

McGuirk and O'Neill (2016) state that qualitative research tries to find out how people experience processes, events, and places differently from their reality, created from multiple understandings and filtered using multiple frames of understanding and systems creating meaning. Furthermore, the open-ended questions allow flexibility, which is important. According to Eckerdal and Hagstrom (2017), questionnaires are designed to allow the participants to answer objectively and neutrally. They further express that questionnaires are easy to use when participants have memories, opinions, and experiences that they can share. However, some critics state that the use of a questionnaire ensures that the researcher includes a detailed outline of what the respondents need to do and supplementary or following questions cannot be asked (Eckerdal & Hagstrom, 2017). Mayer (2015) states that flexibility can lead to uncertainty. Also, the research can be influenced by the researcher's subjectivity.

The final data came from a review of policies that guide teaching and learning and the use of technology at BOU. These policies were selected for their relevance to the participants and the study.

4.4 Findings

The findings of the study sought to respond to the main research question which was to “explore the impact of ICTs in an Open Distance Learning institution, focusing on Botswana Open University”

4.4.1 Interview findings

The research questions (RQs) that the interviewees responded to were:

RQ2 – What are the operational practices of e-learning in the MEdEL Programme?

RQ3- What are MEdEL students’ technological knowledge & Skills for e-learning?

RQ4 - What effective engagement strategies are used by online lecturers and tutors to motivate students to learn?

The interviews were carried out with officers at BOU for CTETL who are the custodians of the learning management system. Furthermore, other participants were lecturers and tutors who were engaged at the university on a full-time and part-time basis, respectively.

During the interviews the following themes were identified from the data collected: *Challenges of implementation of the online programme; the adoption of new technologies; the utilisation of the Learning Management System (LMS) at BOU; Learner support given by BOU or strategies employed by BOU*. Table 4.1 below shows the themes from the interviews.

Table 4. 1 The themes from the interviews

Theme	Elements identified
The challenges of the implementation of the online programme	• The little or lack of resources • The little or lack of human resources • The calibre of students enrolled
The adoption of new technologies	• The training in the use of technology • The utilisation of the Learning Management System (LMS) at BOU
Learner support given by BOU or strategies employed by BOU	• The strategies employed by tutors and lecturers at BOU

	• The strategies employed by officers working on the LMS at BOU
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4.4.1.1 Theme 1: The challenges of the implementation of the online programme

This section presents the findings derived from participants' responses to the sub-question: What are the operational practices of e-learning in the MEdEL programme?

The views of the two CTELT officers on the operational practices of e-learning in the MEdEL programme

The CTELT department, which is responsible for the management of the learning management system at BOU, outlined that there were challenges faced in the implementation of e-learning in Open and Distance Learning (ODL). One of the challenges that they faced was infrastructure. CTELT Officer 1 stated, *“One, I’ll start with the issue of infrastructure. When we started, even up to now there are issues with infrastructure. When you implement new technologies, you need to have a certain infrastructure in place, this includes the servers, the computers which are used by all involved in the learning process from here at the university to the end-user, including even the support side.”* CTELT Officer 1 further indicated that even network connection is an issue that they faced. *“Secondly, now comes the issues of bandwidths, that is the rate or speed of our internet connection. And this does not only apply to the university, but it is a country-wide issue, looking at our country, internet connection, is, a problem. In some other areas, internet connection is low or even does not exist at all, while in the urban areas, you’re going to find that it’s a bit, it’s fine.”* This was further raised by CTELT Officer 2, from the same department, who remarked, *“sometimes the network becomes a problem, especially during exams when everyone wants to submit their work and the network gets congested. That is one big challenge that we keep having every time around this time of the year when we have examinations going on.”*

CTELT Officer 2 also added that another challenge was the lack of human resources, both in the centre and in the other sister departments that used the CTETL services, such as the University Assessment Office. CTETL Officer 1 also stated, *“We have issues with staffing, and this has been going on for the past ten years. As the custodian of the Learning Management System (LMS), we are tasked with managing students online, managing lecturers and tutors online, and since 2014 there have been only two staff members carrying these tasks, including training new students and new staff members at BOU.”* CTETL Officer 1 further pointed out that *“because of the load, having to train staff members and students and also maintain the LMS, we end up training them in the basic use of the LMS and not being advanced in our training. Then we are forced to retrain and retrain throughout the year and because we only train on the basic use, the LMS features are not fully utilized.”*

The calibre of students enrolled at BOU was a challenge that the LMS custodians also faced. CTETL Officer 1 stated that *“when content for online is developed by the tutors and lecturers, the content is availed on the LMS, and when the end user is faced with using it or accessing it, they often encounter problems.”* CTETL Officer 1 further pointed out and said, *“I have realized that the problem is the students’ background where they come from. Most of the students have technology skills challenges where you find that even after they have gone through the induction programme, they are still clueless about the use of the LMS. And this is because students who come into the programme are not checked if they have any basic ICT skills.”* He further expressed that the first semester of year one is always a problem. To add to that, CTETL officer 2 said, *“quite a number of students are still lagging behind technologically. Students are then struggling to keep up with the set assessment deadlines and frequently contacting our offices for assistance on the use of features on the learning portal”.*

The next section presents the views of the lecturer:

The views of the lecturer on the operational practices of e-learning in the MEdEL programme

The lecturers in the department are responsible for creating content and ensuring that it is placed on the LMS for the students to access the learning materials. The content ranges from study materials, assignments, exams, chats or forums, and quizzes. The lecturers also ensure that the tutors, who are always available on a part-time basis, also help in the creation of content and take part in the activities that happen online. This then puts them in a better position to respond to operational issues on the institutional online system.

The following data was collected from Lecturer 1 who was available and who was also the acting head of the department. During the preparation of the proposal, the department had two lecturers who were to be interviewed in this study, however, by the time the interviews were conducted, one lecturer was deployed to another part of the university and was no longer part of the lecturing staff. Therefore, only one lecturer was available to be interviewed for this study.

When asked about the challenges that are faced in the use of technology in ODL, lecturer 1 expressed that one of the challenges faced was infrastructure. Lecturer 1 stated that *“infrastructure for e-learning is quite advanced. But there are still problems we face or encounter related to uploading materials onto the learning portal, navigating the learning portal, and when it comes to assessment submission or sessional online examination because we cannot see the student, we do not know whether the student is the one writing the examination, or someone is doing it on their behalf. Due to COVID-19 outbreak, the examination sessions were moved from traditional venue-based examination to online examination and student performance becomes very questionable.”*

Another challenge that Lecturer 1 spoke about was internet connectivity. He (Lecturer 1) explained that *“students who are enrolled in the programme, though the programme is*

specifically online, we discover that they do not have gadgets and, in some cases, do not even have internet access, some in the workplace and some in their homes. So, this becomes a very big challenge during the course of the semester when they have to carry out tasks or when they have to submit their assignments.” Lecturer 1 further went on to state, “In the past, the university used to provide, as part of the programme package, gadgets to students and staff. These were tablets on which the learning materials were uploaded on them so that they are able to use them and they would access the internet from various places such as internet cafes, public hotspots areas, public libraries, and other government facilities to access the learning portal, however, the outbreak of COVID-19 then lead to the university to stop issuing these tablets which were useful to us and the students.”

There was also a lack of resources such as specific software that could aid in the learning process. Lecturer 1 outlined that “there is a need to have software or technological tools that would help the disabled, the blind, the deaf, etc., and this would make teaching and learning at BOU more inclusive, so since we do not have these technologies, learners even staff with disabilities are not really enrolled or taken on into the different programmes.” Lecturer 1 pointed out that “another challenge is regarding teacher education, where students are expected to go on teaching practice and other practical activities, these activities have becoming more and more difficult, to do with online programmes but they are achievable. There is a need for heavy investment by the university, on software and equipment that would be accommodative of students with disability and of students who have practical activities in their studies.”

The other challenge that Lecturer 1 indicated was the lack of human resources, “I think especially supporting departments like IT and CIT (CTELT) they need more manpower or staff members, they are overwhelmed by the amount of work and support services that they have to offer especially at the time of examinations and assessment, remember they service and support

the whole university and there is just two of them.” This was formerly indicated by the two officers who were interviewed at the CTELT. Lecturer 1 further pointed out that “there is need for more staff from the CTELT as enrolment of students increases. Our wish is for a CTELT officer for each school or faculty. This would very much make teaching and learning easy for all involved.”

Regarding the calibre of students, lecturer 1 stated that *“it is a matter of practice and trial and error that could assist most people. You must have an interest in the use of technology. Unfortunately, most students who come in this programme have little or no skills at all which then has a great impact on the progress of the programme. So, students can sail through due to much support from colleagues and family while others really are struggling. BOU tries to help during the induction programme. We also encourage them to enrol in the short ICT courses that are also available at BOU but at their own cost.”* The lecturer further expressed that if students or lecturers are technophobic they are likely to experience problems in their e-teaching and e-learning.

The following section presents the findings of tutors:

The views of tutors on the operational practices of e-learning in the MEdEL programme

Tutors are employed at BOU on a part-time basis. Their main responsibility is to facilitate the learning content and prepare learning material under the guidance and instructions of the lecturers in the department. They further work with the CTELT and other departments within the university to support students during their studies. Tutors go through training on how to use the learning management system, they have access to the CTELT staff through email and may visit the BOU campuses when they need assistance. In this study, two tutors were interviewed who also fulfilled the role of research supervisors in the department.

Tutor 1 indicated that the internet was a problem for students. He stated that *“there are places where internet or online facilities are not very accessible at all so a number of students tend to be left out during the online rendering of tutorials, maybe chats, forums.”* Tutor 1 further added that *“the challenge has to do with the internet bandwidth, it affects students and colleagues, meaning other tutors, both in rural areas and even in developed towns or cities. He said, “When you are already facilitating, sometimes the system goes off on one side due to power failure or poor network. This then affects facilitation sessions and the relaying of information during tutorials. This can also take place during online discussion forums and chats, where a scheduled session can take place and the network becomes a problem wherever you are. For some students, they must travel to nearby villages, where internet connectivity is better, to take part in online activities.”* It is also important to note that online discussion forums and chats are part of the assessment process that students must undergo and failure to take part may affect the student’s overall marks at the end of the semester.

The other challenge that the tutors indicated was the lack of human resources. Tutor 1 indicated that *“there are few tutors engaged here at BOU and you will find that you teach more than one course and at the same time you are expected to also supervise research, you could be supervising 5-8 students, and this has a great impact on workload. Remember, we are engaged on a part-time basis, and I also have work where I am employed on a full-time basis.”* Tutor 2 further added to this saying, *“There is so much work here at BOU, you find that you will supervise about 8 students in a cohort, and when you are dealing with such a large number it is very difficult to keep track of the students you are allocated, you end up neglecting those that are not active and they are left behind. This is merely because there is little of us on the ground, furthermore, there are tutors who are engaged at the beginning, and midway through the programme they decide to leave, and we have no option but to take on their students and supervise them to completion.”* Tutor 1 also pointed out that *“the problem of manpower also*

lies on the fact that lecturers are few, like we had one leave the department no so long ago and now the department has only two lecturers (one new) and in the CTETL we only have 2 officers to assist all of us. This is a strain for all of us during tutorial sessions or online activities.”

Regarding the calibre of students, Tutor 2 explained that *“students have their own perception of online learning or e-learning. A lot of them are more focused not on the actual learning process but are focused on completing their assessment which takes away their learning experience. Students are only engaged when having to fulfil an online learning activity such as submission of assignment and during discussion forum or chats and never really interact on the learning platform or LMS.”* Tutor 2 further said, *“The e-learning platform is an extended learning opportunity where students can learn more and interact more with their peers and also with their lecturers, but they do not seem to look at it that way.”* When Tutor 1 was addressing this issue, they indicated *“some students tend to lag in their studies due to lack of basic ICT skills. This then has a great impact on their progression during the semesters. This is also evident in some of the tutors as they also only take part on the learning platform just to carry out scheduled tasks and they never add on extra activities online to keep the students engaged”*.

4.4.1.2 Theme 2: The adoption of new technologies

This theme addresses RQs 3: What are MEdEL students’ technological knowledge and skills towards e-learning?

The RQ was addressed in the findings by the CTETL officers, followed by the lecturers and the tutors.

The views of CTETL on the adoption of new technologies

When addressing the issue of adoption of new technologies, CTETL Officer 1 stated that *“adoption of technology is a big problem for both students and staff, this is mainly because of*

their background, where they come from, their technology skills is challenged and some have no skills at all while others have the basic skills.” He went on to point out that *“during and after induction, some students remain clueless about the use of the learning technologies and are not able to access learning portal and learning materials to start their studies, so we are always called to assist.”* CTETL Officer 2 further pointed out saying, *“the challenge of logging into the system is always an issue. During the first semester of the first year of study, we spent most of the time resetting students’ passwords and passwords for tutors.”* CTETL Officer 2 further outlined that *“one of the biggest challenges, when skills are limited, is implementing some of these online services we have and this is because some staff is not ready, they for the longest time never thought they would start using technology in their teaching or even use the online system to facilitate and assess students. They only thought technology will be used for communication such as email, sending learning materials, etc. and with the coming of COVID-19, this became a reality they could not escape.”*

When it came to the use of the learning management system (LMS), CTELT Officer 2 indicated that things had changed and content development for teaching and learning was no longer the way it was done before, *“the landscape for material development is no longer the traditional way of doing things but creating materials and placing them on the learning portal. Most tutors are finding it difficult to do this and this leads to our training and retraining them in the use of the LMS.”* He further pointed out that *“tutors like students, only use the LMS for activities such as chats, forums and assessment uploading and retrieving during examination time, they have no time to explore the learning portal to use features that would make their teaching and learning better.”* CTELT Officer 1 stated that *“we have created several students & tutor guides on how to navigate the LMS, also showing them how different parts of the LMS are used.”*

The following sections outline the findings of the lecturer regarding adopting new technologies:

The views of the Lecturer on the adoption of new technologies

When asked about the adoption of technology, lecturer 1 stated, *“Knowing how to use e-learning facilities, especially among those who have experience with the use of technology can be intimidating and become a barrier, this means you would be always left behind and spending more time seeking assistance rather than doing the work you are supposed to be doing.”* This was explained by the lecturer regarding training on the use of technology. He further indicated that *“the university has structures and policies that guide on teaching and learning online and explained that these are introduced at the beginning of every semester through training and refresher workshops for both BOU full-time staff and part-time staff.”* Lecturer 1 further pointed out that *“due to the outbreak of COVID-19, examinations, which were traditionally physical or venue-based, have moved to online and this training of Online Examination was introduced to both tutors and lecturers. However, little or no training was done for students. They were only given links on how to access their different examination and had a great impact on the assessment process.”* Lecturer 1 stated, *“I joined the university in 2022 and I have attended 3 short courses in relation to online learning organized by external providers, which were the Commonwealth of Learning (COL) and one of the courses was Introduction to MOOC (Massive Open Online Course) Development and these were organized by BOU.”* In his conclusion about training, lecturer1 pointed out, *“I wish there was for more robust training, hands-on, for tutors, lecturers and other personnel using the e-learning platforms and e-tools.”*

Lecturer 1 outlined that, with the outbreak of COVID-19 in 2020, more use of the LMS was realized. This is what he said, *“It became important to make use of the LMS for not only sharing of learning materials, assignment submission but also for examination.”* Lecturer 1 further pointed out that, *“this was a great challenge since with blended learning more people preferred face-to-face interaction, using the LMS, for now, is only for the features that we need but other features, which would make teaching and learning better, are not used because we do not know*

how to use them, there is a lot of fear among most of us as lecturers, this is because maneuvering and working around the modules on the learning platform is still challenging because it is not straight forward.”

The findings of tutors about the adoption of new technologies are outlined below:

The views of tutors on the adoption of new technologies

Tutor 1 stated that *“the university has put in place activities that take us using technologies that aid in teaching and learning. Some students and even tutors are not techno-savvy, so they need training. The only problem is that we are not committed to the scheduled training and that means we never get to know what we must do.”* Tutor 1 further said, *“We are then forced to learn as we go. We are lucky that the CTETL has an open-door policy where we can walk in when we need assistance or use their online helpline to get assistance.”* Tutor 2 further supported this and said, *“Training is scheduled by the department and we as tutors do not attend this training, especially if we feel that the training that we attended when we were first employed or appointed by BOU. We never know or keep up with the trends of teaching online, so we encounter problems when facilitating online or trying to carry out online activities.”* Tutor 2 further stated that, *“lecturers are not monitoring both tutor and student progress online and this is a problem because they will never know our training needs or actual student progress during the semester.”*

About the utilization of the LMS, Tutor 1 stated, *“As tutors, we need support. There is a need for us to work closely with lecturers, who are always a team, to ensure that all the required features of the LMS are used to help in the teaching and learning process.”* Tutor 2 added: *“Close monitoring is needed to make sure we are not just using the LMS for chats and forums only but also for other activities that will help better student learning.”* Tutor 2 further indicated that *“students in their past programmes were not using the learning platform,*

therefore most of them are struggling to navigate the LMS, you find that in a class of 40 students, only a few, about 25 will know how to navigate and use features on the LMS, while the rest will struggle and not use or take part at all, so supporting us and students on the use of these e-learning technologies is necessary.”

4.4.1.3 Theme 3: Learner support given by BOU or strategies employed by BOU

The following addresses the views of CTETL, the lecturer and tutors on the support given by BOU or strategies employed by BOU for students:

The views of CTETL on student support given by BOU or strategies employed by BOU

The next step was to find out what kind of support and strategies were put in place by BOU. CTETL Officer 1 stated *“We offer both technical support and training to all BOU staff (part-time and full-time) and to students. We have a helpdesk or helpline, which is accessible through email and open 24 hours every day. Any officer, from CTETL, who gets to see the requested email first will respond.”* CTETL Officer 1 further pointed out that *“to assist our clients on how to access the learning platform, we have created videos which are available on the university website, and this makes it easy for both students and staff to log in.”* CTETL Officer 2 added to this by saying, *“during the examination period, we are always on standby to assist lecturers and tutors to upload examination on to the LMS and also ensure that the system does not crash or fail while examinations are still going on.”*

When it came to strategies, CTETL Officer 1 explained that there were policies in place at the university. *“These policies include those that cover usage of the LMS, issues of security on the LMS, and elements of learning analytics.”* CTETL Officer 2 stated that one of the technologies was SCORM and said, *“I am currently working on an online package called Sharable Content Object Reference Model (SCORM), which is an eLearning technology that helps tutors to not micro-manage learning also not to micro-manage during examination time and these*

technologies are made self-explanatory to the students so that they know how to navigate through their courses easily. This will then make teaching and learning easier and achievable for both students and their tutors.”

The following outlines the findings of lecturers on issues of support:

The views of the lecturer on student support given by BOU or strategies employed by BOU

Lecturer 1 indicated that there were e-teaching and online learning programmes that had been promoted throughout the year by the university in support of both staff and students. *“The CTETL has videos and screenshots of how to access the LMS, this information is accessible to both students and staff in the university. We also have a helpdesk to assist students if they need help accessing the different Information and Communication Technologies (ICT).”* Lecturer 1 further indicated that *“For students to have an easy learning process, virtual sessions are organised to increase interaction between tutors, lecturers, and students. With the virtual space being encouraged to be used, we have been able to conduct even research boot camps for our research assessment component. This has allowed students enrolled even those who use to have problems commuting to our centres when we had face-to-face research boot camps to attend these sessions. The technology has broken barriers in some instances and allowed students to take part in activities that were formally difficult to do.”* In addition to that, he said, *“The use of MOOCs (Massive Open Online Courses) have created or sources for the training of both tutors and students about the use of online resources and also the content that they need to teach and learning.”*

The findings that follow are from what tutors said about student support, how they were supported by BOU and strategies employed by BOU for student and tutor support.

The views of tutors on student support given by BOU or strategies employed by BOU

When asked about the kind of support they experienced, tutor 1 indicated that *“the support we are currently receiving from BOU is training on how to use the online teaching technologies. They also used to give us gadgets, and tablets, which really made a difference when it came to accessing the learning platform and assisting students. Now, due to financial constraints, BOU has since stopped giving gadgets and this has had a great impact on us and the students.”* Another support that tutor 1 spoke about, was financial support, and this is what he/she said, *“There are instances where we go on for months without paying for services that we have provided BOU, and this demotivates us and hence we are sometimes reluctant to assist students, there is also a need to revise the payments that we are offered as there is so much work yet little remuneration for us.”* This was further supported by tutor 2 who said, *“For us to be fully functional our needs need to be considered. Some of us want to assist students but lack of payment affects the whole process, we have in the past made BOU aware of this, but nothing has been done.”* Tutor 2 further elaborated in terms of the support given to students, *“I create a safe environment where students can communicate with me their challenges on accessing and using the learning platform. Students who communicate their challenges I then direct them to relevant offices. When it comes to issues that relate to the learning materials, I use virtual meetings with students most of the time to clarify concepts and to check on their progress in their studies and this helps and saves time.”*

“Some students become discouraged when they cannot find their way on the learning management system and find it hard to submit their work online. Because we are also learning how to use the online system, it becomes hard to assist the students hence we send them to relevant offices,” stated Tutor 2.

