

**DISTANCE STUDENTS' PERCEPTION TOWARDS E-LEARNING AT  
NAMIBIA UNIVERSITY OF SCIENCE AND TECHNOLOGY'S  
REGIONAL CENTRES**

**by**

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**submitted in accordance with the requirements for the degree of**

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**at the**

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**07 DECEMBER 2020**

## DECLARATION

I, Charles Sihope Lushu, declare that “*Distance students` perception towards e-learning at Namibia University of Science and Technology`s regional centres*” is my own work and that all sources that I have used or quoted have been indicated and acknowledged by means of complete references.

I further declare that I have submitted the thesis to originally checking software.

I further declare that I have not previously submitted this work, or part of it, for examination at UNISA for another qualification or at any other higher education institution.

Signed: \_\_\_\_\_



Date: 07/12/2020

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## **DEDICATION**

This study is dedicated to my late daughter, JOY, who passed away in 2018, a few months after her birth with a rare medical condition known as 'TRISOMY 13'. Her health condition taught me to keep a balance between my studies, work, and family matters.

## ACKNOWLEDGEMENTS

The Lozi speaking people once said: “*Mutu haki mutu hakusina batu*”, literally translated as “*we are only complete through others*”. Accordingly, I would not have succeeded in completing this study without the assistance I obtained from different human beings.

My whole-hearted appreciation and sincere gratitude go to:

- The almighty God, for the everlasting love and strength during the period of this study as I struggled to come to terms with the loss of my daughter, JOY, who had a rare medical condition of TRISOMY 13.
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- Cilla Dowse and her team for editing the language and layout of my dissertation.

## **ABSTRACT**

In this modern world, there is no doubt that information and communication technology (ICT) has brought remarkable changes in the distance education sector. Investigations into the influence of technology in education differ, but a few of them among adult learners suggest benefits worth inquiring about. This study explored e-learning at Namibia University of Science and Technology (NUST) by determining the perception of distance students at its nine regional centres. The objective of the study was to determine distance students' perception of the ease of use of e-learning, identify the benefits of e-learning, identify challenges encountered when engaging in e-learning and make recommendations for the effective use of e-learning at NUST.

In an attempt to explore e-learning at NUST, a qualitative research design was employed to collect data from the distance students through telephone interviews. The qualitative method was regarded as suitable for this study to get in-depth perspectives of the distance students concerning e-learning. Data was analysed thematically.

The study revealed that distance students were aware of and understood the e-learning concept. While the study brought to light some challenges, the students who participated in the study expressed satisfaction with the e-learning system at NUST due to its convenience, flexibility, cost reductions and interactive opportunities it presented to them while studying. It is recommended that the e-learning system be redesigned to respond to the challenges that distance students encounter in engaging in e-learning and for its effective use.

**Key words:** Distance education, distance learning, distance students, e-learning, open and distance learning, perception, regional centres

## TSHOBOKANYO

Mo lefatsheng le la segompieno, ga go pelaelo ya gore tshedimosetso le thekenoloji ya tlhaeletsano (Information and communication technology (ICT) di tlisitse diphetogo tse di makatsang mo lekaleng la thutotlhaeletsano. Dipatlisiso di a farologana ka ga tlhotlheletso ya thekenoloji mo thutong, fela tse di mmalwa tse di dirilweng mo baithuting ba bagolo di tshitsinya fa go ka nna mosola thata go tswela ka tsona. Patlisiso e, e tlhotlhomisitse ka go ithuta ka tiriso ya mafaratlhatlha kwa Yunivesithi ya Namibia ya Saense le Thekenoloji (Namibia University of Science and Technology (NUST) ka go tlhomamisa ka moo baithuti ba thutotlhaeletsano ba bonang go le bonolo ka teng go ithuta ka tiriso ya mafaratlhatlha, go lemoga mosola wa go ithuta ka tiriso ya mafaratlhatlha, go lemoga dikgwelho tse ba di itemogelang fa ba ithuta ka tiriso ya mafaratlhatlha le go neela dikatlenegiso tsa go ithuta ka go dirisa mafaratlhatlha ka mokgwa o o ka bontshang katlego kwa NUST.

Mo maitekong a go tlhotlhomisa ka go ithuta ka tiriso ya mafaratlhatlha kwa NUST, go dirisitswe moralo wa mmeo wa khwalitatifi go kokoanya dinewane (data) go tswa go baithuti ba thutotlhaeletsano ka dipotsolotso tse di neng di dirwa ka tlhaeletsano ya mogala. Mmeo wa khwalitatifi o tserwe jaaka o o maleba mo patlisisong e go thusa go ka fitlhelela ka tsenelelo molebo o baithuti ba thutotlhaeletsano ba bonang dilo ka gona mabapi le go ithuta ka tiriso ya mafaratlhatlha. Dinewane di ne tsa tsharololwa go ya ka tatelano ya merero.

Patlisiso e senotse fa baithuti ba thutotlhaeletsano ba ne ba lemoga se e bile ba tlhaloganya mogopolo o, wa go ithuta ka tiriso ya mafaratlhatlha. Le fa patlisiso e, e senotse dikgwelho dingwe, baithuti ba ba nnileng le seabe mo patlisisong e, ba bontshitse go kgotsofalela matlhamaganyane a go ithuta ka tiriso ya mafaratlhatlha kwa NUST ka ntlha ya fa go ba tlhofofaletsa, go dirisega bonolo, go ba fokoletsa ditshenyegelo le go ba neela ditshono tsa dikgolagano tse mokgwa o, o di ba tlhagiseditseng fa ba ithuta. Go atlenegisiwa gore matlhamaganyane a go ithuta ka tiriso ya mafaratlhatlha a tlhamiwe sešwa gore a tsibogele dikgwelho tse baithuti ba thutotlhaeletsano ba itemogelang tsona fa ba tsena mo mokgweng o, wa go ithuta ka tiriso ya mafaratlhatlha le go o dirisa ka bokgoni jo bo feleletseng.

**Mareo a konokono: Thutotlhaeletsano, go ithuta-ka-tlhaeletso, baithuti ba thutotlhaeletsano, go ithuta ka tiriso ya mafaratlhatlha, thutotlhaeletsano le thuto ntle le maparego, molebo, disenthara tsa dikgaolo.**

## OPSOMMING

In hierdie moderne wêreld het inligtings- en kommunikasietegnologie (IKT) sonder twyfel merkwaardige veranderings in die afstandsonderrigsektor meegebring. Studies van tegnologie se invloed op onderrig verskil, maar daar is 'n paar wat volwasse leerders betrek en dui op voordele wat die moeite werd is om te bestudeer. Hierdie studie het ondersoek ingestel na e-leer by die Namibiese Universiteit van Wetenskap en Tegnologie (NUST) deur die persepsies van afstandsonderrig-studente by sy nege streeksentrums te bepaal. Die studie se oogmerke was: om te bepaal hoe maklik afstandsonderrigstudente dit vind om e-leer te gebruik; om die voordele van e-leer te identifiseer; om die uitdagings wat met e-leer gepaardgaan, te identifiseer; en om aanbevelings te maak rakende die doeltreffende benutting van e-leer by NUST.