4.4.2 Findings from the Students’ Questionnaires

A total of 13 instead of 14 students took part in the study and all of them completed the e-questionnaire that was administered to them. Of those who took part, 9 were active students and 4 were non-active students. The nine active students were the ones who were fully engaged in the learning process during the semester. According to Merrill (2020), biographical inquiry in research enables researchers to grasp and understand the complexity of adult learners and their lives. It is therefore imperative that the researcher understands the participants. The active students were made up of 5 female and 4 male students, while non-active students were those who were enrolled in the programme but were not fully engaged in the learning process, 3 were female, while 1 was male. These students had components or modules outstanding and were yet to complete these modules to graduate from the programme. The e-questionnaire aimed at addressing the following research questions:

RQ 1 What are MEDEL students' perceptions of e-learning in ODL?

RQ 3 What are MEDEL students' technological knowledge and skills towards e-learning?

RQ 4 What effective engagement strategies are used by online lecturers and tutors to motivate students to learn?

At first, the students were asked about the year they were expected to graduate. The table below shows the summary of their responses.

Table 4. 2 Summary of expected year of graduation

Year of possible Graduation	number of students
2020	1
2021	2

2022	5
2023	5

From Table 4.2 above, there were still students who had registered in a programme with a duration of 2 years, however, their year of graduation has passed. These students had gaps within their studies which they needed to complete before they could graduate and were still enrolled in the programme. Table 4.3 below shows the years when the students registered for the programme and the year expected to graduate.

Table 4. 3 Summary of students' year of registration and expected year of graduation

Student's first year of registration	Student's year of graduation	Number of students
2018	2020	1
2019	2021	2
2020	2022	5
2021	2023	5

The students enrolled in the MEdEL programme were based in different areas of the country including remote areas. These areas included Serinane, Kgalagadi, Sebina, etc. Table 4.3 above shows the students who took part in the study, the years they enrolled, and the year they were expected to graduate. For example, some students enrolled in 2019 in the two-year programme, and their expected year of graduation was 2021, however, these students were still enrolled in

the programme at the end of 2022. These students were still working on certain components of the programme which they could not finish within 2 years.

4.4.2.1 Responses from Non-Active Students

Non-active students were students who had enrolled in the program but had not been active in the submission of the assessment components. For this study, only 4 students responded, and the following are their responses to the questionnaire.

Open-Ended items

It should be noted that the questionnaire data for the non-active students were analysed descriptively. Below are the findings:

1. *Being a BOU student, what major role do you play in your household?*

Theme: Challenges of online programmes

When asked about their role in their households, the following theme emerged:

Theme: Challenges of online programmes

When asked about their role in their household the following were some of the responses given:

Student 1 stated, *“I do some research for my own kids, I am also a tutor for distance learning and conduct online tutoring sessions.”* Other students indicated that they had spousal or domestic roles that they played within the household. Student 2 said, *“I am a wife, mother, guardian, and a spiritual leader in my community.”* This was also reflected by student 3, while student 4 stated, *“I am a good example for my young siblings and other relatives and also a role model in my community.”* This indicates the social roles that the students play.

2. *From which part of the country do you come or are you currently based?*

Theme: Challenges of online programmes

The composition of the non-active students covered students from remote areas and semi-remote areas of the country, two students from Kgalagadi, one student from Serenane, and one from Mochudi (which is semi-remote). These areas either had poor network connectivity or no electricity at all. Some villages were also far from serviced areas where basic utilities such as electricity and water were available.

3. Does the location of the area that you come from have any effect on the online learning that you are busy with? Elaborate

Theme: Challenges of online programmes

The students indicated that their location negatively impacted their studies. Student 1 stated that *“the location that I come from negatively affects the online aspect of my learning. The internet is an issue and I use data bundles to access the internet when I am home these bundles run out fast. I stay within the school campus where I work, and they use Wi-Fi for internet access, but it is only accessible around our offices, and not able to reach the house where I stay. I am sometimes forced to stay on after work to work on the activities that I need to do for my studies such as forum discussions, chats, and virtual tutorials.”* Student 2 indicated that *“the location where I work and stay in a semi-remote area, we do not have internet access at all. Sometimes I am forced to travel about 200kms to go and access the internet or go where there is proper internet access. The situation gets harder when I have evening virtual activities and I must travel after work to access the internet. It gets dark while I am on the way, which is not safe at all for me.”* The other two students, Student 3 and Student 4, also had a poor network which affected their learning negatively. Student 3 said, *“Yes my location affects my online learning negatively since it has a poor network,”* and Student 4 indicated, *“Where I am based, affects me negatively. Where I work network is poor, I travel to the BOU centre here in our*

village just to access good internet. Sometimes workplace will be busy, and I will not be able to go to the BOU centre which makes learning difficult.”

The following questions (4 -11) addressed the RQ2: What are the operational practices of E-learning in the MEdEL programme?

4. What ICT skills did you have before you started MEdEL?

Theme: Use of technology

All four students indicated that they had basic computer skills. Student 1 stated *“I only have Microsoft Word and Excel skills,”* student 2 added, *“Not much knowledge about computers, only Word and graphs I know.”* Student 4 indicated, *“I only know and am familiar with word processing and PowerPoint. I know a little about internet browsing, but not sure where to go to access information.”*

This question addressed the RQ3 - What are MEdEL students’ technological knowledge and skills for e-learning?

5. Have you ever enrolled in an online training programme before? If YES, when was it and what kind of programme was it?

Theme: Use of technology

The students had never been enrolled in an online training programme. Student 2 explained, *“I have never enrolled in any online training programme. I really looked forward to this opportunity BOU has given me.”* Other students simply indicated by answering “No.”

The next question addressed the RQ3 - What are MEdEL students’ technological knowledge and skills for e-learning?

6. What are your experiences in the BOU online programme?

Theme: Use of technology

Regarding their experience on the BOU online programme, student 1 stated that *“BOU has made me acquire a little more of the Information Technology skills by doing activities such as online chatting, researching using Google.”* Student 3 outlined that *“BOU study time is efficient and flexible as you study at your own desired time.”* This was supported by student 4 who said, *“Firstly I enjoy the flexibility of the online learning.”*

On the contrary, student 2 stated that *“technical knowledge is a problem. BOU’s online service is not always perfect and easy to understand, so I have been struggling a little bit with accessing the learning portal. During virtual meetings, I always need to seek assistance from other colleagues or people whom I reside with.”*

The next question was addressing the RQ3, which read: What are MEdEL students’ technological knowledge and skills for e-learning?

7. Do you think your expectations about online programmes have been met? Why do you say so?

Theme: Use of technology

When it came to expectations, student 1 explained that *“after one and a half years of study, I do not think my expectation has been met. I still feel like I need to go through more training so that I am not intimidated by most of the technological processes in the learning process, furthermore, I think there is a need for the learning process to be more engaging so that we get used to the use of technology and online learning.”* Student 2 explained that *“yes my expectations have been met, this because every course objective has been successfully completed, though I still have outstanding work, I believe that in time I will get through.”* The

same sentiments of student 2 were shared by student 3 who said, *“yes because appropriate and full programme materials were provided and this, I believe would graduate within the duration given. There was also guidance provided throughout the programme by lecturers, but the research component delayed me, I am yet to complete this component.”* Student 4 also agreed that their expectations were met, *“Yes, when I enrolled, I had just completed my studies using government scholarship. Going back under the same arrangement would never come again. Having to study while working also has not proven to be easy, but we work hard to get through. The research component was not easy, it extended my time, but I will finish.”*

8. What makes it easy/ difficult for you with BOU online platforms?

Theme: Support offered

“It is difficult because I am afraid to carry out activities online or use technology to go online, I always have to ask for assistance, I personally do not like to go wrong when doing my schoolwork, so I always have to seek assistance from colleagues and family members who are familiar with the use of technology,” said student 1. Student 2 stated, *“Things for me have been easy because BOU network connectivity is of high quality and that services are reliable. On many occasions I have asked for help from the helpdesk and I was assisted.”* Student 3 said, *“The only challenge I faced was poor network thus affecting my assignment submissions on set deadlines, and what made things easy is that information was always available from the administrator and the BOU website, so when I encounter problems I check first on the website if there are any instructions or guidelines to assist me if I do not get them, I contact the administrator who then gives me guidance on what to do.”* Student 4, on the other hand, stated, *“that there are no difficulties experienced on the online platforms at BOU and that assistance is always available.”*

9. If your response in 8 above was about difficulties, what are they?

Theme: Support offered

According to student 1, *“I experience most of the difficulties due to poor network and connectivity.”* This was also indicated by student 2 who said, *“Sometimes it was difficult to submit my work (assignments) because of the poor internet connection.”* Student 3 also outlined that *“internet connectivity is an issue for me and other students,”* and further said, *“When doing research, I struggled with getting the information I needed.”* Student 4 said, *“Sometimes the learning platform is not available for me to do my work or make any submission. This was because most of the time I forget my password and need to have it reset. I am forced to contact the helpdesk to get assistance in changing or resetting passwords.”*

10. What kind of impact do these difficulties have on your studies?

Theme: Challenges of online programmes

These are difficulties that the students encountered and had an impact on the way they studied. The students indicated that they delayed feedback from tutors and lecturers. In some instances, students could not take part in chats and discussion forums which were part of their assessment. Student 2 stated, *“I could not take part in activities that are within the delivery schedule such as chats and forum discussions online due to poor internet connections.”* This was also outlined by students 1, 3, and 4 who said, *“submission of assignments was a challenge when the network was not available, I was delayed and I would miss submission dates, and this had an impact on my study progress.”*

The following questions addressed the research questions which sought to find the strategies employed by both the students and BOU to overcome the challenges faced. RQ4 - What effective engagement strategies are used by online lecturers and tutors to motivate students to learn?

11. What strategies have you developed to overcome these difficulties?

Theme: Strategies employed by students

“So far, I have not employed any strategy to better my study. There are times when I call BOU to enquire about technical issues that I faced and BOU could only help where they can and the rest was for me to sort it out as the network issues were mostly on my side rather than on BOU’s side,” said Student 1. Student 2 indicated that *“I would opt to send my assignments which I have to submit via email when network available instead of using the learning portal. I then have to communicate with the faculty administrator informing them of the assignment that I had submitted through email. Please note that the sending of assignment work via email is not allowed.”* Student 4 said *“Some of the difficulties I come across I have no control over, so I wait until I have the assistance of CTETL to change my passwords to submit. This means that my assignments are always late.”*

12. What kind of technical support does BOU offer you during the times when you face online learning challenges?

Theme: Support offered

Some of the students believed that BOU did not offer any technical support. Student 1 indicated, *“I have never gotten any assistance when I called the university for help. The switchboard phone is never answered, and I find it difficult to get hold of people to assist me. I am not good with technology and find it hard to use email to communicate seeking assistance.”* This was further supported by student 2 who said, *“There is some technical personnel who help sometimes and sometimes you end up exhausted because they do not really assist.”*

Student 3, on the other hand, indicated that *“there are videos and notes that are on the website and one can make use of to get assistance on the problem they are encountering, for example,*

videos on how to use the ethical clearance platform are available and one can use without seeking assistance, you have to be familiar with computers in order to use these videos.”

Student 4 supported this by saying, *“technical issues are resolved through the helpdesk and they always provide more information which later on helped me.”*

13. What kind of interventions could BOU come up with for your online learning to be easy?

Theme: Support offered

The following are the interventions students thought BOU should put in place to make online learning easy. Student 1 thought that *“BOU should have in-service training covering ICT skills every semester. This will allow students who are not familiar with the use of computers to learn more and acquire computer skills.”* Student 2 said, *“I think BOU should provide students with gadgets and internet routers or bundles. Also, BOU should take students through some training on how to use the Learning management system.”* Student 3 also agreed with the others and said, *“We spend too much money on data bundles BOU should provide us with data. This will allow us to do our work and submit assignments on time.”* Student 4 stated that *“BOU needs to simplify some of its processes such as registration, payment and submitting of assignments.”*

14. Do you think that the expected graduation date that you ticked (on page 1) relies on the feasibility and or your technical knowledge of online platforms? Elaborate

Theme: Use of technology

In this question, two students responded negatively while others said it was feasible. Student 1 stated, *“My technical knowledge is my way out and these skills I believe will determine when I will graduate. If I can take part in activities and submit assignments on time and meet deadlines, I will be able to complete within the set time.”* Student 2 stated, *“No, it’s just minor things that I need to overcome and I will complete it on time.”* Student 3 stated, *“Yes if you are*

unfamiliar with using the online platform it means you will not be able to access programme material and study guides and this will have an impact on your performance and length on the programme so you need technical skills in order to complete the courses on time.” Student 4 only said “No” and did not elaborate on the answer.

15. Do you have any other comments or concerns that you would like to outline with respect to BOU online platforms?

Theme: Use of technology

The students gave their comments or concerns. Student 1 stated that *“BOU needs to have fully functional or experts in their campus that will be able to assist them in times of need or when they are experiencing technical problems on the learning platform.”* Student 2 further stated that *“students should be provided with gadgets and data bundles for easy access to the online platforms.”* Student 4 reminded BOU that *“the learning platforms are extremely resourceful and are closing the gaps that exist by providing learning opportunities no matter where you are in the country.”*

The above presents responses from students who were enrolled in the programme and were non-active. These students lacked one or two components required to finish their programme.

4.4.2.2 Responses from active students

The following were the responses of the active students who were enrolled in the programme. Like the non-active students above, the research questions that guided them are as follows:

RQ 1 What are MEDEL students’ perceptions of e-learning in ODL?

RQ 3 What are MEDEL students’ technological knowledge and skills for e-learning?

RQ 4 What effective engagement strategies are used by online lecturers and tutors to motivate students to learn?

1. *Being a BOU student, what major role do you play in your household?*

Theme: Challenges of online programmes

Students outlined different roles that they played within their households. The student roles included being head of the family, some students were also leaders within the community in which they resided. Student A1 stated, *"I am the head of the family; I am a single father with 2 daughters."* Student A2 indicated that *"I am an influential member of my family who encourages all members of my family to study even through distance and open learning, most of my family members look up to me."* Student A3 stated, *"I am the breadwinner at home and support all my family by all means where necessary."* Student A4 stated, *"I am a husband and a breadwinner at home."* Student A5 said, *"I am a mother and a breadwinner with my own family and also a wife. I also take care of my husband's family with him."* Student A6 pointed out, *"I am a single parent and currently don't have kids of my own, however, I take care of my siblings and I have been encouraging them to enrol in online programmes at BOU since they are cheaper and easy to manage."* Student A7 outlined that *"I am a breadwinner and provider, I make sure that after work I cook, help my kids with their homework and assignments, clean the house, and then I can do my own studying. Sometimes I also take time to do my office work here at home."* Student A8 indicated, *"I am a single mother and I also take care of my family back in my hometown."* Finally, student A9 stated, *"I am a mother and also a caregiver to my parents."* This is to show that students do have roles that they play in their homes.

2. *From which part of the country do you come or are you currently based?*

Theme: Challenges of online programmes

Students came from different parts of the country including the remote areas of Botswana. These areas included Palapye, Maun Village, North West, Sebina, and North East. These areas included places where resources such as electricity and internet connectivity were available and also places where the provision of basic utilities such as water and electricity was a challenge. This would then affect internet connectivity for students, especially those who were studying online.

3. Does the location of the area that you come from have any effect on the online learning that you are busy with? Elaborate

Theme: Challenges of online programmes

The students had different views about the impact of the location on their studies. Student A1, Student A2, Student A4, Student A6, Student A7 & Student A9 indicated that where they were based had no impact on their studies. Student A1 stated, *“The internet is good where I am based, I have also realised that one network is good even when it rains heavily, and I have since moved to that network for internet connection so that I do not encounter problems when I have to submit the assignment.”* They explained that internet access and connectivity were good. Student A2 stated, *“The location I am from does not have any negative impact on my online learning since the internet connection is good.”* Student A4 indicated, *“The location I am at does not have internet connection issues, so has no impact on my studies.”* Student A7 outlined, *“I have good network connectivity except when it is raining. There will be interruptions that will get my network slow or in some instances cut and delay my progress.”* Student A9 stated, *“The area does not have connection issues. There is good internet here at work and at home, so I really do not have challenges in terms of connectivity.”*

Student A3 stated that *“Most of the time in the area there is no network and internet connection.”* Student A5 mentioned that their area also affected their access to the internet and further stated, *“There are also no students who are undertaking this course or any online course, so I am isolated.”* Student A8 only indicated, *“There is poor network. Most of the time I do nothing because the internet and electricity are a big challenge here.”*

4. What ICT skills did you have before you started MEdEL?

Theme: Use of technology

The students who responded to the questionnaire all had basic computer skills, which included, web browsing, Microsoft Word, and Excel. Student A4 stated, *“I have basic ICT skills, word processing, and Excel where I can do a few graphs.”* Another Student A6 stated, *“Yes I am computer literate. I have also studied online before.”* Student A9 indicated, *“I have studied Information Technology, and I am an IT professional. The ICT skills I have acquired from their previous studies.”*

5. Have you ever enrolled in an online training programme before? If YES, when was it and what kind of programme was it?

Theme: Use of technology

Student A7 stated, *“No”* indicating that they had never been enrolled in online training before. The other students who took part in the study indicated that they had been enrolled in online programmes before. Student A1 stated, *“I have been enrolled in an online programme before and it was here at BOU where I did a postgraduate certificate programme which was 100% online.”* Student A2 indicated, *“For my bachelor’s degree I did it through an online programme which is offered at BOU.”* Student A3 outlined, *“Yes, I have enrolled in an online programme from 2018 – 2020, where I was studying for a Bachelor’s degree in Primary Education.”* This was also similar for Students A4 and A6, who were previously enrolled in a

2018 Bachelor's degree programme at BOU. Student A6 further stated, *"I studied other online programmes which had to do with Online Assessments and Presenting Online Workshops and Training."* Student A9 expressed, *"I have studied online before and I have also studied Information Technology as a course."*

6. What are your experiences in the BOU online programme?

Theme: Use of technology

When asked about their experience with the BOU online programme, Student A1 stated, *"I have had challenges mostly during forums because the system could not handle the number of students who had logged on to take part in the discussion forum, so I couldn't take part in the activities."*

Other students indicated that the experience had helped them acquire new skills. Student A2 said, *"I have gained intensive research and how to use online library resources."* This was supported by Student A7, who said, *"I have since upgraded my ICT skills and am happy about it."* Student A3 stated, *"The experience has been good, and I have enjoyed working from the comfort of my home."* *"The programme is friendly, although feedback from assessment takes long and it is not always comprehensive, the experience is good,"* said Student A4. Student A5 stated that *"BOU online programmes are good except that they lack support when it comes to research."* These were the same sentiments shared by Student A6 and Student A8 who said, *"The programmes are good and friendly but could be improved, by giving us more support."* Student A9 stated, *"The learning is flexible, and students can interact beyond the learning sessions which makes the learning process easy and convenient and also makes it fun for all of us."*

7. Do you think your expectations about online programmes have been met? Why do you say so?

Theme: Use of technology

Student A8 did not respond to the question. Of the other students who responded, 6 students indicated that their expectations had been met. Student A1 stated, *"I have learned and am confident about what I have learned, the new information that I will share with my colleagues at work."* Student A2 stated, *"I can research on my own and attend virtual lessons without ICT expects assistance, this has helped me a lot since I could not do these on my own before."* Student A4 stated, *"My expectations have been averagely met. I still believe there is a need to improve on issues of student support by BOU."* Student A6 outlined that *"Expectations have been met as I am now able to manage online platforms and continue well with my studies."* Student A7 stated, *"My expectations have been met, I have never been on an online programme before so it was difficult to grasp what is expected of me, but now I am getting used to it and even using my skills outside BOU."* and Student A9 indicated, *"My expectations on this programme have been met and have been able to submit what is expected of me in the programme."*

8. What makes it easy/ difficult for you with BOU online platforms?

Theme: Support offered

Student A1 stated, *"The issue with large classes makes the process of learning difficult for me. Some learning sessions such as chats become so congested that the system cannot handle many students and we cannot even take part in the live discussions."* Student A3 outlined that *"The materials that they are given are good however my many difficulties are experienced when looking for library resources. There is a need to have training in this area of library resources. The response time also from the library takes long and hinders learning progress."* Student A7 also explained, *"The difficulty that we experience is from the library. Library resources are*

inaccessible and the library office not responding on time when made aware of these challenges we face.”