In 'n poging om e-leer by NUST te ondersoek, is 'n kwalitatiewe navorsingsontwerp ingespan om data deur middel van telefoniese onderhoud met afstandsonderrig-studente in te samel. Die kwalitatiewe metode was geskik vir hierdie studie om omvattende inligting oor afstandsonderrigstudente se perspektiewe op e-leer te bekom. Die data is tematies ontleed.

Die studie het getoon dat afstandsonderrigstudente bewus is van die e-leerkonsep en dit verstaan. Die studie het lig gewerp op enkele uitdagings, maar die studente wat aan die studie deelgeneem het, het aangedui dat hulle tevrede is met NUST se e-leerstelsel omdat dit gerieflik en buigsaam is, verminderde onkoste meebring en geleenthede skep vir wisselwerking tydens hul studie. Daar word aanbeveel dat die e-leerstelsel herontwerp word om die uitdagings wat afstandsonderrigstudente tydens hul studie teëkom, die hoof te bied en die doeltreffendheid van e-leer te verhoog.

**Sleutelwoorde: Afstandsonderrig, afstandsl eer, afstandsonderrigstudente, e-leer, oop en afstandsl eer, persepsie, streeksentrums**

## LIST OF ACRONYMS

4IR	Fourth Industrial Revolution
CD-ROM	Compact disc read-only memory
COLL	Centre for Open and Lifelong Learning
COVID-19	Coronavirus Disease
ICDE	International Council for Distance Education
ICT	Information and Communication Technology
KEWL	Knowledge Environment for Web-based Learning
LMS	Learning Management System
MB	Megabytes
MOODLE	Modular Object-Oriented Dynamic Learning Environment
NUST	Namibia University of Science and Technology
ODL	Open and Distance Learning
OUJ	Open University of Japan
PLATO	Programmed Logic for Automatic Teaching Operations
SUN	Student Union of Namibia
TLU	Teaching and Learning Unit
UNISA	University of South Africa
USA	United States of America
VLE	Virtual Learning Environment

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# CHAPTER 1

## ORIENTATION AND BACKGROUND OF THE STUDY

### 1.1 INTRODUCTION

In this modern-day world, there is no doubt that Information and Communication Technology (ICT) is largely responsible for extraordinary changes in our education sector for the last few decades (Shehu, 2012:11). People have been able to access these technologies which has increased their living standards (Bosamia, 2013:2). Noteworthy, ICT has brought changes in teaching and learning, especially in distance education. Investigations on the influence of technology in education vary, but a few among adult learners, suggest benefits worth inquiring (Warschauer & Liaw, 2010:1). Distance students' ways of dealing with ICT methods and practice of teaching may determine whether e-learning as another mode of study could be coordinated into their learning. In its ICT policy of 2010, the Polytechnic of Namibia (2010) states that e-learning is used as a tool for learning and teaching, making effective and efficient use of all resources whilst maintaining quality standards required universally. The reason for undertaking this study was to establish distance students' perceptions of e-learning at the Namibia University of Science and Technology's (NUST) regional centres.

This chapter addressed some research components such as the background of the study, rationale for the study, statement of the problem with its related research questions, and aims and objectives. The chapter also clarifies key concepts that guide the study by defining them and finally, presents an outline for the research chapters.

### 1.2 BACKGROUND OF THE STUDY

According to the Ministry of Education, Arts and Culture (2005:4) "The Education and Training sector, long seen as the torchbearer for capacity development in Namibia, created the Information and Communication Technology (ICT) policy for education to enhance the use of ICT in the delivery of education and training". The purpose of the policy amongst others, were to have ICT-literate citizens who are practical and are able to engage in the advancements of information technology (Quest, 2014:3). This

ICT policy was paramount as Namibia was moving towards a knowledge-based development paradigm by preparing all Namibian learners, students, teachers, and communities of today for the world economy of tomorrow (Ministry of Education, Arts, and Culture, 2005:1). The policy empowered institutions of higher learning in Namibia to develop their ICT policies, of which Namibia University of Science and Technology (NUST) was not an exception.

According to Almarabeh (2014:31), “the development of the educational process in all countries of the world is a notable goal and can be achieved through the development of policies and investment to improve the quality of education”. The accelerated technological progress is one of the largest promising stimulants for developing countries to promote their educational systems and access to the array of developed countries in education.

NUST is a dual-mode institution with full-time on-campus students, part-time and distance students catered for through the nine (9) regional centres across the country. NUST started with e-learning in 2004 when one of the students in the new Information Technology School conducted research on “Classroom management systems, or internet, and how these technologies can also be applied to support On-campus training” (Kangandji, 2008:180). In 2005, NUST decided to institutionalise e-learning and the responsibility was assigned to one of its professional centres, namely, the Teaching and Learning Unit (TLU). At that stage, e-learning was only offered through a blended model, that is, face-to-face classes combined with online sessions and predominantly offered to students on campus.

In 2010, NUST’s Centre for Open and Lifelong Learning (COLL) introduced e-learning for students studying through distance learning mode at its ten (9) regional centres. During this period, only one module, Computer User Skills, was offered through pure e-learning. In its 4th Strategic Plan (Polytechnic of Namibia, 2014) NUST’s notable achievements in e-learning were recorded.

With these achievements, NUST intends, in its 5th Strategic Plan, to advance to the next level by having all courses currently offered through distance learning to also be conducted via e-learning (Namibia University of Science and Technology, 2019).

In this information age, we are enveloped and completely involved in technology. Furthermore, “the rate of technology change shows no sign of slowing down” (Bates, 2014:13). While e-learning presents favourable circumstances for distance students, it cannot be embraced without establishing and determining their perceptions. Placing great importance on the students’ perspective, plays a crucial role in the way we perceive their intended meaning and improvement of e-learning at NUST. Usually, new methods of teaching and learning in education fail because students, as end-users, do not accept them, which could be due to how they view the method.

According to Ozkan and Koseler (2009 as cited in Almarabeh, 2014:31), “e-learning is multidisciplinary where its success depends on two factors: (a) technological factor, i.e. software and hardware that are used to build the system; (b) human factor, i.e. students and instructors”. Since e-learning at NUST is part of the new methods of instruction and knowledge acquisition, it can be perceived by distance students in different ways.