On the other hand, Student A2 stated, *“What makes learning easy at BOU is the support that we get from the lecturers and tutors.”* This was supported by Student A4 who said, *“The administrator makes things easy for me. She gives contact feedback especially when I encounter problems online. The learning platforms are easy and friendly to use.”* Student A5 stated that *“The use of Google Meet, for virtual tutorials, makes it easy to learn with BOU. Furthermore, the use of instruction videos makes it easy to access applications on the learning platforms.”* Student A6 supported this and outlined that *“Online learning platforms are easy and friendly to use at BOU.”* Student A8 also indicated that *“The learning platforms are easy and friendly to use.”* Like Student A5, Student A9 stated that *“Virtual sessions are good for teaching and learning, they allow for more interactions in the learning process.”*

9. If your response in 8 above was about difficulties, what are they?

Theme: Support offered

The students outlined their difficulties in accessing library resources. Student A3 stated, *“BOU library resources are a big challenge. It is so hard to learn when you have no resources to use in the learning process.”* Student A7 explained that *“Journals are not accessible and when you seek assistance from the library, they never get a response. Furthermore, we need training on the use of library resources.”*

Another difficulty that Student A1 stated was congestion during online activities such as the chat session. *“I think that classes we have are too large, which makes it hard to carry out activities that are on real-time online.”*

10. What kind of impact do these difficulties have on your studies?

Theme: Support offered

Regarding library resource accessibility, Student A3 explained that *“Lack of library resources causes delays in accessing research materials that we need for the assignments we do and even delays on our research projects. This leads to late submission or works that seem incomplete or inadequate for the level we are at, which is a Master’s Degree.”*

Regarding chat and forum congestion, Student A1 stated that *“Participation in online forums and chats has a significant contribution towards the final mark or grade, lack of participation due to congestion affects our overall mark.”*

11. What strategies have you developed to overcome these difficulties?

Theme: Strategies employed by students

For library resources, Student A3 indicated, *“I have decided to plan my time well and engage my tutors whenever I encounter difficulties. Furthermore, physically visit the library for assistance.”* Student A2 also indicated, *“I travel to the BOU campus and visit the library so that they can assist me with research.”*

Student A1 stated, *“With the issue of congestion online, I make time and participate on the forums when several students are not online. The smaller number of students allows for all to be able to take part on the learning platform.”*

12. What kind of technical support does BOU offer you during the times when you face online learning challenges?

Theme: Support offered

This question was answered in two forms. Students indicated that there was a Helpline email that BOU had created for use when they needed assistance. Student A1 stated, *“For the learning portal, I use the Helpline email for CTETL for assistance when I face challenges.”*

Student A2 stated that *“BOU offers an online guide to assist students or users who encounter problems on their learning platform. These guide videos are available on the university webpage. I use them all the time for assistance.”* Student A3 outlined, *“The university has an IT officer who supports us when we have problems.”* Student A4 stated that *“BOU provides free internet at its campuses and allows for us as students to use it. This helps when I have a lot of learning materials to download.”* Student A5 could only remember what was done in the previous degree programme, wished it could be done in MedEL, and said, *“In the degree programme we had extra tutorials which were organised by tutors, and this helped in the learning process. I wish for MEdEL to have these extra classes for us.”* Student A6 said, *“We are grateful for the access to the network in the different BOU campuses but IT officers should also be willing to help us at all times when we need their assistance on campus.”* Student A7 stated, *“Officers in IT and CTETL always help but during tutorials their assistance is most needed as sometimes we do not know how to use Google Meet.”* Student A8 only stated, *“Administrative support is always needed, and I see the faculty administrator when I have problems most of the time.”* Student A9 stated, *“The University webpage has guidelines which show a step-by-step process of accessing the learning platform which students can use if they get lost online. IT officers only assist when we have IT issues such as email access and cannot assist when we have problems on the Moodle platform. They refer us to the CTETL, which takes time.”*

13. What kind of interventions could BOU come up with for your online learning to be easy?

Theme: Support offered

Student A1 stated that *“BOU should introduce a platform online where we could log on and place our queries and be able to track their progress until they are resolved.”* Student A2

indicated that *“Although the courses are online, there is a need for face-to-face interaction at least once in a semester, where students can interact with other students and their tutors and lecturers.”* Student A4 pleaded, *“I wish that BOU could provide its students with the internet. They could do this by going into partnership with network providers who will, in turn, give BOU students free internet bundles for internet access.”* This was further supported by Student A5 who said, *“BOU to go back to giving students gadgets and internet bundles. Furthermore, BOU should provide more support for the research component of this programme. We need more support and time to carry out research.”* Student A6 outlined that *“An online crash course is needed for some students who are not familiar with computers. This will make their learning process easy. Most of us do not have a computer background.”* This was further supported by Student A8 who said, *“Regular online classes would be of great help to us.”* Student A7 stated, *“BOU has already done training for online learning for us and provided guidelines for support. It is for us as students to keep trying.”* Student A9 stated, *“Having a call centre that directly attends to students’ issues would help a lot instead of referring them to different officers, so BOU needs a call centre.”*

14. Do you think that the expected graduation date that you ticked (on page 1) relies on the feasibility and or your technical knowledge of online platforms? Elaborate

Theme: Use of technology

Of the 9 students who responded to the questionnaire, all believed that with the technical knowledge, they would be able to complete it within the stated time. Student A1 stated, *“Technical knowledge of online platforms is necessary for one to finish and graduate from the programme. I truly believe that I have it and will graduate.”* Student A2 also indicated, *“Yes it does depend on your technical knowledge, and it also determines where you will go. Without technical knowledge, you might miss on information that is necessary and not be able to*

complete the programme.” Student A3 stated, “Yes technical knowledge is very vital. You need to know what to do and how to do it.” Student A4 indicated that “The expected date for graduation realises on technical knowledge you have. If you do not know how to work yourself through the learning platform, then you will not be able to do anything, and Yes, I will graduate on time.” Students A5 believed that “If you lack technical skills and knowledge of the online platform you will not be able to use it. You will lag and miss graduating on time. I truly believe I will graduate on time with the skills and knowledge I have.”

Student A6 said, “My graduation date does not rely on whether I am able to access the learning platform well but on whether I am able to do all that the studies require in order for me to complete.” Student A7 stated, “Yes, I will graduate on time. With the amount of help I get despite having limited skills I will have finished the programme on time. Yes, technical skills and knowledge are necessary.” Student A8 also supported Student A7 and said, “Due to the assistance I receive I will be able to finish on time. Technical Skills and knowledge are necessary for this learning process.” Student A9 stated, “I partially believe that technical skills and knowledge are necessary to get through the programme, but hard work and determination will get me to graduate on time.”

15. Do you have any other comments or concerns that you would like to outline with respect to BOU online platforms?

Theme: Use of technology

When responding to this question, Student A1 stated, “I wish BOU would share more information about the personnel to assist when encountering problems on the learning platforms. That is sharing their names and contact details.” Student A2 indicated that “The BOU learning platform has widened my level of thinking. Not only have my ICT skills improved but I have learned to read widely and built so much interest in research.” Student A3

suggested that *“BOU should have more intensive lessons on the use of library resources. Furthermore, there is a need to improve on giving students feedback, especially on work that they have submitted on time.”* Student A5 stated, *“There is a need for more support for students, especially with the use of the learning platform.”* This was supported by Student A6 who said, *“There is a need to reduce the restrictions that are placed on what we can do on the LMS. Students should be allowed to see and access information from previous cohorts.”* Student A7 stated, *“The greatest concern is delayed feedback. We receive feedback on assignments late and we move from one assignment to another without knowing how we performed in the previous assignments, and this is having an impact on our progress.”* Student A8 felt that *“The videos that are placed to demonstrate and assist us, should be more detailed and elaborate concepts better. We need to understand and not always be seeking assistance.”* Student A9 stated, *“There is a need for more contact hours with tutors and lecturers. We need more than one tutorial during a semester.”*

4.4.2.3 Document Review

The following are the documents that were reviewed and were related to the study. The researcher acknowledges that BOU has Policies that address a lot of issues, however, for this study, only those in Table 4.4 below were examined. These documents or Policies included the BOU strategy, policies, and other documents that address the use of information and communication technology in an online ODL programme. Table 4.4 outlines the documents reviewed, and the date that they became effective at BOU and were officially approved for use by the university Senate and Council.

Table 4. 4 List of documents reviewed

	Name of Policy Guideline	Effect Date

1	Staff Development Policy	August 2018
2	STELTASS Policy	7 November 2019
3	Learning Analytics Policy	1 July 2019
4	Internationalisation Policy	12 March 2020
5	The BOU E-tutor model	1 October 2020
6	BOU Strategy	2019 to 2023

The Policies cover the recruitment of staff that work at the university and the training that exists within the institution. The policies cover and guide the online technology at BOU and how monitoring is done for all those who are involved in the process of online teaching and learning. The plans that the university aims to implement over a specific period are outlined in the BOU strategy. The dates included in Table 4.4 indicate when the policies were effected and also act as a guide for when the policies need to be reviewed.

4.4.2.3.1 BOU policies

1. Staff Development Policy

The staff development policy states that 3 types of training can take place at BOU: full-time or long-term training; part-time or distance long-term training; and short-term training. It further outlined that BOU strives to provide its staff with opportunities for career and self-development through training that is relevant to the university's needs. The policy further stated that it wanted to ensure that the staff had the necessary skills, knowledge, and competencies required to carry out their duties effectively, considering the university's ever-changing environment.

The performance of the university depends on the efficient performance of its employees at all levels. This means considering both full-time and part-time staff, furthermore, the university policy states that it encourages industry-related and professional development for the staff to ensure that skills and competencies are at the same level as those that are trending in the industry and profession.

The training is done to meet departmental needs and this training includes an induction programme and job orientation which is specific and done by the different departments. Training needs are normally established through individual staff performance management systems. The performance management system only applies to staff who are employed on a permanent and contract basis.

2. Strategy for Technology Enhanced Learning, Teaching, Assessment, and Student Support (STELTASS).

According to the Strategy for Technology Enhanced Learning, Teaching, Assessment, and Student Support (STELTASS) policy, BOU strives to create a supportive environment that offers students an experience that equips them with technological knowledge, skills and experience to enable them to flourish in a complex world. It outlined that by being an ODL University, BOU uses a blended learning approach to teaching and learning where learning takes place in both face-to-face interactions and online learning. However, the STELTASS policy intends to promote the use of technology in all processes and services at the university. The policy states that to accomplish its intention, “there is a need to provide a contemporary and technology-integrated environment which will strengthen and sustain its objective” (STELTASS, 2019). This strategy is meant to enhance appropriate pedagogies of technology to be used by both students and staff and further support the delivery of blended teaching and

learning, and assessment. The strategy also aims at guiding the programme development and delivery of effective high-quality online materials and resources in support of a conducive learning and teaching environment. It further outlined that it supports the initiatives guided by programme development and delivery strategies according to the National Policies and strategies such as The National ICT Policy (Maitlamo). The policy further stated that these objectives will require the provision of all necessary infrastructure and the development of skills of those who are taking part, to enable them to participate in the implementation and development of online initiatives. In addition, it requires them to provide strong technical support which also requires strong partnerships that will be relevant and will encourage capacity building.

3. Learning Analytics Policy

The policy draws data from the BOU learning and teaching systems such as the library databases, learning management system, and student management system such as the Integrated Tertiary Software (ITS). The main objective of Learning Analytics is to enhance and facilitate students' acquisition of skills, knowledge, and competencies to empower them in the global information and knowledge society. The policy has benefits for individual students and advances the University's strategic objectives. Learning Analytics is a new field of practice and research that is defined as the reporting of data about student performance or activity within the learning platforms that the university may be using for teaching and learning. Its purpose is to establish understanding and optimization of the learning environment. The Learning Analytics policy must benefit all stakeholders, including lecturers, students, and university researchers. The policy states that *"BOU is committed to the use of contextualised learning analytics to enhance the academic success of its students."* The Policy further states that learning analytics systems present information on learning activity and provide predictions of attainment. These will be used to assist students in achieving their study goals and help the

institution to improve the overall provision of education. Its implementation will contribute significantly to the institution's strategic goal of improving students' success.

The policy further speaks to interventions that are made based on the learning analytics for students, lecturers, and other staff members to improve student success. These interventions may be automated or human-mediated and are normally sent to students, via SMS messages or mobile notification (subject to the student's consent), and email. The policy further states that staff need to have analytics information if it is of additional support to the student.

The policy states that its implementation will be enhanced through staff, stakeholder participation and students, ensuring that proper analysis, prediction and other uses in quality processes and key activities of the university are executed.

4. Internationalisation Policy

The internationalisation policy emerged as a response to economic globalisation and at the institutional level it addresses the increased competition between universities, pressure to ensure that programmes are relevant, and fee income from international students. Furthermore, when internationalisation trends emerged, countries developed knowledge-based economies and implemented the 4th Industrial Revolution. Challenges such as cybersecurity and climate change are essential to address and can only be mitigated and analysed by internationally oriented research and education. BOU, with its history of international engagement, does not have uncoordinated or ad hoc activities because there is no overarching policy framework for internationalisation. The University's Strategic Plan 2019-2023 aims to promote an international outlook within the university and enable the achievement of its goal, "a globally recognised Open University," by 2036.

5. BOU E-tutor Model

This policy was formulated in support of STELTASS, which provides a blueprint of how BOU can achieve its intended Strategic goal, “By 2023 BOU will be an innovative Open University recognised for its Technology Enhanced programmes.” In 2019 this was a gradual process but with the coming of COVID-19, this was accelerated due to the restrictions placed on no physical interactions. The role of a part-time tutor needs to be redefined in the online learning environment along with the changes in the role of students, the schools, the division of student services and support departments. Therefore, BOU developed The BOU E-tutor model within the STELTASS framework. This model assumes that teaching, learning, assessment and student support take place within the University LMS.

According to the policy, part-time tutors are to undertake activities online using the LMS, these include virtual tutorials, discussion forums and chats as well as to access and mark assessments online and give feedback online to the students. Tutors are expected to capture marks online in the ITS. The new tutor contracts stipulate that they will be paid for the activities, are expected to have a computer/laptop, and will be given a monthly connectivity allowance while the semester courses are running. Apart from teaching and learning activities, tutors are to avail themselves of specified times to respond to content-related queries raised by students through digital platforms such as Google Meet, Microsoft Teams, and WhatsApp.

For students, the policy states that they are expected to check the LMS for notifications from time to time and to embrace the change from face-to-face and venue-based examinations to virtual classes and examinations. They are also responsible for ensuring that they have proper internet connectivity and appropriate digital devices. Furthermore, students are expected to access the learning space to access the learning materials and e-tutorial activities, such as chats and forums. They also need to ensure that their assessments are submitted online, where feedback is then received for every assignment they have submitted.

Regarding the schools, the policy states that they are responsible for ensuring quality delivery of programmes through part-time tutors, teaching, learning and assessment. The schools are responsible for the recruitment of qualified tutors. Schools are to design e-tutorial activities, set continuous assessment assignments, etc. They are also responsible for the quality assurance of all activities by part-time tutors.

According to the policy, the division of student services has administrative and welfare responsibilities for part-time tutors and students. The Department of Academic Registry is responsible for training tutors on the use of the ITS for continuous assessment, marking online assessments, and providing feedback. They are also responsible for the quality assurance of the schools' online work.

6. BOU Strategy 2019-2023

“The education system has taken a drastic shift towards being more learner-centric to pronounce learning as opposed to teaching. The promotion of lifelong learning has enabled today’s learner to dictate their terms of study in line with the increasing demand for competency-based skills and advancement in technology. Because of the latter, technologies such as learning analytics and mobile-based learning have made personalised learning possible; giving rise to Education 4.0.” The BOU strategy stipulates that it provides a plan for BOU for the period 2019-2023. It aimed at transforming BOU from a college to a university. The model for this university is based on the four pillars which are: Society, Employability, Student Experience, and Research Excellence.

The strategy addresses the issues that emerged that required consideration in the development of the strategy. Among these issues is funding, indicating that BOU is reliant on Botswana government subventions to fund its operations. The government has since encouraged institutions to reduce their reliance on it and focus on diversifying their source of revenue.

Concerning people and culture, there is a lack of collegiality (a university requirement) coupled with an absence of talent in the management strategy. Branding is another issue, the main challenge for BOU is to build the university brand due to the strong brand BOCODOL has. According to the strategy, there is a need to develop and sustain a brand identifying and positioning the university. Regarding research and development, BOU is still in its infancy stage. Concerning technology and infrastructure, the use of technology is limited within the university as are issues of innovation. Old infrastructure or equipment adversely affects BOU's vision to provide quality teaching and research services.

BOU works on 4 general ideologies that guide the university's strategic thinking which are as follows: providing learning programmes that support the future employability of students; ensuring a superior student experience; working towards achieving research excellence; and supporting and contributing to societal needs.

4.5 Summary of the chapter

Data for this study was collected from interviews with 2 CTELT Officers, 1 lecturer, and 2 tutors. It is evident from the chapter that the use of e-learning in an open distance learning online programme has been embraced at Botswana Open University (BOU). Despite the use of technology, there are challenges that the users face in their use of it. These challenges were clearly outlined and ranged from the use of technology, poor or lack of infrastructure and hardware, adaptation of the technology, lack of technical skills despite the training that BOU provides, and a lack of or shortage of human resources. They further explained that the type of students enrolled was also a challenge. The participants indicated that they employed strategies to overcome the challenges that they faced. In the case of CTELT, they worked towards ensuring that all stakeholders online were assisted when they required assistance.

The questionnaire was used to collect data from both non-active students (4) and active students (9). From the data presented, the non-active students faced more challenges where the use of technology was concerned, and this was due to a lack of or little knowledge about the use of technology. Most of the non-active students did not have any background in online learning and enrolling on the MEdEL programme was their first experience with online learning. A few of the students in the active group had experience with online learning as they had previously been enrolled in an online learning programme, and they were more familiar with the use of technology. Not having experience in online learning did not mean students did not use the technology but they took longer and required more assistance to perform their learning activities. Some students, as seen in Table 4.3, had been in the programme for more than 2 years, which is the actual duration of the programme. There are challenges that students face during their studies, these include: being in remote areas that impact their access to the internet and poor network connections, while some indicated that they did not have control over some of the difficulties they encountered.

The policy documents that were reviewed were working policies that the university had in place. The Staff Development Policy was mostly used for the training and development of staff engaged in teaching and learning. This policy covered the processes that exist at BOU, starting with recruitment of staff and training, the processes for examining performance, and the remuneration of all staff at BOU. The STELTASS Policy which is the cornerstone of e-learning or online learning entails the equipping of staff and students with technical knowledge, skills and experience that will prepare them to flourish in the real world. This policy also outlines the creation of environments that are conducive to technology-enhanced learning and provide support for both students and staff. The goal of the Learning Analytics Policy is to equip students with the knowledge, abilities, and skills needed to thrive in the global information and knowledge society. This policy aims to provide data on student performance on all learning

platforms including, not only the LMS but also the library database and student management system. Although the policy exists and is in place according to the student data presentation, some gaps have been identified that impact the process of learning. The Internationalisation Policy is aimed at responding to the economic changes occurring globally and ensuring that the university can compete at a global level. The BOU e-tutor Model was developed to provide guidelines within the STELTASS framework. This model guides the use of LMS for teaching, assessment, learning and support. Finally, the BOU Strategy 2019-2023 provides a plan for the institution and outlines the performance indicators.

CHAPTER 5: DATA ANALYSIS AND THE PROPOSED MODEL

5.1 INTRODUCTION

In the previous chapter, the data collected from the participants of the study were presented. The data consisted of data collected through interviews, questionnaires, and the documents that were reviewed for the study. According to Saldana (2018), the data used in a study can be collected from interview transcripts, journals, documents, participant observation notes, video, photographs, email correspondence, drawings, open-ended surveys, internet sites, academic or fictional literature, etc.

The qualitative data were analysed, and themes were derived from the analysis, furthermore, data collected from interviews were thematically analysed while data collected from the policy documents were descriptively analysed. According to Flick (2014, p.3) and Mayer (2015), data analysis is the central point of qualitative research and has a great effect on the outcomes of the study conducted. Furthermore, as a researcher, it was my role to identify and state themes that were important for the study (Mattimoe *et al.*, 2021). When analysing the data collected from participants, I was guided by Saldana's (2018) manual. The manual suggests that data collected should be segmented and analysed into categories where themes are then identified. This is then followed by the analysis of the results and coding categories are identified to gain further information from the participants' answers. This is predominantly done to determine the intentions of the study. Coding is described as a word that is assigned to explain a symbolically conspicuous, summative and/or evocative part of language-based or visual data (Saldana, 2018).

The following Table 5.1 below outlines the common themes that were identified when analysing the findings from the interviews.