As a result, this study assessed students’ perceptions to address this gap at Namibia University of Science and Technology’s nine (9) regional centres. E-learning was introduced at NUST during a time where some students did not have laptops, had no regular and reliable access to the internet, and were faced with expensive telecommunication costs. Currently, some infrastructural and logistical challenges on the side of the institution, are still not adequately addressed.

### **1.3 STATEMENT OF THE PROBLEM**

The overwhelming majority of distance students at NUST are adults. According to Moore and Kearsley, (2012:151), “an adult is a person with employment, family and social obligations”. With these interrelated interests, distance students do not have adequate time to attend face-to-face learning sessions. To meet these challenges, NUST needs to intensify and have a comprehensive e-learning system that has the potential to enhance students’ learning. In addition, with the increase in demand for tertiary education among working adults, a flexible education delivery mode, such as e-learning, is identified by NUST as a solution.

Bearing in mind the complexity of an online learning system, the study needed to establish the distance students’ perception towards this 4th mode of study at NUST.

As stated by Harasim (2017:111), “the greatest problem is the general lack of appreciation and understanding of its value and potential to create a future based on enlightened principles of social well-being, civil society, and equitable global advancement”. This means that there appears to be a lack of understanding of online education by distance learning students at NUST that may lead to the low uptake of this mode of learning and as a result, this is justification for the study.

#### **1.4 THE RATIONALE FOR THE STUDY**

One of the Institutional goals in NUST’s 5th Strategic Plan (Namibia University of Science and Technology, 2019) is to achieve excellence in teaching, as this is the core activity of every university and forms an integral part of the process of knowledge creation, diffusion and application. To achieve this goal, NUST needs to continue enhancing teaching and learning methodologies, such as e-learning, by establishing students’ perceptions toward this new system.

As a Distance Education Practitioner working for one of NUST Regional Centres, I offer student support to distance students daily, and I feel that the e-learning system is not fully optimised for our students. My position within NUST has led me to realise that the e-learning system still needs refinement before all modules are conducted online. Although NUST currently offers e-learning courses, not many students choose this option and unless NUST adopts a more comprehensive system, it will be a challenge to ensure that it is completely pedagogically sound. Therefore, the aim of the study is to assess distance students’ perceptions and what issues they experienced.

A similar study was conducted in 2010 by Frohlich-Avard (2010) at NUST. It, however, had some shortcomings. Although positive perceptions towards e-learning were identified, the study was conducted on a small scale (six participants only and all from the main campus). Furthermore, e-learning was still being piloted on a blended learning model at the institution.

This current study is done on a larger scale with the focus being the easiness of use, views on functionality, challenges, and recommendations regarding the e-learning system. The result of the study may, therefore, assist decision-makers in designing a more comprehensive e-learning system at NUST.

## **1.5 RESEARCH QUESTIONS**

To understand the perceptions of distance learning students of e-learning at Namibia University of Science and Technology (NUST) Regional Centres, the following primary research question needed to be answered: *What is the perception of distance students towards e-learning at Namibia University of Science and Technology's Regional Centres?*

The following set of subsidiary research questions were formulated to support the main research question:

1. What are distance students' perceptions towards the ease of use for e-learning at NUST?
2. What are distance students' perceptions of the benefits of e-learning at NUST?
3. What are the challenges that distance students encounter when using e-learning at NUST?
4. What are the measures to be recommended for the effective use of e-learning at NUST?

## **1.6 AIMS AND OBJECTIVES**

The aims and objectives of any study are usually set for the purpose to respond to the identified research problem. It was therefore proposed that a comprehensive and thorough study be conducted on the perception of distance students at NUST's Regional Centres regarding e-learning.

The study aims to:

- Investigate the perception of distance students towards e-learning at NUST regional centers.
- Raise awareness among distance students to embrace e-learning as another mode of study at NUST
- Assist the management and e-learning custodians of the university to enhance online teaching and learning by better understanding how distance students perceive the e-learning mode.

Research objectives indicates the depth of a specific phenomenon under study or issues to be investigated (Thomas & Hodges, 2010:39). They must describe to the point what the research is trying to achieve. To measure the perceptions of distance students towards e-learning, the following central objectives of the study were set to:

- Determine the distance students' perceptions towards the easiness of use for e-learning at NUST.
- Identify the distance students' perceptions of the benefits of e-learning at NUST.
- Identify the challenges faced by distance students when using e-learning at NUST.
- Identify and recommend the measures for effective use of e-learning at NUST

## **1.7 METHODOLOGY**

### **1.7.1 Research Approach and Design**

The qualitative study is underpinned by an interpretivist research paradigm which allows the researcher to understand the phenomenon through the meaning that distance students assign to e-learning (Aspers & Corte, 2019:142). The study is guided by a an exploratory case study in order to achieve new insight into the phenomenon (Akhtar, 2016:73),

### **1.7.2 Research Methods**

The selection of participants is done through purposive sampling from the population of distance students linked to NUST regional centres. Participants are interviewed telephonically as this would allow for geographical access to research participants (Lechuga, 2012). The interviews will be guided by a research schedule. As data will be mainly unstructured text-based data, it will be important to work systematically to elicit meaning by undertaking a process of identifying patterns or themes (Maguire & Delahunt, 2017)

### **1.7.3 Trustworthiness**

To achieve the thoroughness of the study, Lincoln and Guba's (1985) criteria for trustworthiness will incorporate norms such as credibility, dependability, transferability, and confirmability.

### **1.7.4 Ethical Considerations**

Ethical measures, such as rules governing behaviour and conduct between the researcher and subjects, will be adhered to in this study (De Vos, Strydom, Fouché & Delport, 2011).

## **1.8 DEFINITION OF KEY CONCEPTS**

In order to understand the key concepts used in this study, the following definitions are presented.

### **1.8.1 Distance Students**

According to Moore and Kearsley (2012:150) "distance students are adults who like to feel they have some control over what is happening and exercise personal responsibility for their learning usually volunteer to learn and have intrinsic motivation". In most cases, this learning takes place when the students and lecturers are in different locations. Learning may take place synchronously or asynchronously.

### **1.8.2 Perception**

The Cambridge English Dictionary (n.d) defines perception as, "a belief or opinion, often held by many people and based on how things seem". This belief or opinion is the result of the organisation, identification, and interpreting information to present and understand current situations. Besides, perception is equivalent to the reality of most practical purposes and guides human conduct in general.

### **1.8.3 E-learning**

According to Stockley (as cited by Suryawanshi & Suryawanshi, 2015), e-learning is, "a training or education program by electronic means". It involves the use of electronic devices, such as mobile phones, desktop computers, laptops, and iPads in some way

to provide educational or learning materials”. In distance education, e-learning is one way to provide for diverse learning styles of distance students by moving away from the face-to-face mode of study, in favour of the virtual learning environment, where they would do it a speed that is comfortable with them.