Table 5. 1 Themes that emerged from the responses of the interview

Source of data	Theme	Initial coding	Final Coding
Interviews	The challenges of implementation of Online programme	The little or lack of resources The little or lack of human resources The calibre of students enrolled	Challenges of online programmes

	The adoption of new technologies	The training in the use of technology The utilisation of the LMS	Use of Technology
	Learner support given by BOU or strategies employed by BOU	The strategies employed by tutors & lecturers at BOU The strategies employed by officers working on the LMS at BOU	Support or strategies employed by BOU

From Table 5.1 above, the following were the common themes that were identified from the data collected from all the participants through the interview transcription. The themes were then analysed to identify the initial codes which were further categorised to provide the final coding as follows:

1. Challenges of online programmes
2. Use of technology
3. Strategies employed by students
4. Support offered by Botswana Open University (BOU)

Thematic analysis was used for analysis of the questionnaire to gain an understanding of the data. This was coerced/constrained by the study paradigm which demands the constructivist approach. Qualitative research descriptive analysis entails a systematic way of summarising and organising data collected through qualitative methods. The use of questionnaires in qualitative research allows for the use of open-ended questions which provide data on the complexity of life experiences, the continuously changing world, and the influences that shape how people live (McGuirk & O'Neill, 2016). Analysis of the questionnaire involves critical examination and understanding of the responses and relevance to the concepts or ideas of the research. The main concepts are then identified and reduced to find the common themes in the responses which are placed in segments (Nassaji, 2015). Through the analysis, the researcher can identify reoccurring patterns or themes and categorise them accordingly (McGuirk & O'Neill, 2016).

Table 5.2 below shows the analysis of the e-questionnaires that the students responded to.

Table 5. 2 Analysis of the e-questionnaires students responded to

Participants	Identified Concepts	Categories	themes
Non-Active Students	Challenges of online learning	• Forgetting passwords • Costly internet and weak bandwidth	Challenges of online programmes
	Skills & Technical knowledge	• Entry level skills • On-the-job training • Use of the LMS	Use of technology
	Strategies employed by students	• Use other means to communicate with BOU staff • Use email for submission	Strategies employed by students
	Support offered by BOU	• University Help line • Use of video demonstration	Support offered
Active Students	Challenges of online learning	• Internet access • Delayed progress • Delayed feedback • Poor library service • Large classes	Challenges of online programmes
	Skills & technical knowledge	• Have basic skills • Technical knowledge and skills necessary	Use of Technology
	Support offered by BOU	• Need to be enhanced or improved • Virtual activities and tutorials • Need for monitoring and tracking system • Provision of gadgets and partnerships with network providers	Support offered

	Strategies employed by students	• Use of alternative ways of submitting work due • Work beyond normal working hours, when there are fewer people online • Engage tutors more • Plan time well • Travel to where Internet is accessible	Strategies employed by students
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From Table 5.2 above, similar to the interview, the analysed questionnaires revealed the following themes:

1. Challenges of online programmes
2. Use of technology
3. Strategies employed by students
4. Support offered by BOU

The above are discussed in the following section using literature to support the findings and elaborate further.

5.1.1 Challenges of online programmes

5.1.1.1 Infrastructure

Open and distance learning (ODL) is considered a form of lifelong teaching and learning because of its attributes which include flexibility, affordability, etc. According to Towobola and Raimi (2011), this method of teaching and learning makes use of online infrastructure and tools to assist students in learning through distance without any stress. However, some challenges are faced by users of online teaching and learning. According to the findings of the study, challenges of online programmes in an ODL setup are experienced by both administrators and users of the online programmes.

Online programme administrators and users indicated that there were challenges due to a lack of resources. One participant indicated,

... Students who are enrolled in the programme, though the programme is specifically online, we discover that they do not have gadgets and in some cases do not have internet access... (lecturer 1)

...when we started and even up to now there are issues of infrastructure. When you implement new technologies, you need to have certain infrastructure in place... (CTELT Officer 1).

According to Davis *et al.* (2012), before embarking on new technologies, a part if not all the required technologies need to be in place. To prepare for the offering and implementation of an online programme, the researcher needs to take stock of what is needed, the number of students required, and the curriculum to be offered. Online learning infrastructure including organisational issues, planning, structure, components of the system, and various issues, such as decision-making, human resources and training, need to be in place and able to evolve to cater for curriculum trends, technologies, and student needs.

...Sometimes the network becomes a problem, especially during examination where everyone wants to submit their work and network is congested... (CTELT Officer 2).

...regarding teacher education... on teaching practice and other practical activities, these activities have become more and more difficult to do online...there is a need for heavy investment by the university on software and equipment... (Lecturer 1).

Regarding students' needs where infrastructure is concerned, Al-Ansi (2021) states that students need an e-learning infrastructure that is composed of four indicators, namely, internet accessibility, electronic devices, an effective e-learning system, and communication applications. Bearing that in mind, the participant in the study outlined,

... the location that I come from, negatively affects the online aspect of my learning... (Student 1).

another respondent said, *... the location where I work and stay is a semi-remote area, we do not have internet access at all. I am forced to travel about 200kms to go and access internet... (Student 2).*

Others responded by saying,

...most of the time in the area where there is no network and internet connection... (Student A3).

...there are places where internet or online facilities are not very accessible at all, so several students tend to be left behind during the online rendering of tutorials, maybe chat, forums... (Tutor 1).

This indicates that students face challenges with internet access and connectivity where they reside. It further indicates that the area where students reside does have an impact on their process of learning. Open and Distance Learning (ODL) is designed to reach students in both rural and urban areas of the country, and universities are expected to be able to accommodate this. Communication through the Internet is a crucial and important component between educators and students for successful distance learning (Al-Ansi, 2021). This is further supported by Schroeder (2001) who says that as the number of online distance students increases, there is a need to increase the bandwidth for students to work effectively online. Where the internet connection is good, learning improves as indicated below by the participant.

“... the location where I am from does not have any negative impact on my online learning since the internet connection is good...” (Student A2).

The need for infrastructure also goes beyond access to internet and network connectivity. According to the participant,

.... there is a need to have software or technological tools that would help the disabled, the blind, the deaf, etc. and this would make teaching and learning at BOU more inclusive ... (Lecturer 1).

Schroeder (2001) states that there is a need for universities to have appropriate software in place to support a variety of delivery modes for online classes to cater for the needs of all types of students.

5.1.2 Lack of human resources

Another challenge that the findings of this study revealed was a lack of human resources. From the study, it was evident that few officers were working in various areas that were dealing with student learning online. For example, as indicated earlier, this study was intended to interview two lecturers. However, during the process of preparation for the interview one of the lecturers left and only one lecturer was interviewed. During the interview, the following was outlined,

... I think, especially supporting departments like IT and CTELT, they need more manpower or staff members; they are overwhelmed by the amount of work and support services that they have to offer... (Lecturer 1).

... we have issues with staffing, and this has been going on for the past ten years... we are tasked with managing students online, managing lecturers and tutors online... since 2014 only two staff members carrying out these tasks and training new students and staff [on use of LMS] and managing the LMS... (CTELT Officer 1).

This indicates that there is an issue with human resources within the university. According to Safie and Aljunid (2013), a good balance between physical and human resources is vital. Furthermore, there is a need to have a mixed system that will allow those providing the learning platform and those using it to have a successful learning and working environment.

... there are few tutors engaged here at BOU and you will find that you teach more than one course and at the same time you are expected to also supervise research, you could be supervising 5-8 students, and this has a great impact on your workload. Remember we are engaged on a part-time basis, and I also have my work where I am employed on a full-time basis... (Tutor 1).

It is also worth noting that the university is expected to increase the number of student enrolments each year and this on its own requires that resources, especially human resources, must be put in place to facilitate this.

...there is need for more staff from CTELT as enrolment of students increases... (Lecturer 1).

McCord (2006) states that the growth of online learning in higher education in America has been faster and in some cases accelerated due to the institutional policies that encourage the use of online instruction. The author further states that the challenges of staffing online courses, and supporting and training staff have proven to be very difficult, especially for institutions that are still in their infancy stages of implementing online programmes. Research indicates that institutions tend to ignore the more complex processes of implementing online learning programmes which later has an impact on the teaching and learning process. Capacity building and training are vital in open and distance learning where online technology is concerned, as there is a constant increase in enrolment (Owusu-Mensah *et al.*, 2015). In a study in Ghana, the increase of students and transition from face-to-face to online

learning required that relevant skilled academic and non-academic staff be employed or trained to meet the demand that the institutions were now facing (McCord, 2006).

5.1.3 Calibre of students enrolled

Towobolwa and Raimi (2011) state that open and distance learning was created for students who “*do not fit into the traditional university system*” or are too busy, and the ODL system allows them to have flexibility in their learning. When responding to the questionnaire, students indicated that they had jobs and other roles that they played within their households and in some cases students had roles that they played in the community in which they resided.

... I am a wife, mother, guardian, and a spiritual leader in my community ... (Student 2).

...I do some research for my own kids, I am also a tutor for distance learning and conduct online tutoring sessions... (Student 1).

According to Safie and Aljunid (2013), a lack of experience in ICT can become a major hindrance to learning, especially if the concept of computers is new to students and also if their level of skill determines their power to succeed in achieving set goals. These authors further indicate that technological confidence does not only mean having access to the technology but also being confident in the use of the technology. Furthermore, academic confidence can be about students’ self-efficacy (Safie & Aljunid, 2013).

When asked about ICT skills, the students further indicated that

... not much knowledge about computers, I know only Microsoft Word and graphs... (Student 2).

...I only know and am familiar with word processing and PowerPoint. I know little about internet browsing but not sure where to go to access information... (Student 4).

The following findings revealed the kind of students absorbed into the system and the challenges that are faced when dealing with these online students.

...I have realised that the problem is the students’ background...most of the students have technology skills challenges... (CTELT officer 1).

...unfortunately, most students who come into the programme have little or no skills at all which has a great impact on the progress of the programme... (Lecturer 1).

...students are ...struggling to keep up with the set assessment deadlines and frequently contacting our offices for assistance on the use of features on the learning portal... (CTELT officer 2).

Students need training, not only technical training, but also support to navigate the online platforms and how to conduct research. Some students even need training on how to communicate online with their facilitators, peers, and the university administration (Schroeder, 2001). With online students, situations may be complicated because students are in different areas in the country, the region, and even overseas.

One of the challenges that was faced in the case of the type of students was mentioned,

... students have their own perception of online learning or e-learning, a lot of them are more focused not on the actual learning process but rather are focused on completing their assessment which takes away their learning experiences... (Tutor 2).

From the above, it is evident that students in this case are only focused on fulfilling the assessment component of their study rather than engaging in the learning and using the LMS to carry out other activities that will enhance their learning. According to Alzaghouli (2012), students on e-learning platforms need to take an active learning approach, i.e., a constructivist approach, where they take on new knowledge and actively engage in the learning process, either by engaging with the materials, other students or facilitators online. This enables the acquisition of new, in-depth knowledge that students can apply in their daily routines.

This would be a useful way to learn how students view online learning and whether or not their expectations regarding online study have been fulfilled. It was important to determine if students were enrolled in online learning,

...I have never been enrolled in any online training programme. I really look forward to this opportunity BOU has given me... (Student 2).

Most of the non-active students indicated that they had never engaged in an online programme. When the same question was asked of active students, the response was,

...My expectations have been averagely met. I still believe there is a need to improve on issues of students' support by BOU... (Student A4).

From the above, it is evident that the students only get engaged to fulfil the assessment component of their study and that they feel that BOU needs to carry out more activities to meet their expectations, especially concerning support.

5.2 Use of Technology

The use of technology on an e-learning platform is vital. The use of ICT in teaching and learning has taken higher education by storm and with the advent of COVID-19 universities were faced with the use of technology not becoming an option but a necessity to keep themselves afloat or relevant. Jaleel (2023) states that ICT encompasses all technological revolutions, combines a range of technologies, and has facilitated the generation of information, its application, and dissemination. The benefits of the use of technology also allow students to access learning materials from wherever they have internet connectivity, at their convenience and pace (Safie & Aljunid, 2013).

5.2.1 Skills and technical knowledge

Skills are seen as the ability for one to be able to do or carry out a task well. Technical knowledge, on the other hand, is seen as qualities that one acquires by gaining expertise or performing a particular physical or digital task (Jaleel, 2023). It is therefore imperative that technology users have the necessary skills and technical knowledge. However, the findings revealed that there is a lack of skills and technical knowledge,

...Adoption of technology is a big problem for both students and staff, this is mainly because of their background... their technological skill is challenged, and some have no skills at all while others have the basic skills.... (CTELT officer 1).

He further pointed out that

...Even after induction, some students remain clueless about the use of learning technologies and are not able to access the learning materials on the learning platform... (CTELT officer 1).

...they only thought technology will be used for communication such as email, sending learning materials but with coming of COVID-19, use of technology has become a reality that they cannot escape... (CTELT Officer 2).

From the above, it is clear that there is an issue concerning skills and technical knowledge that may hinder progress in providing online programmes to ODL students. When asked about the skills that they have, students indicated,

...Not much knowledge about computers, only Word Processing and graphs I know about... (Student 2).

...I only know and am familiar with word processing and PowerPoint. I know little about internet browsing, but not sure where to go to access information... (Student 4).

...I have basic ICT skills, Word Processing and Excel where I can do a few graphs... (Student A4).

When asked if their technical knowledge will affect their studies, students indicated that

...my technical knowledge is my way out and these skills I believe will determine when I will graduate. If I can take part in activities and submit assignments on time and meet deadlines, I will be able to complete within the set time... (Student 1).

...Technical knowledge of online platforms is necessary for one to finish and graduate from the programme. I truly believe that I have it and I will graduate... (Student A1).

However, the findings also indicated that there are students who had ICT skills and technical knowledge on the use of ICT in learning. Furthermore, ICT skills and technical knowledge were more prevalent among active students.

... I have studied Information Technology and am an IT professional. The ICT skills I have acquired from their previous studies outside BOU... (Student A9).

... Yes, I am computer literate I have also studied online before... (Student A6).

... Yes, technical knowledge is very vital. You need to know what to do and how to do it... (Student A3).

Majumdar (2015) states that mastering ICT skills and utilisation of ICT improves teaching and learning and creates an environment that allows interactions, not only with others but also with tools that improve skills and technical knowledge.

...knowing how to use e-learning facilities, especially among those who have experience with the use of technology, can be intimidating and become a barrier... (Lecturer 1)

Lecturer 1 pointed out that they feel intimidated, are always left behind and have to seek assistance to perform tasks. When looking at the Technology Adoption Model (TAM), good basic ICT skills are strongly associated with advancement in the use of technology. Additionally, users' or students' intention to embrace the technology or skills is influenced by their lack of proficiency with basic ICT skills (Mac Callum & Jeffrey, 2013). It has been shown that when users or students are more skilled it becomes easier for them to adopt new technologies and invest more time in navigating and being interactive in the use of the technologies.

5.2.2 Training in use of technology

According to Bhattacharjee and Deb (2016), the use of ICT in education is typically associated with students, teachers, and administrators. It may also relate to other stakeholders in the learning space. A competent teacher needs to possess skills and techniques to provide a successful learning experience (Bhattacharjee & Deb, 2016). Institutions must empower their staff with the necessary skills to carry out their day-to-day tasks. According to the Botswana Open University (BOU) Staff development policy of 2018, the 3 types of training are full-time or long-term training, distance long-term training or part-time training, and short-time training. Furthermore, the training is provided to all those who are engaged in the teaching and learning process at BOU. Based on the information received from the interviews and students, the following was gathered regarding training on the use of technology at BOU. There is a process of induction which is provided by the CTETL and training is provided to students, part-time and permanent staff, including lecturers, tutors and administration staff.

... because of the load, having to train staff members and students and maintaining the LMS, we end up training them on the basic use of the LMS and not being advanced in our training... (CTELT officer 1).

From the above, it is evident that the training provided does not allow the CTETL staff to fully train staff due to their high workload. Furthermore, when asked about training provided by BOU, tutors stated,

...Training is scheduled by the department and we as tutors do not attend these trainings, especially if we feel that the training that we attended when we first were employed by BOU. We never know or keep up with the trends of teaching online, so we encounter problems when facilitating online or trying to carry out online activities.... (Tutor 2).

According to Majumdar (2015), the skills acquired from training on the use of technology in education are insufficient. To improve the teaching and learning process, it is imperative that technology be used as the focal point of all activities and that pedagogy be updated as new developments take place.

...lecturers are not monitoring both tutors and student progress and this is a problem because they will never know our training needs or actual student progress during the semester... (Tutor 2).

It is important to evaluate the effectiveness of the training programmes that are in place. This makes it possible to assess whether your training methods are effective, relevant, and—above all—if they are helping participants and the training provider achieve their goals. This therefore begs the question of what kind of training students receive. When asked if their expectations had been met, students indicated,

...I still feel like I need to go through more training so that I am not intimidated by most of the technological processes involved in the learning process... (Student 2).

...When doing research, I struggle with getting information that I need... I sometimes have to seek assistance in order to carry out tasks on the learning platform... (Student 4).

...there is a need to have training around library resources.... (Student A3).

...the library never responds to a request on time and there is a need to train students in that area of use of library resources and we never get assistance on time or no assistance at all... (Student A7).

From the above, it is evident that there is a need for the institution to provide a training programme on the use of the online platform that would make teaching and learning online more effective in ODL and enjoyable for both tutors and students. This also requires that an evaluation process be employed to examine whether the training provided is effective. According to the Staff Training Policy (2018), training needs were realised according to the individual staff performance, yet the staff engaged by the university on a part-time basis indicated that their needs were not met due to insufficient monitoring by the lecturers. Furthermore, staff performance management at BOU is only done for full-time members of staff and not for part-time staff. The BOU STELTASS Policy (2019) states that to achieve their objectives or goals it is important that all the infrastructure is put in place and that all the skills

development for those taking part are taken care of. Furthermore, relevant capacity building needs to be considered.

5.2.3 Utilisation of the LMS

With the rapid development of ICT, the use of ICT in teaching and learning has become imperative. It increased access to education and created a new paradigm called e-learning (Alharbi & Drew, 2014). Furthermore, Mthethwa-Kunene and Maphosa (2020) state that in Open and Distance Learning (ODL), the use of ICT encompasses virtual communication and interactions which allow students and instructors to exchange information at any distance. This is normally done through a platform called web-based LMS. The LMS usually handles students' interactions, content, progress reports, assessment tools, and student activities. Looking at the findings of this study, it is evident that the LMS custodians and users at BOU face challenges which hinder the utilisation of the learning management system. However, this does not mean that there is no use of the web-based LMS at BOU.

...one of the challenges we have when skills are limited, is implementation of some of these online services we have, and this is because staff is not ready... they never thought they would start using technology in their teaching or even use the online system to facilitate and assess students. They only thought technology was for communication such as email...
(CTELT Officer 2).

Furthermore,

... tutors, like students, they use the LMS for activities such as chats, forums and assessment uploading and retrieving examination during exam time, they have no time to explore the learning portal to use features that would make their teaching and learning better... (CTELT Officer 2).

From the above, the use of the LMS requires that the users have relevant skills and technical know-how to be able to effectively use the learning platform. Albidewi and Tulb (2014) stated that for proper utilisation of the learning platforms, training of both staff and students on technology use is essential. In addition, sufficient preparation is required before users can recognize the benefits of using the LMS correctly. This was further supported by Mthethwa-Kunene and Maphosa (2020) who indicated that staff need training to be able to support and encourage students on the use of technology, without relying too heavily on support coming from the university centres responsible for learning platform maintenance. There is thus a need

to create programmes that allow engagement and interaction on the learning platform. Effective use of technology for teaching and learning is possible when both the students, lecturers, and tutors have unlimited access to the technology and have effective internet access (Mthethwa-Kunene & Maphosa, 2020).

One of the participants outlined,

...I wish there was more robust training, hands-on, for tutors, lecturers and other personnel using the e-learning platforms and e-tools... (Lecturer 1).

...Some students and even tutors are not techno-savvy, so they need training. The only problem is that we are not committed to the scheduled training and that means we never get to know what we must do... (Tutor 1).

The aforementioned implies that there is still a need for BOU to provide additional training on the use of the learning platform. Underutilisation of the LMS tools is a common phenomenon in universities, especially by lecturers and tutors (Tseng, 2020). The author further states that lecturers and tutors do not realise the benefits of incorporating LMS tools into their teaching and learning and how they can give students support to become self-regulated learners.

...As tutors, we need support. There is a need for us to work closely with lecturers who are always a team and ensure that all the required features of the LMS are used to help in the teaching and learning process... (Tutor 2).

Concerning the issue of utilisation of the LMS, students who took part in the study indicated that their limited technical and ICT skills hindered them from fully engaging on the learning platform or LMS.

...technical knowledge is a problem. BOU's online services are not always perfect and easy to understand, I have been struggling with accessing the learning portal... (Student 2).

... it is difficult to carry out tasks online because I am afraid of the use of the technology, I always have to ask for assistance... (Student 1).

According to Mthethwa-Kunene and Maphosa (2020), self-efficacy is a quality needed by students to be able to accomplish their tasks in an e-learning system. Students need to view themselves as having the ability to utilise the learning platform for them to work hard to achieve set goals. However, if they have low self-efficacy, they will not be able to use the learning platform effectively. Furthermore, in a study conducted by Loveland (2003), it was found that

the factors that encourage students' participation in a learning process are communication skills and ability, knowledge of the subject, organisation of the class, and encouragement of student participation. In the past, BOU gave enrolled students gadgets to aid them in the learning processes. The gadgets that students received included tablets and laptops. The cost of these gadgets was incorporated into the tuition fee. According to Tseng (2020), instructors and students need to have the tools that are necessary to utilise the LMS. Constant use of online instructions by tutors and lecturers allows students to move from being passive in the learning process to becoming active.

... after one and a half years of training at BOU, I still feel like I need to go through more training so that I am not intimidated by most of the technology used in the learning process. There is also a need for the learning process to be more engaging so that students get used to the use of technology and online learning... (Student 1).

... the most challenge I experienced during my studies was poor network, internet connectivity. This impacted on the activities that I could do such as submission of assignments or carry out learning activities online. It further hindered the use of learning platform, and I only did activities that were accounting towards my final mark... (Student 3).

...I struggled with getting information that I needed for research due to poor internet connection. Internet connectivity is an issue for me and other students. When doing research, I struggled getting information I needed... (Student 4).

...I could not take part in the online activities outlined in the delivery schedule such as chats, forum discussions due to poor internet connection... (Student 2).

According to the above findings, students indicated that the difficulties they encountered as a result of the resources at their disposal prevented them from participating completely in the learning process and making full use of the learning environment. Students indicated that they fail to use technology because of the lack of resources and technical support that BOU fails to provide to them..

Apart from the network connection problems that hindered students in making use of the learning platform, some students indicated,

... Sometimes the learning platform is not available for me to do my work or make any submission. This was because most of time I forget my password and need to have it reset... (Student 4).

...I opted to submit my assignment through email and not the learning portal. Please note that sending assignments via email is not allowed, but I would have difficulties using the portal such that I use email... (Student 2).

The aforementioned responses show that the lack of skills and technical knowledge on navigating the learning platform had a significant impact on the students' utilisation of the LMS. Furthermore, lack or insufficient skills hindered students in performing their academic work. Chen, *et al.* (2010) state that the use of online learning or technology-aided teaching and learning poses disadvantages for students, which include "participation gaps". Participation gaps are defined as situations where students do not take part due to challenges they face within the learning space due to lack of resources, lack of technical skills, etc.

5.3 Strategies employed by students

The Technology Acceptance Model (TAM) (Davis, 1989) emphasises the importance of three factors in the effective use of the LMS. These factors are ease of use, usefulness, and effectiveness of the technology (Mthethwa-Kunene & Maphosa, 2020). To fully utilise the learning management system, students and other users must define its importance in terms of use, usefulness, and effectiveness. Furthermore, students can use technology for teaching and learning if they have the appropriate tools, taking into account the flexibility of the learning space, accessibility of the online materials, connectivity, and clear instructions given by instructors (Majumdar, 2015). Regarding this study, students employed various ways or strategies to ensure their participation in online learning when they encountered problems or challenges in their learning journey.

...I opted to send my assignments through email when I encounter network problems instead of using the learning portal... (Student 2).

... Some of the difficulties I came across I had no control over, so I waited for assistance of CTETL such as changing of my password to have access and submit my work... (Student 4).

Other students indicated the following:

...I decided to plan my time well and engage my tutors whenever I encounter difficulties... (Student A3).

... I travel to the BOU campus and visit the library to get assistance when doing research... (Student A2).

Regarding network congestion, one student indicated the following:

... I make time and participate on the online activities when the number of students online have reduced. The smaller number of students online allows for others to take part on the learning platform... (Student A1).

From the above responses, the strategies employed by the students were merely for fulfilling the course assessment. The strategies that students engaged in had an impact on their learning in various ways, such as having to wait to submit assignments, which meant that deadlines were not met. Others had to travel to BOU campus for assistance. Thus, the component of distance learning becomes unfeasible and adds extra costs for travelling from one point to another. The issue of access remains a problem for students when there is network congestion. Students must then resort to accessing the learning activities when there are not many students online and this has an impact on the level of students' and tutors' interaction online. Real-time activities are thereby affected. According to Kaisara and Bwalya (2021), accessibility to e-learning platforms promotes equality among students. They can access and interact which makes it easy for students and tutors to embrace e-learning. Furthermore, e-learning should not be seen as a "virtual fashion" but as a platform that improves teaching and learning.

5.4 Support offered by Botswana Open University (BOU)

The issue of support in higher education is considered vital, considering that most of the students enrolled in Open and distance learning (ODL) are adult learners. With the introduction of technology in open and distance learning, support becomes necessary as the face-to-face aspect is not part of the e-learning process. According to Kibuku *et al.* (2020), students learn more effectively and efficiently when they interact with their tutors and lecturers and most importantly amongst themselves. Furthermore, they learn more effectively when they generate new knowledge by themselves. However, in the case of e-learning, learning is more content-centred and offers a more individualised context that is based on the student's interests and cognitive capabilities. According to Knowles, five adult learning assumptions apply to adult learners, i.e., 1) Self-concept, which entails students moving from being dependent students into more self-directed learning; 2) Adult learner experience, which is concerned with the fact that students experience different ways of working and have different lifestyles which affect their learning process; 3) Readiness to learn which is based on both social and work life; 4) Motivation to learn is the fourth assumption. As students get older the motivation to learn is

more internal rather than external; 5) Orientation to learning in that learning becomes more of an immediate application rather than a postponed application (Ferriman, 2014).

Regarding the study, support at BOU is offered to users of the e-learning platform by the CTETL team because they remain the custodians of the e-learning platform MOODLE.

... We offer both technical support and training to all BOU staff (part-time and full-time) and to students. We have a helpdesk or helpline which is accessible through email and open 24hours everyday... (CTETL Officer 1).

...We are lucky that the CTETL has an open-door policy where we can walk in when we need assistance or use their online helpline to get assistance... (Tutor 1).

... in an effort to assist our clients on how to access the learning platform, we have created videos which are available on the university website, and this makes it easy for both students and staff to log in and move through the system... (CTETL Officer 1).

From the above, it is evident that support is in place when it comes to the use of the learning platform. CTETL has a 24-hour service available for its clients. Furthermore, they have an open-door policy that aims at providing service. However, it is important to find out if these services are effective and whether the intended service reaches the clients as they need to.

When asked about the support given by BOU, the students and other staff members indicated the following:

...the support we are currently receiving from BOU is training on how to use the online teaching technologies. They also used to give us gadgets and tablets, which really made a difference when it came to accessing the learning platform and assisting students. Now due to financial constraints, because of COVID-19, BOU has since stopped giving gadgets and this has a great impact on us and students... (Tutor 1).

...technical knowledge is a problem. BOU online services are not always perfect and easy to understand and so I have been struggling a little bit with accessing the learning platform... (Student A2).

...BOU offers an online guide to assist students or users who encounter problems on their learning platform. These guide videos are available on the university webpage. I use them all the time for assistance... (Student A2).

...the university has an IT officer who supports us when we have problems... (Student A3).

... In the degree programme we had extra tutorials which were organised by tutors, and this helped in the learning process. I wish for MEdEL to have these extra classes for us...

(Student A5).

...We are grateful for the access to the network in the different BOU campuses but IT officers should also be willing to help us all the time when we need their assistance on campus...

(Student A6).

From the above responses, it is evident that the students do make use of the support services that are offered by BOU. There are video guides that they use to access and participate on the learning platform. Furthermore, there are helplines that they can access for assistance. It is noteworthy that the responsibility for the support given on the learning platform is left entirely to the CTETL while tutors and lecturers do not take part. It raises the question of how effective the provided training is. One of the aspects of support revealed by the study was outlined by students indicating that they need administrative support or assistance at times.

... administrative support is always needed, and I consult the faculty administrator when I have this kind of a problem... (Student A8).

During the interview, regarding support, one tutor indicated,

...There are instances where we go on for months without being paid for services that we provide here at BOU, and this demotivates us and we are sometimes reluctant to assist students... (Tutor 1).

This indicates that other than CTETL, other factors play a significant role in how the students are supported. According to the BOU E-tutor Model (2020), it is assumed that teaching, assessment, learning, and student support take place within the university learning management system. Furthermore, the policy states that tutors will be paid for the activities and are expected to have their own computers or laptops.

5.5 Interpretation of the findings

This section of the study aimed to provide the major findings that the study produced. The findings of the study were mainly through themes which were used to analyse the data. In a quest to respond to the main research question, below is the major finding that came forth:

5.5.1 Theme – Challenges of online programme

This theme aimed to establish the experiences faced by students and other users of the learning management system (LMS) that have an impact on their studies or the provision of service. According to the STELTASS Policy (2019), BOU aims to provide a supportive learning environment that is fully equipped with the required technological skills, knowledge, and experiences to enable its students to compete in the global market. What has emerged from the analysis of the study was that ODL programmes online at BOU come with challenges that affect all users. Kebritchi *et al.* (2017) state that online students or administrators in higher education face certain challenges. The challenges for students include their expectations, participation online, readiness, and identity. These challenges were evident in the study where students and administrators who took part, indicated issues of infrastructure, lack of human resources, and the calibre of students. For lecturers and tutors, the challenges faced were mostly about changing roles, where the face-to-face aspect of teaching and learning was removed and replaced by virtual sessions or the use of LMS for sharing information. Institutions of higher learning are faced with negative challenges when they transform from face-to-face teaching and learning to technology-mediated learning and these challenges include higher numbers of enrolment and the need to change structures and transform traditional models of teaching and learning, which come with increased costs (Mapuva, 2009).

The rapid expansion of technology and the internet makes it necessary for institutions of higher learning to keep up with the trends. It is also necessary for institutions to ensure that they are equipped to embrace e-learning, or they will be left behind. Furthermore, they need to invest in the training of staff and technical support, in addition to creating learning programmes that will allow students to go through bridging courses before they embark on online programmes so that they can learn to make use of the technologies and acquire technical skills.

5.5.2 Theme - Use of technology

The use of technology is the main driving force in e-learning. Technology requires those that use it to have the necessary skills and technical knowledge and it plays a vital role in open and distance learning. With the recent outbreak of the COVID-19 pandemic, the use of technology has become compulsory for institutions of higher learning (Abd El-Haleem *et al.*, 2022).

According to the study, the use of technology within the online open distance learning at BOU required that users have skills and technical knowledge. It also required that users be trained in the use of technology which would lead to the utilisation of the LMS. However, the question was whether the users of technology were ready for the transformation from blended and face-to-face teaching and learning to a more fully online engagement by students, tutors, lecturers, and staff at BOU. One must also keep in mind that with the outbreak of COVID-19 in 2020, movement, socialisation, and work restrictions were imposed globally and this meant that people were no longer doing things the way they used to but had to use technology to carry out day-to-day activities. It is evident from the study that the adoption of new technologies or ways of teaching and learning at BOU was a big problem because of the background of students and staff. Furthermore, the lack of skills and technological knowledge had an impact on their student progress and interaction online. Although the induction activity occurred, it was not taken as seriously as it should have been, and this had an impact on the online activities. Students also indicated that the lack of skills had a great impact on their progress and would have an impact on their study duration. For students who had experience with online learning and had the skills, learning online was easy and they were confident that they would complete their studies in the intended time.

Regarding training, BOU trains students and staff in the use of technology. There is a need for capacity building for tutors and lecturers so that they will be able to identify the difference between pedagogical training and technical training (Kibuku *et al.*, 2020). Furthermore, Tarus, *et al.* (2015) state that the lack of e-learning technical competencies and e-content creation for e-tutors will hinder the main purpose of taking programmes online. Further, Tarus *et al.* (2015) state that even during training, e-tutors need to focus on the technical functions of the system rather than opposing e-learning pedagogical training which in most cases is a challenge. This was also observed in this study as indicated by tutors who did not attend the training offered by BOU at times, and it had an impact on the interaction with students online and the utilisation of the LMS. It is evident that having technical skills does not entirely apply to CTETL staff but is the responsibility of tutors and lecturers as well.

Regarding the utilisation of the LMS, the study showed that the limited skills of the users, i.e., students, tutors and lecturers, had a significant impact on the utilisation of the learning management system. According to Zanjani *et al.* (2013), if the rate of use of ongoing e-learning tools is low, there would be frequent discontinuation of the use of e-learning tools.

Students indicated that they only carried out tasks that they had to do, such as chats, forums, and submission of assignments and were not particularly engaging in other features of the LMS. This was not only due to network and infrastructure issues but also to their limited skills in the use of technology. Open universities face competition from other universities, locally and globally, that are equipped with the latest technologies to harness strategies that provide them with benefits such as greater access to students and flexibility. It is therefore important that users have the necessary skills and knowledge of the technologies available to utilise them (Nayak *et al.*, 2020). This is further supported by Bordoloi (2018) who states that in addition to greater access, there should be quality, expansion and equality and that ODL institutions should be comfortable with the use of ICT in this technology-based era. In addition, ODL institutions should be able to provide affordable and quality education, encouraging students to transfer innovative ideas and knowledge using ICT. It is important to note that the use of technology in ODL is not necessarily a solution or remedy to teaching and learning but a tool or medium which aids the learning process, therefore a suitable strategy needs to be in place to implement online learning programmes.

In addition, the perceptions of the users of the LMS remain an important aspect of its utilisation. According to Park and Park (2020), according to the Technology Acceptance Model (TAM) by Davis (1989), the users' attitudes impact the successful use of the system. The perceived usefulness of the technology is closely connected to user characteristics that are linked to their society and culture, which in turn makes it difficult for the custodians of the LMS to determine the users' expertise in the use of technology. Furthermore, the use of technology is based on the users' IT skills which therefore plays a decisive role in the utilisation of the technology or LMS in this case. From this study, it is evident that some of the students, lecturers, and tutors lack the skills required to make full use of the technology available to them, which subsequently hinders their performance on the learning platform. The experience on the learning platform is important as it can change the user's attitude and trust in the technology used (Park & Park, 2020). Furthermore, the way that individuals utilize technology enables the platform's custodians to assess the effects that it has on their users. This raises the question of external variables like system variations, user variances, and group support, all of which have an impact on the extent of use.

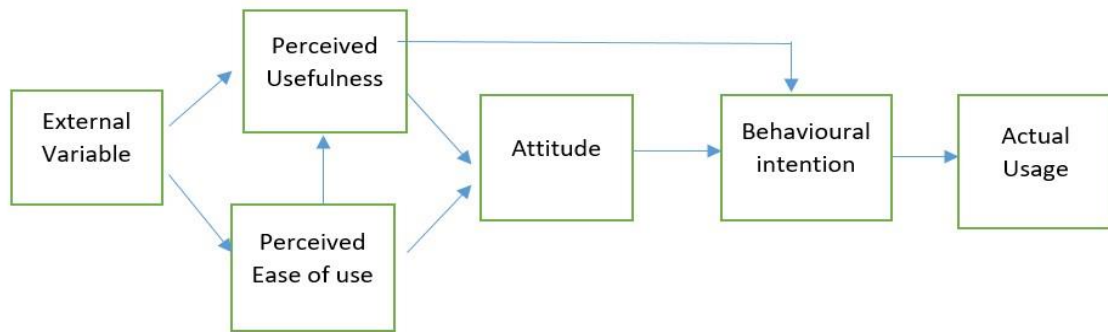


Figure 5. 1 Technology Acceptance Model (TAM) by Davis (1989)

According to Mlambo *et al.* (2023), the TAM consists of six interrelated constructs which are made up of both external and internal variables. The authors also explain that Perceived Ease of Use refers to one's belief that not much effort is needed in the use of the online learning platform. In this study, the students thought they would easily be able to use the online learning platform with the few skills they had. Perceived Usefulness refers to the degree to which a user believes a particular technology will help in achieving the set goals. For example, in this study, the CTETL believed that with more manpower they would be able to do enough training for both staff and students for them to achieve set goals. Lecturers believed that the use of specialised software would help them carry out assessment activities such as teaching practice. Furthermore, students believed that with the university providing them with gadgets such as laptops and computers, they would be able to do their assignments and carry out activities to meet the programme requirements. Concerning Attitude, which has much to do with having a particular feeling towards technology usage, Mlambo, *et al.* (2023) state that having a positive attitude towards technology motivates the user to fully utilise it. In this study, we saw lecturers and tutors who were technophobic. They stated that they were born before computers and were reluctant to take the initiative to seek assistance from the CTETL when the need arose. The least quantifiable behaviour is Behavioural Intention, which is the deliberate intention to use technology whenever it is required (Chen *et al.*, 2011). In this study, students using technology to fulfil the programme requirements even travelled from rural areas, where connectivity was a challenge, to urban areas where they could get internet access. Lastly, Actual Usage refers to how the system is used, where behaviour is controlled by attitudes towards the technology and by the incorporation of subjective norms. This is the point where the utilisation of the system is measured, and where the intended use and behaviour are observed.

5.5.3 Theme – Strategies employed by students

The study makes it clear that there are obstacles associated with online learning that significantly affect and impede teaching and learning, particularly for students. Students outlined that there were strategies that they employed to maintain and keep up with their learning or continue with their studies. The challenges that they outlined range from lack of skills, poor connectivity, and lack of assistance from other departments within the university itself. Different strategies were employed by students to meet the challenges they faced while studying online. Due to poor network connections and congestion online, the students resorted to submitting assignments late and taking on activities when the network was not busy. This caused students to not do online activities in real-time when they had chat sessions online. Furthermore, when the internet connection was poor, students submitted their assignments late and in some cases, they used email instead of the LMS for assignment submission even though the university strictly discourages students from using LMS for their submissions. The lack of skills resulted in students being left behind which discouraged them and made them feel isolated since some of the students were in remote areas where they did not have access to other students or even their tutors to assist them. The use of the helpdesk at BOU was one of the strategies used by students. The university has a helpdesk line where students encountering problems or challenges can reach out for assistance. Students also indicated that they need to plan and manage their time when accessing the learning platform or online services at BOU. Students stated that they had to travel to the nearest BOU campus where they accessed facilities like the library. They outlined that the provision of the online service of the library was a challenge. The links provided did not work and this hindered their work progress.

5.5.4 Theme - Support offered by Botswana Open University (BOU)

Support in ODL plays a vital role. Open and distance learning allows students to work from wherever they are and at their own time, pace, and space. If not addressed well, this can lead to isolation and facilitate student dropout. The problem with online distance learning is not how to recruit students but how to retain them when they have enrolled in programmes, which underscores the importance of student support in online open distance learning (Ludwig-Hardman & Dunlap, 2003).

In this study, BOU offered students and other online platform users support. The support given included technical support, where the use of helpdesk lines (email and telephone) was used to

assist users. The custodians of the online platform indicated that most of the assistance that they gave the users was about accessing and navigating the learning platform. This is mainly due to users, especially students, limited knowledge or lack of technical skills in the use of technology. This challenge also extended to the lecturers and tutors as they also had challenges in the utilisation and access to the online learning portal due to lack of or limited technical skills. It was evident that when students needed support in terms of technology use, they were referred to the CTETL instead of being assisted. This then took time to assist the students with the challenges that they may face during their studies. It is thus important for lecturers and tutors to have skills in the use of technology to be able to assist the students when the need arises.

The website also carries information on how to access services online, which may also be of assistance to students. Furthermore, the study showed that the BOU support system does not include students with disabilities and therefore it is not considered inclusive. Institutions of higher learning embark on transformations, moving from face-to-face to online learning (e-learning) with little or no consideration for students with learning disabilities (Kent, 2015). In most cases, students with disabilities do not disclose their status and thus find learning at a distance comfortable. They see this as an opportunity for themselves to be visible. Unless technology is inclusive, meaning that students with disability are considered, it is seen as further marginalisation by society (Jaeger, 2012).

5.6 THE DEVELOPMENT OF A PROPOSED OPEN AND DISTANCE LEARNING MODEL IN BOU

From the study findings, the challenges that tutors, lecturers and students have with the online system in their ODL programmes are varied. The tutors mentioned that their major challenges were lack of connectivity and workload. Tutors indicated that they were facilitating more than one course and found themselves supervising about 5 – 8 students, which was impacting their workload as they were only engaged at BOU on a part-time basis. Tutors also considered the calibre of students that BOU was recruiting and enrolling into the programmes as a challenge. Tutors explained that one of the challenges that they faced was not being able to assist students on the online platform when they encountered problems. This then caused delays in offering student support. The lecturer explained that the challenges that they faced on the online system

at BOU were a lack of appropriate infrastructure and resources and the issue of connectivity which was a challenge for lecturers, especially when they carried out practical activities.

The lecturer expressed that they were technophobic which significantly affected their participation online. The lecturer also indicated that one of the challenges they faced was that they feared technology and this led to opting for face-to-face teaching and learning instead of virtual and online teaching and learning. The adoption of technologies was thus challenged due to the lecturers' fear of technology. When it came to students' challenges, they varied according to the two groups, non-active students indicated that they played other roles in their homes and even in the areas that they came from. This was also the case with the active students. These roles meant that students faced challenges in managing their time well. Another challenge that the students experienced was that their location impacted their studies. Both groups resided in very remote areas and internet connectivity was a challenge. Some students, despite being in semi-remote areas, also experienced poor connectivity due to poor infrastructure. The challenge of poor connectivity also forced students to travel to areas where they could get access. Some students faced a challenge regarding skills and technical knowledge in the use of technology. The students indicated that they had basic skills and had never been enrolled in an online programme and this affected their performance online. Students believed that BOU did not provide technical support, for example, the BOU switchboard phone was never answered and others explained that the library was also a challenge as they never had proper access to the e-resources and library staff never responded to their emails. The study indicated that these challenges impacted student progress. Meanwhile, the Attrition Theory—which holds that elements students face during their learning programs have an impact on their dropout rate—was the basis for the study. According to Botton and Gregory (2015), the Attrition theory is influenced by several factors, namely, online pedagogy, motivation, LMS, culture, and finances. The authors further state that the Attrition theory allows higher institutions of learning to reflect and find out what leads to high student dropout or non-completion.