#### **1.8.4 Distance Education**

According to Moore and Kearsley (2012:2) distance education is an organized teaching and learning that occurs at a geographical distance from learning made necessary through technological communications. This is a more inclusive phrase that reflects an organisational and systematic approach.

#### **1.8.5 Distance Learning**

This term describes the efforts of providing access to learning for those who are geographically distance (Moore, Dickson & Galyen, 2011:129) The concept emphasises the learner because, in the setup of distance education, they are required to take greater responsibility for their learning.

#### **1.8.6 Open and Distance Learning**

A complex concept aimed at bridging the geographical, time, social, economic and educational and communication distance between students and institutions, students and lecturers, students, and educational courseware, and students and peers (UNISA, 2014). Open and distance learning is flexible about modalities and timing of teaching and learning, and the admission criteria without compromising necessary quality considerations. The focus is to remove barriers to learning and the promotion of learning flexibility so students can meet their expectations and succeed in their studies.

#### **1.8.7 Open Learning**

Open learning is an educational policy that removes barriers to learning and places no prior qualifications to study (Bozkurt, 2019:261). This concept relates to the principles of access and flexibility in distance education.

## **1.9 OUTLINE OF THE CHAPTERS**

This is a dissertation of limited scope with a written account of a research study under five chapters. Each chapter comprises an introduction (discussion on what the chapter brings about), the main section (discussion and explanation of the chapter issues), and a conclusion (summary of what has been discussed).

### **Chapter 1: Introduction**

In this chapter, general statements about the background of the study were outlined. It is also in the introduction where the background of the study, research problem or research question, statement of the problem, and the layout of research chapters were described. To justify this part of the study, the definition of key concepts used in the research were explained.

### **Chapter 2: A Literature Review**

To ensure a grasp of the important ideas and findings related to e-learning at this stage, the description, comparison, contrast, and evaluation of theories and arguments in the scholarly literature on the subject are discussed. The central focus is to examine and evaluate what has already been researched and establish the relevance of such information to the research topic under the definition of e-learning, history of distance education and e-learning, e-learning at NUST, benefits of e-learning as well as the challenges related to e-learning.

The issue of gaps in previous studies and the filling such gaps were also identified and discussed. The literature review was concluded by summarising major contributions by previous scholars, pointing out weaknesses in the methodology used, the gaps, and suggest areas for further research.

### **Chapter 3: Methodology**

This chapter outlines the plan of the study. It begins with a research approach undertaken during the study. It further includes the following: population and sampling, instruments and data collection techniques, research ethics, and the trustworthiness of the study. All of these aspects give details about the methodology used in this study.

## **Chapter 4: Data Presentation, Analysis and Discussions of the Findings**

This chapter presents the findings of the study. It begins with a description of participants' demographic information to give the reader an idea of the population representation in the study. The results are then analysed in alignment with the research questions and findings are discussed. The organisation of data is displayed in table form. As tables are often not self-evident in research, the reference is given in the text and explanation provided.

## **Chapter 5: Conclusions and Recommendations**

At this stage, conclusions and recommendations of what has been researched and found are presented in non-statistical terms.

### **1.10 CONCLUSION**

The main aim of this chapter was to provide a general summary of the study and introducing the research problem on distance students' perceptions towards e-learning at Namibia University of Science and Technology's Regional Centres. In addition, the chapter presented the introduction, background, and rationale of the study. The statement of the problem with its related research questions and the expression of the aims and objectives also formed part of the chapter. Lastly, key concepts that guided the study were clarified through definitions and a brief outline of all the chapters have been presented.

## **CHAPTER 2**

### **A REVIEW OF THE LITERATURE**

#### **2.1 INTRODUCTION**

The complex nature of educational research calls for a detailed review of the literature to establish a point of departure for a relevant yet useful research (Boote & Beile 2005:3). Since the aim of the study is to develop a deeper understanding of distance education students' perceptions at NUST regarding e-learning, this chapter present a review of the literature. Bless, Higson-Smith and Kagee (2006:24) defines a literature review as sources relevant to a particular research topic and provides critical evaluations in relation to what is being investigated. Mouton (2011:87), further states that "it is also through a literature review that one can learn from other scholars in terms of how they have theorised and conceptualised the relevant issues, what methodologies they have used and to what extent they have learned". Therefore, this chapter aims to delve deeper into the topics of distance learning and specifically e-learning at NUST by understanding scholarly writings on these topics.

This chapter will present a literature study conducted under seven major components of e-learning and distance education: it begins with the definition of distance education and e-learning; the history and generations of distance education and that of e-learning; theories of distance and e-learning; distance education and e-learning at NUST; benefits of e-learning; and problems or issues related to e-learning in the distance learning landscape.

#### **2.2 DEFINITION OF DISTANCE EDUCATION**

The definition of distance education is the subject of a lively debate in the literature (Rumble, 1989:8). Keegan (1980:13) emphasises that there are some generally accepted distance education definitions as informed from the perspectives of choice of communication technology, approaches to teaching, and educational model. He presents definitions of well-known scholars such as Peters (1973), Moore (1973) and Holmberg (1977). Distance education is a system of teaching knowledge, skills and attitudes which is reorganised by the use of division of labour and administrative

ideologies as well as the wide use of technical media, especially to reproduce high-quality teaching resources, which make it possible to teach a great number of students at the same time, wherever they live (Peters, 1973:206). Moore (1973:664) explains that distance education can be described as the group of educational methods in which the instructional activities are completed separated from the learning activities, including those that in a normal situation would be done in the learners' presence, so that communication between the teacher and the learner is enabled by print or electronic medium. Holmberg (1977:9) adds that the term 'distance education' includes numerous methods of education at all levels which are not under the watchful observation of a tutor present with their students in the same classroom or place, but still, benefit from the organisation, management and teaching of a lecture.

Hassenburg (2009:7) sees distance education as "any method of education in which the teacher or the teaching activity does not take place at the same time or place as the student." Moore and Kearsley (2012:2) present a multidimensional definition that "distance education is planned teaching that typically happens in a different place from learning, needing communication using technology as well as exceptional institutional coordination". Similarly, distance education is a systematic instruction activity where students are geographically separated from the teacher and institution for the greater part of their learning period. Distance education resources are delivered through a variety of media including, but not restricted to, print, audio recording, videotape, computer software, web-based programs, and other online technology (WVAdultEd Instructor Handbook 2016-17 Section 13 Distance Education, 2016-17:5).

It is further revealed that distance education is defined as "a practice of using correspondence, either print or virtual, to learn" (Study.com, 2017). Recently, Shikulo (2018:20) defined distance education as "the type of education which uses a variety of media, namely print, electronic and other technologies to provide access to instructional materials and room to study while involved with other responsibilities such as work, family and community activities".

From the above definitions, it is established that the elementary impression of distance education is that teachers and students are most of the time in separate locations. Distance education encompasses an array of different dimensions. It describes firstly the relationship between two parties, the teacher and the learner. It has been stated

by Holmberg (2005:10) that distance education is remarkable because it brings about a one-to-one relationship between the teacher and the student. The other dimension of the definition is the separation of the teacher and student. The separation is thought of in geographical terms where the teacher is in one location and the student in another. One person here, the learner, consciously begins the journey of learning and is supported by another, the teacher, who strategies methods of assisting that person to learn within a context of different locations in which they all find themselves. Finally, the use of technology is a further dimension where interaction can be synchronous or asynchronous communication.

### **2.3 DEFINITION OF E-LEARNING**

E-learning has many different definitions which means that there is not a very clear definite one. According to Guri-Rosenblit (2005a, 2005b), there are over a dozen different descriptive terms, all relating to online or e-learning. As indicated, “e-learning is a form of teaching and learning - which may represent a part or the whole of the education model in which it is used - that makes use of electronic media and devices to facilitate access, promote evolution and improve the quality of education and training” (Sangrà, Vlachopoulos, Cabrera & Bravo, 2011:26).

E-learning is interactive in such a way that students can share or exchange information with lecturers or other peers in the class. Almarabeh (2014:31) defines “e-learning as the use of information and communication technology e.g. Internet, Computers, Mobile phones, Learning Management Systems (LMS), Televisions, Radios, and other means to enhance teaching and learning activities”. Similarly, Keller and Cernerud (2002:55) define e-learning as “a relatively new concept implying learning utilizing digital media such as computers, Web pages, video conference systems, and CD-ROMs”.

Chitanana and Museva (2012:39) stated that “e-learning allows the specific students’ needs to be met because of its greater flexibility as electronic-studies can reach a great number of students wherever they find themselves”. This means that students do not need to study in one particular place and can attend to their academic work at a convenient time. Stockley (2003 cited by Suryawanshi & Suryawanshi, 2015:107) brings forth a similar definition of e-learning by stating that, “e-learning is a training or

educational program by electronic means that involves the use of electronic devices, such as mobile phones, desktop computers, laptops, and iPads in some way to provide educational or learning materials". In distance education, e-learning is one way to provide for diverse learning styles of distance students by moving away from the face-to-face mode of study, in favour of the virtual learning environment, where they would learn at a speed and time that is convenient to them.

To expand further, other scholars regard the model of e-learning to fall into four general groups of definitions. Sangrà *et al.* (2011:148) identify the four categories as Technology-driven, Delivery-system-oriented, Communication-oriented and Education-paradigm-oriented. On a technology-driven definition, Guri-Rosenblit (2005a as cited in Sangrà *et al.* 2011:148) defines e-learning as, "the usage of automated media for different educational reasons that vary from add-on functions in traditional settings to complete replacement for the face-to-face meetings by online encounters". What was stressed in this definition is the technological features of this mode of learning delivery.

The delivery-system-oriented definition categories e-learning as, "the delivery of education (all activities related to instructing, teaching and learning) through various electronic media" (Koohang & Herman, 2005 as cited in Sangrà *et al.*, 2011:148). In this definition, the scholars focus on accessing knowledge or resources using e-learning as a means.

The communication-oriented definition is based on e-learning as a tool for communication, interaction and a new shift of learning or improvement on the existing modes of learning delivery. It is stated that "e-learning is education that uses communication that occurs through the use of electronic devices, information sharing and interactivity between the lecturer and students", and further as, " technological devices used to assist students to advance their learning" (Sangrà *et al.*, 2011:149).

In the education sector, the education-paradigm-oriented definition of e-learning has been also supported by Sangrà *et al.* (2011:21) as "a method of teaching and learning that uses software programs and internet technologies to advance the quality of learning by easing access to online resources".

Sangrà *et al.* (2011:152) have a widely accepted definition which states that "e-learning is an approach to teaching and learning, representing all or part of the educational model applied, that is based on the use of electronic media and devices as tools for improving access to training, communication, and interaction and that facilitates the adoption of new ways of understanding and developing learning". Technology in this matter is allowed to facilitate learning anytime, anywhere. In this regard, e-learning can, therefore, be thought to be learning using electronic technologies with interactive features to assist distance students to overcome barriers associated with time and geographical location.

From the above definitions, one can conclude that e-learning is indeed a learning medium through some form of telecommunication used to close the geographical gap between the distance students and the institution. The other element emerging from the definitions is that they are not limited to one defining characteristic nor category, so a broader definition is needed. E-learning creates a new paradigm for distance education. This new paradigm provides precise support to the learning process, which perhaps could not be realised through other online learning media. If not for this, we could have instances where electronic media is just matching traditional media or transcending traditional paradigms. These definitions from different scholars show the diversity of views related to defining e-learning. There might be conflicting views, but functionality and usage are the same. There are similar defining characteristics of e-learning within the provided definitions, such as electronic technologies, interactive features, location, and flexibility. It is, therefore, deduced that the definitions were based on these defining characteristics.

## **2.4 THE HISTORY AND GENERATIONS OF DISTANCE EDUCATION**

"There is a perception among people that distance education started with the development of the internet, this is not correct" (Moore & Kearsley, 2012:23). The earliest attempt was advertised in 1728 by "Caleb Philipps, a teacher of the new method of shorthand" by that time (Distance education, n.d.) who offered lesson by post. From that moment, distance education developed gradually through several historical generations and theories. Moore and Kearsley (2012:24) have identified five generations of distance education as it responded to the changes in technology,

namely: correspondence, broadcast radio and television, open-university, teleconferencing and the internet or world wide web.

*First-generation: Correspondence:* Distance education started with courses that were delivered by mail, commonly known as 'correspondence' in the United States (USA). According to Moore and Kearsley (2012:24), Bishop John H. Vincent created a 4-year correspondence course of reading in 1878. By 1880, people who wanted to take education from the comfort of their own home or at work could do so for the first time by getting instruction from distance teachers. There were over 200 correspondence schools by 1930. These schools extensively covered a variety of vocational subjects. By 1840-1850, other countries took similar initiatives and developed their postal systems. Gradually, individuals and other institutions advanced the interest of correspondence. Anna Ticknor (1873) set-up one of the earliest home schools that presented educational opportunities to the women who was denied access to formal education. In South Africa in 1873, The University of the Cape of Good Hope (later UNISA in 1916) was established and since 1946, has offered distance education. The directive given to this institution was not to train but to set formal assessments and honour qualifications to schools and colleges (<http://www.unisahistory.ac.za/>).