5.7 The theoretical framework and how it applies to the study

Attrition theory, the theoretical framework that guided the study addresses the effectiveness of online learning. The theory allows universities to reflect on student retention and progression and it further allows universities to come up with strategies that keep students motivated. Furthermore, the theory addresses issues that include not only the programme costs but also

access to the portal (LMS) and engagement with facilitators, culture, motivation and online pedagogy. Factors that lead to higher education dropout include but are not limited to, student perception, persistence, technology limitations, and poor skills (Metscher, 2014). It further explains that the attrition rate is significantly impacted by the usage of LMSs. Canty, *et al.* (2020) state that other demographic factors contribute to students' attrition rate online in distance learning. These include their background, living in regional or remote locations, having a disability, being mature in age, and being a breadwinner. Furthermore, personal factors which are linked to demographic factors, such as financial difficulties, caring and family responsibilities, low self-confidence, paid employment commitments, and mental health issues (Canty *et al.*, 2020) are rife. Students engaged in an ODL learning programme are likely to be mature adults with families (Tyler-Smith, 2006). This study was made up of different participants with equal amounts of males and females. More female than male students participated in the study. Students indicated that they had roles that they fulfilled in their families and societies. In some cases, these roles had a direct impact on their studies. The students assumed positions that were expected of them by their culture and the community in which they lived, including those of spiritual leaders, caregivers, heads of families, mentors in their communities, single parents, and spouses. Despite all these roles, it is important to note that the responsibility of learning on ODL and online entirely lies with the student. Students are expected to be self-disciplined, motivated to succeed in their programs, and responsible (Metscher, 2014).

Another way to address issues of student attrition is to focus on their experience, their level of integration into the social and academic systems of the institution, and the quality of institutional experience (Canty, *et al.*, 2020). There is thus a need to identify the factors that will provide student satisfaction, enhance engagement, and foster persistence. From the study, some students indicated that they had experience in studying online by distance mode, while some of the students had no experience at all with online learning. Examination of the two groups (non-active and active) of students that took part in the study revealed that 3 out of 4 non-active student participants indicated that they had no experience with online programmes while 1 indicated that they had enrolled in an online programme before. For the skills regarding the use of technology in teaching and learning, all non-active students indicated that they believed that they did not have the relevant skills and technology needed for an online programme. As for those students who were active in their learning, 7 out of 9 students indicated that they had experience with online programmes and 2 out of 9 indicated that they

had never done any programmes online. The study indicated that students still felt that they needed more training on the use of technology for them to acquire more skills and technological knowledge for studying online to improve their learning experience. Online skills such as the use of computers, online communication, navigating the internet, use of discussion forums, etc., should be one of the dimensions that institutions of higher learning implement and ensure that they are in place, before embarking on online programmes (Tyler-Smith, 2006). Challenges faced by students while on the learning journey included, limited resources, lack of internet connectivity, or poor network. Students had to come up with strategies such as working when there were fewer people online, travelling to areas where they could get access to network connectivity, and in some cases, students indicated that they travelled more than 200 km to access the internet to carry out activities online.

Regarding other participants in the study, i.e., the lecturer and tutors, it was also evident that training was needed. Although the BOU was trying to provide training for all new staff members, they later faced challenges in the use of technology in online programmes. According to Keengwe and Kidd (2010), one of the barriers to online learning and teaching is a lack of adequate skills and technical knowledge by students, their instructors, and support staff. Steele *et al.* (2019) indicate that in effective online teaching, the learning environment influences the pedagogy. This means that the online environment determines the activities online. However, from the study, particularly from the CTETL officers, it is evident that the utilisation of the LMS is not satisfactory. They indicated that lecturers, tutors, and students do not make full use of the Moodle platform which is the LMS used at BOU. The students also indicated that the challenges that they faced, such as poor network or internet connectivity, lack of resources, etc., existed, but most of all, poor technical knowledge and poor IT skills prevented them from making full use of the LMS and they indicated that they only used the LMS to carry out activities to fulfil the programme requirements but did not use other features of the LMS to improve the learning experience. Furthermore, students indicated that their technical knowledge and skills had a great impact on their ability to use the LMS which also led to their prolonged enrolment in the online programme and in some cases students left the programme. Student interactions and instructions online are considered the most important factors that determine student satisfaction and when students are satisfied they work hard towards completing the programme that they are enrolled in (Miller, 2015).

Another aspect that the study revealed regarding the utilisation of the LMS was the monitoring activity of the students, tutors, and lecturers online. The current online analysis looks at

accessing Moodle by students and tutors. The BOU Learner Analytics Policy (2019) aims to enhance and facilitate students' acquisition of knowledge, competencies, and skills to empower them with global knowledge and information. Perhaps it is important to understand what Learning Analytics entails. Learning Analytics is explained as the measurement, analysis, reporting, and collection of data about student progress and the context in which learning takes place (Sclater *et al.*, 2016). However, Arroway *et al.* (2015) explain that Learning Analytics is the use of data, statistical analysis, and explanatory and predictive models to provide insight and act on complex issues. This is to say that it is more than just data collection and reporting but predicting, explaining, and taking action about the findings. Learning Analytics is used to provide student engagement, it contains student information (socio-economic status, prior qualifications, courses enrolled, ethnicity, grades, etc.), and in other institutions, it is used as an attendance monitoring system where you can view student utilisation of not only the LMS but also library facilities, attendance of classes, and meetings with tutors (Sclater *et al.*, 2016). Universities need data to address a variety of needs and challenges which are centred around operations and core units (Arroway *et al.*, 2015). Student success and institutional effectiveness can benefit from the available analytics and data due to the focus on academic and learning support, such as retention, graduation, academic progress, and advising. Institutions struggle with implementing high-level learning analytics strategies, which when implemented well can lead to an increase in the student success rate. Therefore, Arroway *et al.* (2015) state that there is a need for Information Technology personnel and academic staff within an institution to understand the challenges that students face on the LMS. They should also understand what data are needed and ensure that data are available, clean, and accessible. This study looked at the challenges that are faced by students enrolled in online ODL programmes and the factors that lead to delayed completion of programmes or some students not completing at all. Therefore, my contributions focused on a model that will retain students within an online ODL programme, looking at factors that students may face and overcome during their studies.

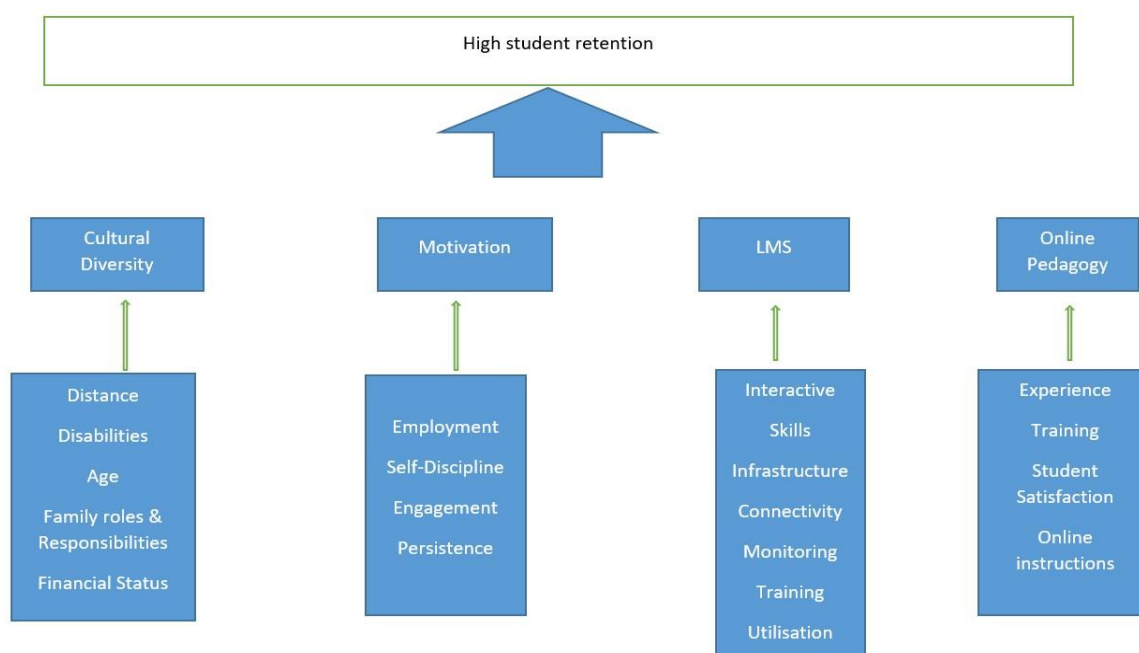


Figure 5. 2 The proposed student retention model

The study has shown that challenges faced by stakeholders, particularly students in the online ODL programme, had a major impact on their experience or studies, with Attrition being one of the results of poor experience on an e-learning platform. The above model (Figure 5.2) shows how students can be retained while they experience the e-learning or online ODL platform. It should be noted that the model above is a modification of the one that was discussed in Chapter 2 of this study. But based on the data that the study came with, the findings compelled for a ‘twisted’ model as compared to the original one, for it to suit the context of the study. Chapter 2 of this study presented the Low retention rate, being at the lower level, which was seen as an effect of the concepts that came from the top of the Low retention rate one. However, the proposed model, sees the opposite of that as the best strategy that BOU should come up with. Firstly, looking at cultural diversity, it is important to consider the different backgrounds that online students come from. It is evident from the study that the students who are enrolled in the online ODL programme come from different backgrounds with different roles that they play in their families and communities, for example, students are parents and sometimes single parents, they are community leaders and breadwinners in their family, and sometimes these roles have a major impact on their studies. According to Kinasevych (2010), sub-cultures and cultures in human societies do not conveniently overlap, and with increasingly diverse communities, there is a likelihood of cultural friction on the online space. In addressing the issues of culture online, there is a need to consider student abilities and disabilities, where

students' responses could be hindered by their disabilities. It was also evident that users, other than students, may impact the use of the online platform, as espoused by the lecturer who stated that most of the students were born before computers were invented and this means their understanding and use of computers impacted their effective use of the online platform. In this case, BOU could have a bridging course or programme that students can enrol in before the commencement of the main programme that they have registered for. This bridging course or programme can also be extended to tutors and other staff members. According to Jokiahio *et al.* (2018), extensive e-learning training courses are an essential part of support. These courses help students and lecturers to use tools on the learning platform which eventually helps to build confidence in the use and navigation of the LMS. Financial status can also have an impact on student performance. The study indicated that students faced network challenges in areas that they resided in and the fact that they had to travel to areas where they could access the internet had financial implications for them. Internet connectivity is essential for any studying done online. Users need to be connected to the internet at all times, although at BOU for one to enrol in an online programme the requirement is that they have internet access. The university does not expect anyone who does not have internet access to apply for programmes if they do not have access to the internet. Where students find that they have connectivity issues, BOU allows students to access the internet at a campus near them. This does have cost implications for students, as they travel to these BOU campuses. The university can collaborate with internet service providers to give students a discount to get mobile data which they could use to access the internet through their mobile phones. Another option is for BOU to encourage students to make use of the "hotspot" facilities which have been provided by the government to access the internet and these are available in both urban and remote areas of the country. Furthermore, the nature of the gadgets they use also ensures that they have fully functional equipment. Some students had to also engage in ICT classes outside BOU where they would gain skills that would enable them to navigate the learning platform and use computers effectively. Financial implications are experienced when institutions must employ enough staff to be able to handle the online demand. Educators need to have the resources and skills that will enable them to effectively use and provide the necessary assistance to students online (Lathrop, 2011). BOU needs to ensure that there is enough manpower to be able to assist students online. Furthermore, there is a need to ensure that educators (lecturers and tutors) and CTELT have the necessary equipment, including internet connectivity, to assist ODL students. ODL by its nature, means that students can even work beyond normal working hours and may need to be assisted even at those times, therefore BOU needs to ensure that staff is equipped to be able to help.

Online learning environments are filled with various opportunities that allow users to engage in activities such as collaborations, exchange, etc. These opportunities depend on users' being able to effectively use the learning management system. There is a need for BOU to form collaboration not only within BOU itself but also with other universities, where students can meet online and do activities together. With online learning environments, there is also an opportunity for BOU to form partnerships that could lead to student and staff exchange with other online universities. This could also be extended to students undertaking courses with other partner universities or BOU offering part of its courses to students in other partner universities. Like culture, students are motivated by the environment in which they are in. Panjaitan and Hasibuan (2022) explain that motivation in an online programme is affected by specific context and individual traits. Motivation remains relevant in an online learning environment because when students are less motivated, they become less active in the learning environment and become less persistent and this results in high attrition rates (Panjaitan & Hasibuan, 2022). From the study, it is evident that students are studying for various reasons. Some of the reasons motivate students to do well in their studying, while some students indicated that they are role models within the community they live in and this motivates them to complete their programme. Having said that, BOU could provide incentives for students who do well in various areas of their studies including their participation on the online learning platform. Furthermore, there is a need for the university to ensure that the LMS is fully functional and able to support students throughout their learning period. There should be constant training for students, lecturers, and tutors on the LMS for them to effectively use the tools online. Regular reviews for feedback on the use of the LMS and continuous improvement to enhance service provision, are necessary. This kind of support motivates the students to complete their study programmes.

According to the study, students needed to have certain competencies to use the learning management system (LMS). The study showed that students enrolled in the online ODL learning programme had little or no previous experience with online learning programmes. Those who had ICT skills had only basic skills that included using Microsoft Word, PowerPoint and Excel. Students indicated that they needed more skills to be able to navigate and use the LMS. According to literature, having exposure and skills in the use of information technologies helps students to be confident in what they do and to feel comfortable navigating and browsing through the learning platforms. Rakap (2010) states that having computer knowledge and skills builds confidence and self-efficacy which leads to students being able to navigate and explore

the learning space with confidence and motivation. From the study, students indicated that there was a need for BOU to provide bridging courses in ICT which will allow them to have the necessary skills that build confidence to perform on the LMS. With the skills, students will be able to interact online with their tutors, lecturers, and peers. Furthermore, the training conducted by the CTETL for all users will be made easy when users have skills and are confident with their ICT skills. It is also important for infrastructure and connectivity to be available to have effective teaching and learning in online ODL programmes. In the literature review in Chapter 2, it was explained that good technological structures and connectivity are necessary for the implementation of e-learning in online learning programmes. Furthermore, from the study, both active and non-active students indicated that their challenge was infrastructure and internet connectivity and that it had a great impact on their learning process. Perhaps this relates to the university's screening of students, particularly when recruiting at postgraduate level. The university needs to ensure that students have skills in ICT, or if not, provide a bridging course that students could enrol in before starting their main online programme. In addition, the CTETL officers indicated that infrastructure and internet connection impacted their work as the custodians of the LMS. Training on the use of the LMS for students, tutors, lecturers, and other staff members is necessary for complete utilisation of the LMS. There is also a need for monitoring the use of the LMS, particularly use by students and staff, and this will allow the institution to know if the LMS is fully utilised. It is evident that when users are content and have the necessary skills to use the online platform, their utilisation of the LMS is satisfactory.

Lastly, regarding Online pedagogy, the training required for the users of the online learning platform needs to be addressed. Steele *et al.* (2019) state that online pedagogy entails virtual strategies that are used to enhance the learning experience. Furthermore, emphasis is placed on the context interaction of teaching and learning which are dynamic. From the study, students are trained online virtually during the Online inductions and tutorials. The students are then expected to also interact with one another online and form collaborations that will enhance their learning. Furthermore, the support strategies that are employed by tutors and other staff to support students are necessary as they lead to student satisfaction. The online instructions need to be clear and precise for students to follow them.

5.8 Chapter Summary

This Chapter explained how the qualitative data was analysed. The data that was collected through interviews and the use of the open-ended questionnaire were thematically analysed and data that was collected through the reviews of the policy documents were descriptively analysed.

From the themes that were derived from the analysis, and the analysis of the documents reviewed, a new model was developed. This model clearly outlines the factors or elements that need to be in place to maintain high student retention.

CHAPTER 6: CONCLUSION, RECOMMENDATIONS AND FURTHER RESEARCH

6.1 INTRODUCTION

This study presented the challenges faced by BOU students and officials in ODL since the institution itself is known for its ODL system. The main purpose of the study was to ascertain the experiences and challenges of students, lecturers and officials in ODL and to develop pointers on how to establish a working system for all. This was prompted by the researcher's experience which revealed that many students lingered in the pipeline and took time to complete their studies.

Chapter 1 laid down the orientation of the study where the background, the significance, and the rationale for the study, among other factors, were discussed. The research questions were also explored in Chapter 1. Chapter 2 provided an in-depth discussion of the literature that was reviewed and the framework that underpinned the study, which placed the study problem in context. The research methods were discussed in Chapter 3 where the adoption of the qualitative approach was discussed. This was followed by concepts like the population and sampling of the study as well as the trustworthiness of the study. In Chapter 4, the data collected were presented and in Chapter 5, an analysis was done based on the findings of data collected from CTETL officers, lecturers, tutors, and students. In this chapter, the research findings are consolidated and how ICT impacts students enrolled in an online ODL programme is demonstrated. Furthermore, the major contribution of this study is outlined. The findings based on the research questions are summarised and the theoretical framework in terms of the findings is discussed. Lastly, the limitations, recommendations, and possible future studies are addressed.

6.2 A GLANCE AT THE RESEARCH QUESTIONS

The main research question for this study was: How does ICT impact students who are enrolled in an online ODL programme? From the study, several factors that facilitate understanding of the topic were identified. The factors included infrastructure, resources, skills, new pedagogy, and strategies employed to ease teaching and learning in an ODL

online programme. With the outbreak of COVID-19, the use of technology has become a very integral part of teaching and learning. Institutions of higher learning had to devise strategies for sustaining the education project while being relevant and participating in global change to continue offering education and training. Lecturers, tutors, and students embarked on this online journey not because they wanted to, but because the system at BOU required them to do so to remain relevant and ensure that the business continues.

The lecturers, students, tutors, and the CTELT officers at BOU all believed that technical skills were necessary to be part of the online ODL process and also for student success in their studies. The trends in distance education play a significant role in student performance as they also determine the student needs. It is therefore important for institutions to ensure that these needs are met (Compura, 2003). The availability of resources and appropriate infrastructure was also important for the implementation of online programmes in a learning institution and finally, both users and custodians of the online platforms needed to have strategies in place to facilitate smooth teaching and learning.

The other factor that was also found necessary for the offering of online ODL learning programmes was for institutions to have the necessary support for all the different participants in the teaching and learning to ensure not only that students' needs were met but also to keep and maintain the students enrolled. Incorporating technology by offering programmes online, runs the risk of students becoming isolated and discouraged to continue with their programmes but with sound support, students can keep up and remain able to cope with the demands of the online ODL programmes. As outlined earlier, in Chapter 1, the BOU online programme was experiencing students who were enrolled and did not complete the programme within the 2-year duration. In addition, students and tutors only accessed the learning platform for the activities that they were assigned and never collaborated or explored other parts of the learning platform. However, Kandies and Stern (1999), in Buzzetto-More (2008), state that students in a web-based learning environment become more self-directed and active.

6.2.1 Research Question 1

What are MEdEL students' perceptions on eLearning in ODL?

As the world changes and responds to various trends, institutions of higher learning find themselves in a position where they need to improve and provide service that is efficient

and of high quality, using the best technologies. According to Onwuagboke (2022), technologies are now becoming common and new technologies are constantly emerging. The outbreak of COVID-19 in 2020 made technology in education a necessity and e-learning had to be embraced by all. The change was no longer about using a new medium (technology) for teaching and learning but also about change in the pedagogy. The technology-enhanced learning platforms present learning materials that are up-to-date and relevant in meeting world standards, students are spoiled with new ways of communicating and new ways to access information (Buzzetto-More, 2008). In addition, Onwuagboke (2022) states that technology in teaching requires institutions that are well equipped (in teaching, financially, and approved academic resources), as well as students who are interested in the ODL programme and the actual technology itself and are willing to learn. The classroom is no longer relevant and online space with the use of LMS introduced new ways of teaching and learning with a variety of opportunities for all users.