Another notable development was correspondence education established as early as 1943 by the US armed forces to provide professional continuing education to members of the force (Moore & Kearsley, 2012:28). The correspondence generation of distance education was characterised by content-based pedagogies, printing and manual design of study materials that were delivered to students through mail systems. Heydenrych and Prinsloo (2010:13) state that this was "the defining moment in the revolutionized knowledge dissemination and as the beginning of the first generation of distance education". Although interaction in this generation was limited to students via postal mail, it was important because it offered favourable circumstances to those who had no easy access to educational institutions. In this generation, the pedagogy was considered cognitive-behaviorist characterised by the thinking that learning means some behavioral changes are prompted by learning stimuli. This pedagogy was the dominant thinking in computer-assisted instruction and instructional systems designs (Aoki, 2012:1184).

*Second generation: Broadcasting Radio and Television:* The broadcasting radio and television era in the history of distance education had limited interaction between the teacher and learners. However, in addition to print materials, this generation added oral and visuals to a measurable extent in terms of presenting information to distance students (Heydenrych & Prinsloo, 2010:16). Aoki (2012:1184) referred to this generation as, "the 'industrial model' of distance education with a high level of division of labor in the generation and providing of teaching and learning resources and the capacity to educate masses of students at one time". In 1921, the first radio licence was issued to Latter-Day Saints University in the USA. This was later followed by the State University of Iowa's first radio course broadcasting (Moore & Kearsley, 2012:29). Several open universities in the world, including the British Open University, Anadolu University's Open Educational Faculty in Turkey, as well as the Open University of Japan (OUJ) started with broadcasting radio and television (Aoki, 2012:1184). To ensure the expansion of educational opportunities, some governments became involved and began supporting this medium of instruction. For example, the government of Japan gave OUJ a television and radio station for this purpose.

In terms of curriculum, this generation did not experience much change in curriculum development. However, these media (radio and television) enabled content to be delivered to students despite the geographical barrier. With the help of technology, the quality of content delivered to students improved as well (Heydenrych & Prinsloo, 2010:14). The second generation of distance education pedagogy, the social-constructivist pedagogy, originated in the work of Vygotsky and Dewey, and focused more on learning instead of teaching. In this pedagogy, human interaction (student-teacher and student-student) is emphasised, which makes it costly for an institution to adopt (Aoki, 2012:1184).

*Third generation: Open University:* The global span of distance education started during the third generation (Moore & Kearsley, 2012:242). In 1969, the British government came up with the idea of a revolutionary new educational institution, the Open University for the adult population to have access to higher education. This was the world's leading institution of higher education offering distance education (Moore & Kearsley, 2012:33). A professional organisation known as the International Council for Distance Education (ICDE) was started in Canada in 1938, to work towards accessible quality open and distance education enhanced with technology. Thereafter,

more countries across the world used this fashion to develop their open universities. Today there are more of these institutions in the world. However, it is important to note that there were other earlier unnoticed universities such as the University of London (1836) and the University of South Africa (1873) that dealt with teaching distance students in their own particular way (Peters, 2010:57).

From a technological perspective, “the third generation of distance education utilized information and communication technologies (ICT) to provide interaction in addition to content delivery” (Aoki, 2012:1184). The first computer was used to send data during this era. As with the introduction of ICT, the method of pedagogy did not change much from the second generation because this technology did not impact much on the knowledge. Nevertheless, there was flexibility in accessing online materials by distance students because of advanced technology (computers). The media used in the previous generations (print, radio, and television) were then supplemented by networked computers (Peters, 2010:47). This marked an abrupt departure from traditionally established pedagogies of distance education as highlighted in the previous two generations. In this third generation, the connectivist pedagogy was built around interacted links and grounded on the learner’s capacity to actively participate in networked groups of choice (Aoki, 2012:1185). This model of learning puts the learners at the centre of the education process. However, the degree of control from the institution is reduced because learners develop their network presence.

*Fourth generation: Teleconferencing:* Communication using computer networks was first set up by the early 1960s. This was termed as the “The Flexible Learning model” of the flexibility of the delivery technologies in terms of time, place, and pace (Taylor, 1995:4). Audio conferencing was first used between 1970 and 1980 as a means of delivering content to distance students. This type of technology allowed students to interact with teachers while in different locations (Moore & Kearsley, 2012:36). According to Heydenrych and Prinsloo (2010:18), this generation of distance students is, “based on two-way communication technologies that allow for direct interactions between the teacher (who is seen as the originator of the instruction) and the remote student – and among remote students themselves”. This technology was introduced to provide students with equal communication between themselves and the teacher as well. In addition, this setup brought relief to students in terms of addressing the geographical gap between the students and the teacher. A teaching session could

take place while students were in the comfort of their homes or workplaces. This development of technology, in the account of distance education, made autonomous learning a successful choice for students.

Zigerell (1984 cited in Sadeghi, 2019:83) wrote that “The ease with which modern communication technologies can link educational institutions to homes, work-sites, and community centres has made adult education and lifelong learning matters of national policy”. These technologies kept students in touch with teachers and bridged the geographical gap. Most importantly, the fourth generation of e-learning saw the introduction of adaptive learning. With the use of computers, learners started organising the learning content to adapt to their goals, needs, preferences and abilities.

*Fifth-generation: Internet/Web:* According to Moore and Kearsley (2010:42), “the use of computer networking for distance education received a boost with the arrival of the World Wide Web (www), a seemingly magical system that allowed a document to be accessed by different computers separated by any distance, running software, operational systems, and different screen resolutions”. This online internet-based learning platform led all learning activities in distance education to one communication platform. The fifth generation of distance education saw the introduction of what was termed as intelligent technologies that can replay recorded sessions through an automated response system (Heydenrych & Prinsloo, 2010:19).

Just like the previous generations, the arrival of the internet and web-based education produced a particular set up for distance learning organisation. Collaborative constructive learning methods and asynchronous and synchronous interactions were introduced. “Many units for developing new forms of learning and collaborating on the Net were established” (Eisenstadt & Vincent, 2000 cited in Peters, 2010:74). These new technologies played a crucial role in the expansion of the distance student base.

As some form of technologies were already used in the previous generations, teachers experienced little difficulty in embracing this innovation as they had already developed a positive attitude towards such technology in previous years (Peters, 2010:75). In fact, the fifth generation of distance education appears to have met the future needs of higher education worldwide.

The review of the literature above presented the history of distance education through the generations. The presented evolution was based on pedagogies, medium, delivery, and technology. The developments were mostly based on how technology has played a crucial role in the advancement of distance education. As suggested by Aoki (2012:1184), "distance education and technology are entangled, as the use of technological tools enable one to reach the dispersed students". Although the evolution of distance education from correspondence to internet/web delivery did not change the nature of distance education, that is, learner and teacher in separate locations, it is today possible that an ideal learning environment that is suitable for the needs of distance students, has been established because of technology.

## **2.5 THE HISTORY OF E-LEARNING**

In the history of e-learning, it is significant to note that there is no particular evolutionary tree of e-learning (Nicholson, 2007:1). E-learning has changed in different ways in Business, Education, and the Training sectors and presently means rather different things in diverse sectors. However, the very origin of e-learning, as grounded on human association in information efforts and revolution, can be drawn to the expansion of network communication in the late 1960s, with the development of e-mail and computer conferencing over packet-switched networks in 1971 (Harasim, 2006:59). Therefore, it is cautious for us in distance education to examine the history of this innovation to map a way for future practice.

Numerous scholars have presented different views on the history of e-learning. As stated in Epignosis (2014:9), the first testing machine that presented students with an opportunity of assessing themselves was invented in 1924. Then, a Harvard Professor, B.F. Skinner (1954) developed the "teaching machine", which allowed schools to manage preset instructions to their students (Chen, 2008:46). Kidd (2010:1) wrote, "The origin of e-learning as presently experienced in higher education rose from the comprehensive work of Suppes (1964) and Bitzer, Lichtenberger & Braunfeld (1962). Suppes (1964, 1966, and 1986) was concerned with the "drill and practice" approach, how to produce improved education, and how to be a developed educator in using computers". He discovered that instructions communicated through computers produced quality results on learning. Don Bitzer (1960), created a

Programmed Logic for Automatic Teaching Operations (PLATO) at the University of Illinois to address the literacy concern of students. With this innovation, the teacher could create online educational resources and communicate with students using electronic notes, which is widely known as the conferencing system today. The resourcefulness of Bitzer also appeared to have marked the origin of e-learning (Kidd, 2010:2).

With different circumstances that e-learning evolution has faced, Kidd (2010:3) presents the historical context of e-learning development in Table 2.1 below.

**Table 2.1: The historical context of e-learning development**

Era	Focus	Educational Characteristics
1975-1985	Programming, drill and practice  Computer-assisted learning (CAL)	<ul style="list-style-type: none"> <li>• Behaviourist approaches to learning and instruction</li> <li>• Programming to build tools and solve problems;</li> <li>• local user-computer interaction</li> </ul>
1985-1990	Computer-Based Training  Multimedia	<ul style="list-style-type: none"> <li>• Use of older CAL models within interactive multimedia courseware;</li> <li>• passive learner models dominant;</li> <li>• constructivist influences begin to appear in educational software design and use.</li> </ul>
1990-1995	Web-Based Training	<ul style="list-style-type: none"> <li>• Internet-based content delivery;</li> <li>• Active learner models developed;</li> <li>• Constructivist perspectives common;</li> <li>• Limited end-user interactions.</li> </ul>
1995-2005	e-learning	<ul style="list-style-type: none"> <li>• Internet-based flexible courseware delivers;</li> <li>• Increased interactivity;</li> <li>• Online multimedia courseware;</li> <li>• Distributed constructivist and cognitive models common;</li> <li>• Social networking;</li> <li>• Remote user interaction</li> </ul>

In its evolution, e-learning has progressively gone through several stages of growth (Imran & Malik, 2017:207). At first, it was viewed as a procedural upgrade of distance education (Meskhi, Ponomareva & Ugnich 2019:426). A call for the plan of education courses, applications and technical standards arose soon after e-learning had been considered as a procedural advance of online teaching. This was followed by the birth of the Learning Management System (LMS). Because the e-learning system has an affinity with ICT, its development can be tracked down with the growth of the internet (Web). Meskhi *et al.* (2019:427) mapped the transformation of the e-learning system due to the changes in the internet:

*E-learning based on Web 1.0 (1999-2000):* This was defined as the Web for data networks only. It was characterised by stationary web pages, content delivery and very little user interaction.

*E-learning based on Web 2.0 (2000-2010):* This was defined as a real-write web. It made it possible for people to inform, corporate, and socialise with each other. It has been characterised by practices of collaboration, participatory, and distribution that formed part of daily activities on the web.

*E-learning based on Web 3.0 (2010-2020):* This is a modern development associated with initiatives of Web 2.0. It is initially a continuation of Web 2.0. However, high-quality content and services, more effective features such as discovery, automation and integration are maintained to enhance the satisfaction of users.

Having presented the above history of e-learning, it is best to sum it up as a system that presents opportunities for more opportunities. It should be noted that in the history of e-learning, computers were the centre of activities at all levels of society to enhance operations. The evolution of e-learning has had a positive impact on online education. Crea and Sparno (2017 cited in Meskhi *et al.*, 2019:427) wrote, "The acceptance of e-learning can be verified by the reality that over 40 million students worldwide have done their studies using online technologies to date". Indeed, despite different perspectives that different scholars had about the history of e-learning, it appears that this innovation has become a large and developing market with great potential in higher education (Wani, 2103:1920). From the distance education perspective, e-learning continued through its evolution to narrow the gap between the teacher and

students. Several technologies were used to ease student-student and teacher-student communication.

Overall, distance education and e-learning are not the same. However, in the context of ODL, there seems to be a close relationship between these concepts. By definition, distance education denotes that both the student and the lecturer are physically not in the same place and the use of ICTs plays a role in bridging this gap whereas e-learning typifies learning conducted through electronic media, typically on the internet. With the evolutions of both distance education and e-learning above, more distance education institutions will likely incorporate different forms of e-learning in their teaching and learning.

## **2.6 THEORIES OF DISTANCE EDUCATION AND E-LEARNING**

Theories in distance education guide our practices and developments in the process of reviewing the literature. Moore and Kearsley (2012:205) state that if people are on an exploration mission and do not study the theory extensively or in its diminutive form, they are assumed to be on a journey without a map. Knowing the theory is, therefore, necessary and indispensable for everyone who practices distance education such as researchers, academics, administrators, and managers. Looking at the fundamental characteristics of distance education and the diverse population (students) it serves, there should be a useful concern to pay attention to theoretical considerations.