According to the study findings, students looked forward to enrolling in the online ODL programme, MEdEL. They enrolled despite having limited skills or no skills and knowledge of the systems used. During their study, students faced challenges. Despite the challenges, which were mostly technological, they were grateful for the opportunity given to them and felt that they would improve on the little or no ICT skills they had before starting the programme. Student 2, *“Not much knowledge about computers, only Microsoft Word and graphs I know.”* Student 4 said, *“I only know and I am familiar with Word Processing and PowerPoint. I know a little about internet browsing, but not sure where to go to access information”*. Later, student 4 said, *“I am grateful for the experience, I have been able to get ICT skills that helped me through learning activities online.”* The students believed that with the limited ICT skills they had when enrolling into the online programme, the university should offer a bridging ICT course that would allow them to acquire more skills and familiarise themselves with the online aspect or processes at BOU. According to Al-Azawei *et al.* (2016), intensive training programs should be put in place to enhance the skills of students and staff in e-learning technologies and the use of computers. Students also believed that for them to complete the programme online, they needed to have technical knowledge which would help them complete the programme within the stated duration of 2 years. They outlined that the technical challenges they were experiencing in addition to resources and infrastructure challenges, were hindering their study progress. Student 1 indicated, *“My technical knowledge is my way out and these skills I believe will determine*

when I will graduate. If I can take part in activities and submit assignments on time and meet deadlines, I will be able to complete within the set time.” Student 3 said, *“Yes if you are unfamiliar with using the online platform it means you will not be able to access programme material and study guides and this will have an impact on your performance and length of the programme so you need technical skills in order to complete the course in time.”* Lack of skills and support have an impact on users’ confidence in using technology and has an even greater impact on their performance (Al-Zawei *et al.* (2016). Concerning the issues of conducting online research to obtain information for research projects, which is an integral part of their assessment, they stated that the library, which they expected to provide support and assistance with research, did not assist, making the research component of their study difficult. They ended up travelling to the BOU campus to seek assistance, yet the university has online library resources. Students indicated that travelling to campus always comes with costs, especially for those who are from remote areas. Institutions of higher learning need to provide a conducive learning environment as well as support. With e-learning environments, there is a need to provide service to students without creating a situation that presents constraints to students. Although e-learning is flexible, institutions should provide the necessary service to the student (Mapuva, 2009). The BOU STELTASS (2019) policy reflects BOU’s efforts to foster a supportive environment that will allow for equipping students with technological knowledge, skills and experience to enable them to excel in a complex world.

6.2.2 Research Question 2

What are the operational practices of e-learning in a MEdEL programme?

The main purpose of integrating technology in teaching and learning is to improve the quality of education provided in several ways, including increasing manpower, motivating and engaging facilitators, ensuring that students get the necessary skills and knowledge and enhancing training (Mustapha *et al.*, 2022). During the study, I looked at the different operational practices that exist at BOU. These operational areas are human resources, student support (including CTETL, tutors, and lectures), and the administration through policy reviews, training, and LMS. From the analysis, it is evident that the students were enrolled in the programmes through the process of recruitment. In this process, a call for applications for different programmes was sent out to different sources of media, including newspapers, the BOU website, and all BOU-affiliated institutions in the country and within

the region. BOU advertises its programmes online. Students apply online, applications are screened and students are admitted and requested to register and enrol into the programmes they have been accepted into. When students have been enrolled or only registered, they are expected to attend a general one-day virtual induction, where they are introduced to all the technology-enhanced areas of the university, including IT, e-library resources, learning platforms, and Moodle (LMS). Thereafter, students are expected to attend Virtual tutorials which are course-specific, and to carry out activities online later in the semester. However, there are those students who do not go through the LMS training or course tutorials. These students enrolled late or have been part of BOU for some time and are only enrolled to complete part of the missing component of assessments to graduate. According to Mustapha *et al.* (2022), to achieve a specified goal for an engagement, training entails the acquisition of new knowledge as well as the modification of particular skills, attitudes, knowledge, and social behaviour. This means that training on the use of the LMS should be extensive enough to provide students and other users with diverse viewpoints on how to teach and learn. Furthermore, the training provided should be detailed enough and practical enough to give the students an indication of what is expected of them. Training should empower students in such a way that they know how to navigate the learning space on their own and encourage interaction and collaboration online. Cabral *et al.* (2012) state that technology training in higher institutions remains the responsibility of universities as they set up new technologies to keep up with trends in both the academic sector and the global world. Student 1A stated, *“I still feel like I need to go through more ICT training so that I am not intimidated by most of the technological processes in the learning process...”* Furthermore, there is a need to establish whether the training provided, particularly on the use of technologies, is effective and works for students and other users. Indeed (2023), states that training programmes must benefit users or attendants, experts must be involved, and training has to be interactive, relevant and provide satisfaction to those who are trained. This author further states that a need exists for an evaluation system where performance is observed and gaps are identified. This was further supported by Cabral *et al.* (2012) who maintain that an institution invests heavily in technology and therefore needs to constantly take time to review whether the technology is yielding results, and this can only be done through evaluation of its use and how the users perceive it. The CTETL Officer 1 said, *“We have issues of staffing and this has been going on for 10 years... we are tasked with managing students online, managing lecturers and tutors online...when we conduct*

training we do basic training looking at the numbers we are dealing with. We hardly have time to review and see how effective our training is."

Other operational practices included training of staff by the CTETL when they are appointed. From the study findings, training of new staff members, whether part-time or full-time, is only done at the start of employment, however, they are then asked to join training courses that occur later during other inductions. Tutor 1 explained, *"The university has in place training that allows us and students how to use the LMS, this takes place when we are first appointed, later on, refresher training sessions are done but we as tutors do not attend, we do not keep up with the ever-changing trends of teaching online so we encounter problems when facilitating or trying to navigate the LMS."* Tutors indicated that they do not attend these trainings but find that they only have limited skills in the use of the LMS and this impacts their work and interactions with students and colleagues online. According to Al-Azawel *et. al.* (2016), two stages of training need to be done when training an e-learning user. Firstly, training is driven by familiarising the user with the processes and technology, and secondly, intense training is provided for the user to become an expert in e-content, e-learning pedagogy, and practice. Tutors pointed out that when students have or face challenges with the use of the LMS, they refer them to the CTETL, despite having been trained on the use of the LMS. Tutor 2 stated, *"Some students become discouraged when they cannot find their way on the learning management system and find it hard to submit their work online. Because we are also learning how to use the online system, it becomes hard to assist the students hence we send them to relevant offices."* This then reflects on tutors' training in that it does not equip tutors with sufficient skills to enable them to assist students when they encounter online problems, even though they are expected to work with students and assist them online. Tutor 1 stated, *"As tutors we need support. There is a need for us to work closely with lecturers, who are always a team, to ensure that all the required features of the LMS are used to help in the teaching and learning process, furthermore, that we are able to assist students."* Furthermore, there is no proper monitoring of tutors online that could be used to assess their performance online. Tutor 2 stated, *"Close monitoring is needed to make sure we are just not using the LMS for chats and forums but also for other activities that will help better student learning."* Although the involvement of part-time staff and how they are trained is explained in the BOU Staff Development Policy, tutors' involvement in teaching and learning at BOU does not have a specific assessment process. Perhaps the lack of interest in the refresher training for tutors

is closely linked to their dissatisfaction with some of the BOU operations that fail to motivate them, such as late payments for services that have been rendered to BOU. Engaging users is the cornerstone for effectively embracing e-learning and rewards for exploring e-learning features could motivate users to embrace e-learning and use it more effectively (Al-Azawel *et al.*, 2016). In addition, Cabral *et al.* (2012) state that some studies advocate for attaching benefits to certain training courses to encourage participants to focus and make use of the training programmes that are available to them. It then becomes important for BOU to ensure that resources are available to operate an online ODL programme.

Another operational issue that emerged from the findings was a lack of staff or human resources. BOU CTETL is a centre that deals not only with managing the LMS but also provides training on the use of the LMS to both students and staff. This centre is run by a small number of staff members which leads to work overload according to one of the participants. Thorpe (2010) explains that the integral part of ODL is to ensure that the system used keeps students interested in the learning process and this can only be achieved if there is good collaboration between different groups of staff. This means that it is important for the university to provide enough support by ensuring that the staff are available to assist students and staff on the online platforms. The BOU Strategy for Technology Enhanced Learning, Teaching, Assessment and Student Support (STELTASS) entails enhancing appropriate pedagogies of technology for use by students and staff and supporting the delivery of online programmes. However, there is a lack of staff in some areas which can have an impact on the intention of the policy.

Figure 6.1 below, outlines the current process at BOU for the recruitment and enrolment of students.

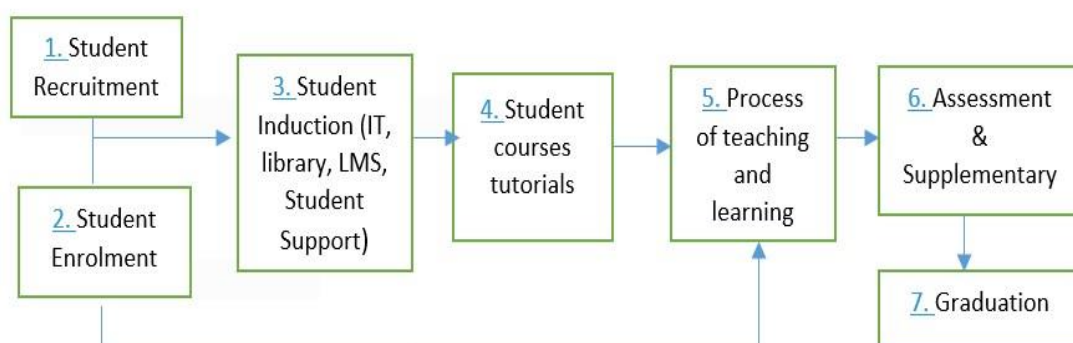


Figure 6. 1 BOU student recruitment and enrolment process

Student recruitment at BOU is normally done by placing an advert through different media platforms. Once the students have been accepted into the different programmes, they go through stage 3, student induction, where they receive training in IT, i.e., how to use BOU email and other Google platforms. They are guided in the use of library resources, including accessing different e-journals, e-books, and other online resources. Students undergo basic LMS training which allows them to enter the BOU e-learning platform. They are made aware of the different BOU student support structures, including counselling, which, due to COVID-19, was moved from face-to-face to e-counselling (online). After stage 3, students go through stage 4 where they attend different tutorials which are more subject or field-related and they are introduced to their learning materials on the LMS, the course coordinators, and the tutors who will be assisting them during the semester. At stage 5, students work on activities and interact with course coordinators, tutors, the BOU student support, CTETL, the library, BOU administrators, and most importantly they interact on the LMS with the learning materials. This is where their technical skills are very important and required. At stage 6, the different assessment processes are done through examinations and their results are finalised. Students continue to do this during all semesters and in the last year they reach stage 7 and after completing and complying with the course requirements, they graduate.

6.2.3 Research Question 3

What are MEdEL students' technological knowledge and skills for e-Learning?

The above RQ sought to find out the technological knowledge and skills students have in the online ODL programme. It further sought to determine whether the expectations of the students partaking in the programme, had been addressed. The use of technology has become a cornerstone in the provision of education particularly for distance education and institutions need to invest in appropriate and effective technologies (Şendağ & Odabaşı, 2009). From the analysis, students enrolled in the online programmes at BOU had little or no ICT skills, however, some students had ICT technological knowledge and skills. The same applied to the tutors and lecturers involved in the learning programme. According to the lecturer, technical knowledge is necessary for an online ODL programme and despite the training provided at the start of employment, it remains a challenge to effectively carry on activities during the teaching and learning process. Lecturer 1 stated, *“The department organises refresher trainings for tutors who have been in the system for some time, this is because we find technological knowledge and skills necessary for them to carry out their activities online, most of the time tutors are reluctant to take part.”* According to Krishnakumar and Rajesh Kumar (2011), educators need more than computer literacy to achieve technological competency to successfully integrate technology into their teaching and learning. The tutors also indicated that they did not get enough training, sometimes found it not necessary to attend refresher training, struggled to assist students during the semester, and referred them to the CTETL for assistance. According to Koehler and Mishra (2009), there are three core components at the heart of integrating technology in teaching, namely, pedagogy, content, and technology, supported by a good rapport between the components.

Students with little or no technological knowledge and skills felt that BOU should provide training that would allow them to familiarise themselves with the LMS or that would improve their basic skills in the use of technology, which they indicated that they had at the beginning of the programme. Student 1 stated, *“The challenges that we face on the learning platform, BOU should at least provide ICT training that we could do on the side to get skills”*. Student A3 said, *“Yes technical knowledge is very vital. You need skills to be able to navigate the learning platform, we need more training.”* Student perception of online learning is mostly highlighted by their lack of familiarity with the technology used

(Turnbull *et al.*, 2021). This is further supported by Krishnakumar and Rajesh Kumar (2011) who state that attitude plays a vital role in the use of technology. This emphasises the need for students to be accustomed to the online platform before embarking on the learning programme. The authors further state that for effective utilization of the LMS, students' technical skills and knowledge need to be addressed before the commencement of the learning programme. The university needs to evaluate the level of ICT skills and technical knowledge of students for programmes that are offered online and provide an opportunity for students to build the skills they need to fully engage in the learning programme online. This could be done by providing a bridging course that would allow students and staff to familiarise themselves with various features of the LMS to allow for its effective use and utilization. Ali (2020) states that to embrace change, there is a need to ensure that the major requirements are addressed to successfully integrate technology in higher education.

Results of the study indicated that the BOU ODL online teaching and learning strategy did not consider learners with disability and was thus not inclusive. According to Kurian (2021), it is assumed that with e-learning, learning is more student-centred, that it maintains its flexibility in terms of place, time, pace accessibility and participation and that resources are made available to students and personalised through training and providing to students according to their needs.

6.2.4 Research Question 4

What effective engagement is used by online lecturers and tutors to motivate students to learn?

Students who are enrolled in online programmes are found to be more engaged than those who are enrolled in traditional classes (Dixon, 2010). The author further states that effective online learning is characterised by a strong presence of tutors and lecturers, collaborative or cooperative active learning, and is more effective than traditional teaching and learning. From the study, it is evident that the students', tutors', and lecturers' presence on online platforms remains a challenge at BOU. The utilisation of the LMS remains a further concern, where students, tutors, and lecturers only use what they need to use and do not effectively use features on the learning platform, purely because of limited technical skills

and knowledge of technology. The BOU STELTASS Policy (2019) outlines that BOU strives to create an environment that equips students and other users with technical knowledge, skills, and experience to allow them to flourish in teaching and learning. Furthermore, the BOU Learning Analytics Policy (2019) addresses the reporting or giving of information about the students and other users, to ensure interventions and allow student access. Suad *et al.* (2023) state that the academic performance of students in higher education has always played an integral part in reflecting on the quality of education provided. The authors further state that with the outbreak of COVID-19, more institutions transitioned to e-learning which exacerbated the issue of evaluating students' quality of knowledge to allow for a comparison of how e-learning was effective compared to various other training models. However, the authors lament that students' prior technical knowledge and skills have a significant impact on how effective their performance will be in their digital study courses. It is important to ensure that there is a system (LMS) that will monitor and evaluate the performance of all who are involved in the learning process, hence Learning Analytics (LA) plays a vital role. Evidence of engagement employed by lectures and tutors to encourage students to learn was not reflected in the study. This was due to several challenges that they outlined which included the lack of infrastructure, lack of technical knowledge and skills despite having been trained in the use of technology used at BOU and LMS, lack of resources such as staff within the department and other areas of the university, lack of payment for services rendered by tutors, and a lack of monitoring by lecturers of tutors. The study indicated that student support was mainly provided by the CTETL and IT since they were the custodians of the technology used at BOU. According to Ali (2020), employees who work in online learning environments must undergo training and retraining to acquire the proper skills to offer support in ICT and pedagogy. Furthermore, staff motivation and readiness are important factors for the successful assimilation of technology in higher education institutions. Institutions of higher learning need to ensure that the infrastructure, including internet connectivity and all the necessary technologies and skills, is available to implement online programmes (Krishnakumar *et al.*, 2011).

6.3 LIMITATIONS OF THE STUDY

As in any empirical study, this study had limitations. When the study commenced, the proposal was approved within the first year of study. The COVID-19 pandemic came in 2020 and this

outbreak caused a global shutdown which led to movement restrictions and the closing of all organisations and universities. Furthermore, officers at the university started working remotely from home. This meant that access to facilities such as ethics applications, although online, took longer than usual. After ethics approval, participants were contacted and informed about the intended data collection process. The interviews that were supposed to be conducted face-to-face were now arranged as virtual interviews. This meant that participants had to inform me when they were available for a virtual meeting to be arranged. Furthermore, it meant both the interviewee and interviewer had to have an internet connection and be in a space that would allow for a sound interview. During this time, one lecturer from the department was transferred to another unit and the department was only left with 1 lecturer who agreed to take part in the interview, thus only 1 lecturer was interviewed instead of 2. The faculty administrator also opted not to take part in the interview. When it came to the data collection from students through an open-ended e-questionnaire, most of the participants were in their home villages due to the lockdown, which meant that most of them had little or no internet access. This meant that they could not receive the e-mails related to the study. They were contacted through WhatsApp, where some indicated that they would take part. After a month, students were further reminded about the e-questionnaire but still did not respond. The researcher then decided to go on a trip around the country to collect data from the students. Please note that there was a waiting period before the lockdown restrictions were lifted. The restrictions were lifted in March 2022 whereafter a 14-day trip was embarked on to distribute the questionnaire to the students. This meant that travel and accommodation costs had to be taken into account for the trip. Another challenge was the lack of available literature about ODL and ICT, especially in the Botswana context. This limited the amount of information that could be used in the literature review of this study.

6.4 RECOMMENDATIONS

The study contributes to how an open-distance institution can fully offer programmes online by addressing the challenges of online programmes, the use of technology, the support offered by BOU, and strategies to be employed by students. It is evident that the incorporation of these aspects will make a significant contribution to informing policymakers, university staff, and students on how to improve their practice to effectively implement online programmes in an ODL institution.

6.4.1 Challenges of online programmes

The study findings indicated that several challenges are faced by staff and students in the online teaching and learning process at Botswana Open University. Since ODL covers students who reside all over the country, including rural or remote areas, online users face challenges in the teaching and learning process. According to the literature, universities need to ensure that they have the infrastructure in place to fully offer online programmes before embarking on and implementing such programmes. The findings further showed that the lack of human resources was impacting the university's service provision which in turn impacted student progress. For example, training was only provided at the beginning of the first year of enrolment and was not done extensively, as CTETL staff were overwhelmed by the number of training courses that had to be provided to staff and students. When it came to students, due to their locations, they had challenges with internet connectivity as some of them were in rural areas where electricity and internet connectivity were non-existent or intermittent. When looking at the new model (Figure 5.2), the challenges of online programmes are linked to the use of the learning management system (LMS). For users of the LMS to effectively use the technology, they need the necessary infrastructure and resources. CTETL staff indicated that several technologies that they needed to provide services, especially during examinations, were not in place. This was supported by the lecturer who indicated that they required software for use during teaching practices. The university bandwidth also needed to be in place. When the lecturers, tutors and CTETL officers have a solid infrastructure, activities such as monitoring, training, etc. can be done effectively.

6.4.2 Use of technology

The study revealed that the use of technology is vital for the online ODL programme. The study findings indicated that one of the challenges concerning the use of technology in online ODL programmes was the technical knowledge required. For example, most students who enrol into the programme have little or no ICT skills which has a large impact on their performance online and on their study progress. Students suggested that BOU should have a bridging course to enable them to acquire the necessary skills to not only use a computer but also to be able to browse the learning platform. This bridging course could be extended to tutors and lecturers involved in teaching and learning online. Currently, BOU offers a basic IT short course, which

is not specifically meant or tailor-made for the students but for the general public. Student background and experience are important as their pre-existing knowledge about the use of computers and navigating the web is imperative. In the new model (Figure 5.2), the online pedagogy applies, as the users of the learning portal need to have and understand the LMS. Users of the online learning portal need to have training and experience. Furthermore, the confidence users acquire from effective training in using the online platform will enable them to do well online and instil satisfaction. This will only be possible if the online instructions are well understood. When students are comfortable within the learning space, they can meet deadlines and complete their studies within the duration of the programmes that they are enrolled on.

6.4.3 Support offered by BOU

The findings indicated that the university has various methods of support that they offer to students and staff in an online learning programme. BOU offers an online helpdesk, which is contacted through email. The students indicated that they struggled to get the necessary support regarding library services. Adult students, especially in online learning, expect support when they need it, taking into account that they are also engaged in other activities such as home responsibilities and work. Some students also believed that the support given by the university should be extended to the provision of gadgets, such as laptops and internet modems. One of the tutors indicated that they referred students looking for assistance to the CTETL because of the tutors' limited technical skills. According to the new model, students and other users have extensive training on the use of the LMS which will reduce the number of requests for assistance by students and staff. Concerning the new model (Figure 5.2), it is important to take into account the cultural diversity of the students and staff, their distance, age, disability, responsibilities, and financial status. For example, students who are based in remote areas of the country where resources are not easily accessible should be provided with support when they need assistance, whether technical or administrative.

6.4.4 Strategies employed by students

The study findings show that the students, who are the main users of the learning platforms, face challenges in their learning process. Students then employ strategies to enable them to take part in the learning process. One student indicated that, due to the poor infrastructure where they stay, for them to have proper access to the internet, they travel a distance to another town to be able to take part in online activities. Another student indicated that they do not take part in live sessions online due to network congestion and wait until several participants have logged off to take part in online activities. This means that students took part in activities outside the normal time and missed out on interacting with other students or even the tutors, which could result in many students being isolated and dropping out of the study programmes. The new model addresses the issue of motivation, where students are forced to complete their programmes due to employment. Students indicated that on completion of their studies, they hoped that the new qualification would earn them a possible new position at work or even a promotion.

Furthermore, proper infrastructure and good internet connectivity would allow students to take part in online activities in the areas where they reside. Students believed that working hard to submit assignments, being able to meet set deadlines, availability and access to different resources, such as the ability to access the internet, having the necessary gadgets, and timely assistance from the university would ensure success. Lastly, the CTETL, tutors, lecturers, and students believed that having appropriate skills would allow them to fully utilise the LMS enabling them to complete their assignments and consequently their programmes, and allow them to graduate at the appropriate time. Students believed that they needed the technical knowledge to complete the programme they were enrolled in.

6.4.5 Contribution to the body of knowledge

The major contribution of this study was to outline the major components required for offering a fully online ODL programme. These factors are aligned with the Attrition theory which was used to guide the study. The study discusses the components that must be in place to retain students online and keep them on track to complete their learning plan in the least amount of time possible or required. The study achieved this by outlining what was needed to effectively implement an online ODL programme, looking at issues of cultural diversity, motivation, LMS,

and online pedagogy. Furthermore, looking at the challenges that the students and other users of the online ODL programme may face, the study outlined the strategies that may be employed on the use of technology and the support offered by the institution.

The model (Figure 5.2) suggests that there should be extensive online training for both students, tutors, and lecturers on the use of the LMS at the beginning of the training programme and in the case of students or other users who have little or no technical knowledge, a bridging course should be provided before the commencement of the main programmes in which the students want to enrol. Limited skills and technical knowledge hinder the performance of students and other users online. Furthermore, even tutors and lecturers find it difficult to assist students due to limited skills and knowledge of ICT and the online learning platform. Monitoring and evaluation of performance for online users (students, tutors and lecturers) is also an important element that needs to be taken into account, it would help in developing training programmes that will enhance the utilisation of the LMS. In addition, understanding user ability and disability is an important factor, which will lead to a better support system for all those who take part in an online ODL programme. The use of Learner Analytics goes beyond LMS user access and includes monitoring and seeing what activities the users engage in.

6.5 FURTHER RESEARCH

Generally, the study recommended similar studies at a larger scale, using the same methodology. However, the use of interviews is recommended with students to allow for more in-depth data collection. One area to consider is a study on students' experiences with online ODL programmes. This refers to Personalised Learning Experiences which encompasses using learning analytics to obtain students' information and also their performance records. This will allow for personalised feedback from students and ways of providing support.

Another possible study is in the area of collaborative and social learning. This is an area where students can provide more insight into using the LMS for peer-to-peer interaction or student-to-tutor interaction. Furthermore, future studies can be done in the area of LMS, particularly in improving the utilisation of e-learning to improve interaction.

Finally, a study could be conducted on the use of learner analytics, where the main focus would be on the effective use of data, data security, and ethical issues in learning analytics. The study showed that learner analytics was an area that could help universities understand not only their

students but also all those involved in the online learning process, looking particularly at their performance and records.

The purpose of the study was to determine the challenges faced by students enrolled in online ODL learning programmes. Furthermore, the study was guided by the Attrition theory and discusses the factors that led students to discontinue or fail to complete the courses in the learning programmes in which they were enrolled.

The findings of the study indicated that students enrolled in online ODL programmes faced a significant number of challenges. These challenges ranged from poor infrastructure to a lack of human resources. The use of technology was an issue that had an impact on learning, where technical skills and knowledge were crucial for their studies. Furthermore, students have to employ strategies that will ensure that they can take part in their learning process despite the challenges that they face. The study also looked at the support strategies employed by BOU to assist the students throughout their studies.

Finally, online learning, particularly in ODL, has become popular due to its flexibility and convenience. Institutions need to evaluate the problems that may cause students to take longer to complete their studies or, in some situations, to drop out of their studies, as well as elements that aid in retaining students and seeing them through the courses that they enrol in.

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APPENDICES

APPENDIX A

BOTSWANA ONLINE UNIVERSITY LECTURER, TUTOR, AND CIT OFFICERS INTERVIEW SCHEDULE

1. Which department are you working in?
2. What is your exact role in the department?
3. What is your area of specialisation?
4. Briefly explain what your understanding is of Open and Distance Learning.
5. What are your thoughts on e-learning?
6. Do you think the two concepts, ODL and e-learning relate in any way? Kindly explain your answer.
7. What are the challenges that you have faced when implementing some of the online services that you provide at BOU?
8. What are your thoughts about student and or staff readiness in an online programme?
9. What are your thoughts on the Learning Management System used at BOU?
10. What support do you offer at BOU to make teaching and learning online in an ODL programme easy or doable?
11. What sort of student and or staff strategies do you think should be put in place to facilitate the Online ODL programme?
12. The Botswana Open University's strategy states that by 2023 all its programmes should be fully online. Is this achievable and why do you say so?
13. Are there any points or issues of concern that you would like to share with me regarding e-learning in ODL?

End of the interview!!!

APPENDIX B

BOTSWANA ONLINE UNIVERSITY ADMINISTRATOR INTERVIEW SCHEDULE

1. What is your role as the online administrator?
2. How can you describe the students' activity with the online system?
3. Do you think the students are technologically competent with the system and why?
4. Which students according to you struggle the most with online platforms?
5. Have you personally received training on online platforms?
6. If the response in 5 above is affirmative, how relevant was or is the course?
7. Do you think the technological knowledge that you possess is enough for your job and why do you say so?

End of interview!!!

APPENDIX C

BOTSWANA ONLINE UNIVERSITY STUDENTS E- QUESTIONNAIRE

SECTION A: DEMOGRAPHIC DATA

Tick the relevant box below:

Type of student: Active ☐ Non-active ☐

(Active-Fully enrolled and managed to submit all assignments and attended all tutorials and have been in the programme for less than 1 year. Non-Active – Fully enrolled but have been on the programme for more than 1 year and have not made any submission)

Expected date of graduation: 2020 ☐ 2021 ☐ 2022 ☐

Enrolled programme: MEdEL ☐ PGCQAE ☐ CDEP ☐ Other ☐

Gender: Male ☐ Female ☐

SECTION B: OPEN-ENDED ITEMS (*You may type your responses*)

7. Being a BOU student, what major role do you play in your household?

8. From which part of the country do you come from or are you currently based?

9. Does the location of the area that you come from have any effect on online learning that you are busy with? Elaborate

10. What ICT skills did you have before you started MEdEL?

12. Have you ever enrolled in an online training programme before? If YES, when was it and what kind of programme was it?

13. What are your experiences in the BOU online programme?

14. Do you think your expectations about online programmes have been met? Why do you say so?

15. What makes it easy/ difficult for you with BOU online platforms?

16. If your response in 8 above was about difficulties, what are they?

17. What kind of impact do these difficulties have on your studies?

18. What strategies have you developed to overcome these difficulties?

16. What kind of technical support does BOU offer you during the times when you face online learning challenges?

17. What kind of interventions could BOU come up with for your online learning to be easy?

18. Do you think that the expected graduation date that you ticked (on page 1) relies on the feasibility and or your technical knowledge of online platforms? Elaborate

19. Do you have any other comments or concerns that you would like to outline with respect to BOU online platforms?

End of the questionnaire, thank you!!!

APPENDIX D

DOCUMENT ANALYSIS

ITEM	REMARK (S)
There are clear guidelines on online learning and teaching at BOU	
There is a policy document that aims at supporting students on online platform	
The history of students' retention rate	
The history of students' graduation rate	
Record of BOU students' demographics/ locations (like where the majority come from)	
Human Resources Recruitment Policy- for Academics in an ODL & ICT mediated Programmes Institution	
Botswana Open University Strategy Policy Document	

APPENDIX E

LETTER TO BOTSWANA OPEN UNIVERSITY Vice Chancellor

University of the Witwatersrand, Johannesburg, South Africa
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PHD RESEARCH THESIS
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30th April 2020

Dear Sir

RE: REQUEST FOR PERMISSION TO DO RESEARCH IN YOUR INSTITUTION

My name is Tebogo Angela Moreetsi. I am a student in the School of Education at the University of the Witwatersrand, currently enrolled for a Doctor of Philosophy (PhD). My research topic is on:

Exploring the use of Information and Communication Technology (ICT) in Open and Distance Learning (ODL): The Case study of Botswana Open University (BOU)

I would like to explore the experiences, perceptions and challenges experienced by staff and students who are enrolled in an online, open and distance learning programme at Botswana Open University.

I therefore request permission to conduct research in your institution in August – October 2020. The research site will be Gaborone Head Quarters and my study will involve, staff from the Department of Education Management and Leadership (2 lecturers, 2 tutors and an administrator), Centre for Instructional Technology (2 officers) and 14 students enrolled in the Master of Educational Management and Leadership programme. The study will involve interviewing the BOU staff using semi-structured interviews, distributing an e-questionnaire, with open-ended questions, to students and document analysis.

I also seek permission to record participants during the interviews and further take field notes during the interview.

I particularly chose BOU as it is the only institution of its kind in Botswana offering Open and distance learning using the online platform. Furthermore, the participants have experienced the

phenomenon under investigation and I therefore think they will provide in-depth information about the experience of an Online Open and Distance learning programme.

The information will be kept confidential and solely used for the purpose of this study. The data collection instruments used will not reveal the names of the participants and will be stored in lockable cabinets (for the interview questions) and for the e-questionnaire, a password will be used to control access to the participants' responses. I presume that the research findings will make a creditable contribution towards identifying the challenges that are faced by online students enrolled in a distance and open learning programme and also help the university policymakers come up with strategies and standards that will better service delivery.

I look forward to your response as soon as is convenient.

Yours faithfully

Tebogo Angela Moreetsi (Student number: 2281186)

APPENDIX F

Consent Form (Staff, Lecturers, Tutors)

Title of project: Exploring the use of Information and Communication Technology (ICT) in Open and Distance Learning (ODL): The Case study of Botswana Open University (BOU)

Name of researcher: Tebogo Angela Moreetsi

I,, agree to participate in this research project. The research has been explained to me and I understand what my participation will involve. I agree to the following:

(Please circle the relevant options below).

I agree that my participation will remain anonymous YES NO

I agree that the researcher may use anonymous quotes in his / her research report YES NO

I agree that the interview may be audio-recorded YES NO

I agree that the information I provide may be used anonymously after this project has ended, for academic purposes by other researchers, subject to their own ethics clearance being obtained. YES NO

..... (signature)

..... (name of participant)

..... (date)

..... (signature)

..... (name of person seeking consent)

..... (date)

APPENDIX G

Information Letter and consent for the online questionnaire

Dear Sir / Madam,

My name is Tebogo Angela Moreetsi and I am a PhD student in the School of Education - Educational Information & Engineering Technology Division at the University of the Witwatersrand, Johannesburg. As part of my studies, I have to undertake a research project, and I **am Exploring the use of Information and Communication Technology (ICT) in Open and Distance Learning (ODL): The Case study of Botswana Open University (BOU)** under the supervision of Dr S. Khoza & Dr. V. Naiker. The aim of this research project is to find out the use of ICT in ODL.

As part of this project, I would like to invite you to take part in answering a questionnaire online. This activity will involve clicking on the link below and will take around 15-20 minutes. Submitting the online questionnaire will be taken to mean consent to participate. This questionnaire will be stored in password permitted folder and only the researcher will have access to it. It will be deleted after 10 years.

There will be no personal costs to you if you participate in this project, you will not receive any direct benefits from participation but there are no disadvantages or penalties if you do not choose to participate or if you withdraw from the study. You may withdraw at any time or not answer any question if you do not want to. The questionnaire will be completely confidential and anonymous as it will not be asking for your name or any identifying information, and the information you give to me will be held securely and not disclosed to anyone else. I will be using a pseudonym (false name) to represent your participation in my final research report.

If you have any questions during or afterwards about this research, feel free to contact me at the details listed below. This study will be written up as a research report which will be available online through the university library website. If you wish to receive a summary of this report, I will be happy to send it to you. The data collected from this research project will be stored in password-protected file and will be kept for 10 years. With your permission, the data collected from this research project may be used by other researchers in an anonymized format. If you have any concerns or complaints regarding the ethical procedures of this study, you are welcome to contact the University Human Research Ethics Committee (Non-Medical), telephone +27(0) 11 717 1408, email hrecnon-medical@wits.ac.za

Yours sincerely,

Researcher:

Tebogo Angela Moreetsi, 2281186@students.wits.ac.za, +267 71356204

Supervisor:

Dr. Samuel Khoza, KhozaSD@tut.ac.za, +2712 382 9300

Dr. Vasidevan Naiker, Vasidevan.Naiker@wits.ac.za, +2711 717 3269

APPENDIX H

Information Letter (staff, lecturers, tutors)

Dear Sir / Madam,

My name is Tebogo Angela Moreetsi and I am a PhD student in the School of Education - Educational Information & Engineering Technology Division at the University of the Witwatersrand, Johannesburg. As part of my studies, I have to undertake a research project, and I **am Exploring the use of Information and Communication Technology (ICT) in Open and Distance Learning (ODL): The Case study of Botswana Open University (BOU)** under the supervision of Dr S. Khoza & Dr. V. Naiker. The aim of this research project is to find out the use of ICT in ODL.

As part of this project, I would like to invite you to take part in an interview. This activity will involve a virtual meeting and will take around 20 minutes. With your permission, I would also like to audio/video record the interview using a digital device. This recording will be stored in a password-operated file and only the researcher will have access to this recording. It will be deleted after 10 years.

There will be no personal costs to you if you participate in this project, you will not receive any direct benefits from participation but there are no disadvantages or penalties if you do not choose to participate or if you withdraw from the study. You may withdraw at any time or not answer any question if you do not want to. The interview will be completely confidential and anonymous as I will not be asking for your name or any identifying information, and the information you give to me will be held securely and not disclosed to anyone else. I will be using a pseudonym (false name) to represent your participation in my final research report. If you experience any distress or discomfort at any point in this process, we will stop the interview or resume another time.

If you have any questions during or afterwards about this research, feel free to contact me at the details listed below. This study will be written up as a research report which will be available online through the university library website. If you wish to receive a summary of this report, I will be happy to send it to you. The data collected from this research project will be stored in password-protected file and will be kept for 10 years. With your permission, the data collected from this research project may be used by other researchers in an anonymized format. If you have any concerns or complaints regarding the ethical procedures of this study, you are welcome to contact the University Human Research Ethics Committee (Non-Medical), telephone +27(0) 11 717 1408, email hrecnon-medical@wits.ac.za

Yours sincerely,

Researcher:

Tebogo Angela Moreetsi, 2281186@students.wits.ac.za, +267 71356204

Supervisor:

Dr. Samuel Khoza, KhozaSD@tut.ac.za , +2712 382 9300

Dr. Vasidevan Naiker , Vasidevan.Naiker@wits.ac.za, +2711 717 3269

APPENDIX I

Data Collection Instrument for Botswana Open University Staff (Schedule Interview)

Protocol

In order to get accurate information during our interview I have brought with me a tape recorder which will be used to record our conversation today. I will also be taking notes. Please sign the consent form. The information gathered from this interview, only my supervisors and I will be privy to the tapes which will be destroyed after they have been transcribed. Furthermore, I remind you of the following;

1. All information shared here will be confidential.
2. Your participation is voluntary and you may stop at any time if you feel you want to withdraw or if you are uncomfortable.
3. Thank you for your agreeing to take part in this interview.

The planned interview may last no longer than one hour. During this time, there will be several questions that I would like to cover. If time begins to run short, I may be forced to interrupt you in order to move ahead and complete the questions.

Introduction

You have been selected to take part in this interview with me because you are seen as someone with experience in dealing with students who are enrolled in an Open and Distance Learning programme which is offered online. My research is focused on exploring the experiences, perceptions and challenges experienced by staff dealing with students who are enrolled in an online, open and distance learning programme. The study seeks to look at the challenges faced by students and also yourselves as staff. The aim is to come up with strategies and standards that will inform policymakers on how to improve support to the students.

APPENDIX J

Letter of permission to conduct research

Private Bag BOI 87, Bontleng, Gaborone Tel: (+267) 3646000 Fax: (+267) 3191089 www.bou.ac.bw



Botswana Open

University

Inspire Tomorrow, Today

Reference No: BOU/PF 11365 11 (C24) Date: 25/05/2021

Ms Tebogo Angela Moreetsi

P.O Box 502120

Mahalapye

26/05/2021

Ufs: Dean, School of Education

A handwritten signature in blue ink, likely belonging to the Dean of the School of Education.

Dear Ms. Moreetsi

RE: Request for Permission to conduct Research - Yourself

Reference is made to your letter dated 20th May 2021.

The University has noted your request to conduct PhD Research in the University and hereby grant you permission to go ahead and use the University information for your Research. You must however ensure adherence to your research ethics.

You are further advised to process your ethical clearance through the Department of Research and Innovation.

We take this opportunity to wish you all the best in your studies!

Yours sincerely

A handwritten signature in blue ink, belonging to Lesedi Lesetedi.

Lesedi Lesetedi

For Vice Chancellor

cc: Dvc, ss

Received by: T.A. Moreksi Signature:  Date: 07/06/2021



APPENDIX K

Letter of acceptance of article

[e-Saintika] Editor Decision

2 messages

Muhammad Roil Bilad <ejournal.litpam@gmail.com>

20 March 2024 at 17:48

To: Tebogo <tmagetse@staff.bou.ac.bw>, Samuel Khoza <sammykhz35@gmail.com>, Vasi <vasi.naiker@wits.ac.za>

Tebogo, Samuel Khoza, Vasi:

We have reached a decision regarding your submission to Jurnal Penelitian dan Pengkajian Ilmu Pendidikan: e-Saintika, "Exploring the use of Information and Communication Technology in Open and Distance Learning: The Case study of Botswana Open University: The use of Information and Communication Technology in Open and Distance Learning: The Case study of Botswana Open University".

Our decision is to: Accept Submission

Note: Please consider incorporating the reviewer's suggestions and sending your final manuscript to the discussion panel.

Reviewer A:

The revised manuscript represents a significant improvement over the original draft, and the author has addressed my questions and comments in a satisfactory manner. I therefore recommend publication of this article, as it is a well-written and scientifically rigorous contribution to the field that has the potential to advance knowledge. However, I suggest that the author consider professional proofreading before publication to ensure that the final version is free of errors.

Also still the paper lacks of enough references. In my previous review I had suggested some studies in an effort to help authors. However they did not include them. I suggest to add them or at least to find similar studies.

Recommendation: Accept Submission

APPENDIX L

Letter from Ethics Committee



Research Office

HUMAN RESEARCH ETHICS COMMITTEE (NON-MEDICAL)
R14/49 Moreetsi

CLEARANCE CERTIFICATE

PROTOCOL NUMBER: H21/02/15

PROJECT TITLE

Exploring the use of Information and Communication Technology (ICT) in Open and Distance Learning (ODL): The Case study of Botswana Open University (BOU)

INVESTIGATOR(S)

Miss T Moreetsi

SCHOOL/DEPARTMENT

Wits School Education/

DATE CONSIDERED

19 February 2021

DECISION OF THE COMMITTEE

Approved
Risk Level: Minimal

EXPIRY DATE

26 August 2024

DATE

27 August 2021

CHAIRPERSON

(Professor J Knight)

cc: Supervisor : Dr S Khoza and Dr V Naiker

DECLARATION OF INVESTIGATOR(S)

To be completed in duplicate and **ONE COPY** returned to the Secretary at Room 10004, 10th Floor, Senate House, University. Unreported changes to the application may invalidate the clearance given by the HREC (Non-Medical)

I/We fully understand the conditions under which I am/we are authorized to carry out the abovementioned research and I/we guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to submit an amendment of the protocol to the Committee. **I agree to completion of a regular progress report. For Minimal and Low studies, this is due annually on 31 December. For Medium and High Risk studies, this is due twice annually on 30 June and 31 December.**

Signature

Date

PLEASE QUOTE THE PROTOCOL NUMBER ON ALL ENQUIRIES

9th July 2024

GRAMMARIAN'S CERTIFICATE

This is to certify that the undersigned has reviewed and gone through all the pages of the thesis, titled: **“Exploring the use of Information and Communication Technology (ICT) in Open and Distance Learning (ODL): The Case study of Botswana Open University (BOU)”** by **Tebogo Angela Moreetsi-Magetse** as against the set of structural rules that govern the composition of sentences, phrases, and words in the English language.

Signed:

A handwritten signature in black ink, appearing to read 'RA Basson', with a stylized flourish at the end.

Ms RA Basson (MA Research Psychology)

Email: renedabasson@gmail.com

Cell: 0769332281

Tebogo plag scan ready doc.docx

ORIGINALITY REPORT

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