Since the emergence of distance education in the 1840s, there have been several attempts for a theoretical explanation undertaken by leading scholars. Some of the theoreticians were Holmberg (1960), Wedemeyer & Childs (1961) and Peters (1965). By 1970, the necessity to establish a foundation of theory in distance education was not fully realised (Simonson, Schlosser & Hansons, 1999:2). Therefore, a theoretical consideration was necessary to give distance education a strong base for making decisions. A lack of theoretical consideration would hamper the educator's psychological understanding of distance education. Keegan (1998 in Simonson *et al.*, 1999:17) wrote that "a lack of accepted theory has weakened distance education: there has been a lack of identity, a sense of belonging to the periphery, and the lack of a touchstone against which decisions on methods, media, on financing, on student

support, when they have to be made, can be made with confidence". A theory is, therefore, necessary to define this field of distance education. Keegan (1995 in Pyari, 2011:95) reaffirmed the need for a theory of distance education by stating that a firmly based theory of distance education is one that would provide the touchstone against which, financial, educational, and social can be made with confidence.

Below I present Keegan's (1986) theories of distance education: the theory of independence and autonomy, the theory of industrialisation teaching, and theory of interaction and communication.

### **2.6.1 The Theory of Independence and Autonomy**

A distance education theorist considers two variables in distance education, the amount of learner independence and the gap between the teacher and students (Moore, 1994). Traditionally, a gap between the teacher and student exists in this field. This type of education requires a high level of accountability from the student with little help from the teacher and is a form of independent study.

As acknowledged by Pyari (2011:96), Charles Wedemeyer, a professor from the University of Wisconsin, popularised the theory of independence and autonomy and took into account the independence of the student as the indispensable quality of distance education. A critic of the current design of higher education, Wedemeyer believed that concepts of learning that were outdated have been employed and that they failed to maximise the use of modern technologies to change distance education institutions. Wedemeyer in Simonson *et al.* (1999:63), sets forth a distance education system with characteristics that emphasise learner independence and adoption of technology as a way to implement that independence:

- Be capable of operating any place where there are students – even only one student – whether or not there are teachers at the same place, at the same time;
- Place greater responsibility for learning on the student;
- Free faculty members from custodial-type duties so that more time can be given to truly educational tasks;
- Offer students and adults wider choices (more opportunities) in courses, formats and methodologies;

- Use, as appropriate, all the teaching media and methods proven effective;
- Mix and combine media and methods so that each subject or unit within a subject is taught in the best way known; and
- Permit students to start, stop, and learn at their own pace.

The theory of independence and autonomy places independence of the distance student as essential in distance education. This can, however, only be realised with the adoption of technology. Technology will allow distance students a wider choice or more opportunities in course choices and methodologies, operate at any place and use appropriate media. With these educational proceedings, distance students have better access and take full account of their learning.

### **2.6.2 The Theory of Industrialisation of Teaching**

Peters (1988) suggested that distance education can be examined by comparing it to the production of goods using machinery. To arrive at this conclusion, Peters first considered theoretical inputs from the form of education that was in existence before the advent of the industrial revolution. Forms such as conventional, oral, group-based education existed during the pre-industrial era. Based on the economic and industrial theory, Peters in Pyari (2011:23) proposed new terminologies for distance education which are presented below:

*Mechanisation:* In modern industry, mechanisation is the introduction of machines into a process, activity, or place. In distance education, teaching and learning would be impossible without machines. Facilities of modern means of communication such as telephone, radio, television, emails, and other means replace traditional content delivery by postal correspondence to reach the learners in mass.

*Mass production:* From an industrial perspective, this is the production of goods in large quantities. In distance education, demand outpaces supply, there is, therefore, a movement towards mass production of programmes. This mass production however, forces distance education institutions to analyse the requirement of distance learners.

*Preparatory work:* Peters believed that the success of distance education depends precisely on this phase. This phase relates to the design and development of distance education materials involving experts and specialists in this field.

*Planning:* This is important in distance education as decisions that determine operations are carried out during planning.

*Organisation:* It has been noted that this phase makes it possible for distance students to receive predetermined learning resources, guided teaching and curriculum counselling at the right time and the right place.

The theory of industrialised teaching brings different methods of teaching and learning from traditional to industrialised form. Interest has been in how distance education functions and how it is systematised, specifically on the operational concerns and issues. This move is important in distance education for reproducing quality instructional materials that are vital for the delivery of distance education. Given the industrialised theory, distance education is viewed as an operationally essential different system of teaching and learning.

### **2.6.3 The Theory of Interaction and Communication**

Holmberg (1983:114) called this theory "guided didactic conversation". He noted that this theory had explanatory values on effective teaching. In 1981, Borje Holmberg, as stated in Pyari (2011:94), selected the learner-teacher conversation as a core characteristic of distance education. When elaborating further on his concept of 'Guided Didactic Conversation', Holmberg said, "My theory of distance education as a method of guided didactic conversation implies that the character of good distance education resembles that of a guided conversation aiming at learning and that presence of the typical traits of such conversation facilitates learning" (Pyari 2011:94).

As addressed in Pyari (2011:27), Holmberg offered five background assumptions for this theory.

- The core of teaching is the interaction between the teaching and learning parties;
- Learning pleasure supports student motivation;
- Participation in decision-making concerning the study is favourable to student motivation;
- Strong student motivation facilitates learning; and

- The effectiveness of teaching is demonstrated by students` learning of what has been taught.

As Holmberg (1995) believed that these assumptions are the basis of teaching principles in distance education, he formed his theory as follows: "Distance education will upkeep motivation, encourage learning pleasure, and make the study important to the individual learner and his/her needs, creating feelings of the relationship between the learner and the distance-education institution (its tutors, counsellors, etc), easing access to course content, engaging the learner in activities, discussions, and choices, and mostly promoting supportive real and motivated communication to and from the learner".

In summary, Holmberg's (1995) theory represents a whole description of distance education. By pointing out that the teacher-learner conversation is a core characteristic of distance education, he relates to the assumption that "the key part of teaching lies in the interactivity that takes place between the teacher and the learner". It should be noted that all the above assumptions remind us that in distance education, producing distance education graduates who are competent and capable to face the challenges of the rapidly changing economies, is critical to ODL institutions. By incorporating theories, teachers have the opportunity to better prepare students for these challenges.

## **2.7 THEORETICAL FRAMEWORK**

This section gives an examination of the theory chosen for this study from Keegan (1986)'s theories of distance education. In distance education, theoretical considerations gives this field a touchstone against which decisions are made and influence how practices are conducted (Bozkurt, 2019:263).

From the above theories discussed in section 2.6, the theory of interaction and communication is relevant to this study because of its values that relates to effective teaching. E-learning as a mediated communication model have the capacity to transform distance education. Communication is essential in closing the gap that distance students experience (Rangara, 2015:63). This study has employed this theory as a framework to investigate distance students` perception towards e-learning

at NUST. The interaction between the lectures and students is elemental in online teaching. This theory relates well how distance students can use technology to bridge the geographical gap between them and the institutions.

One of the aims of the study was to investigate the perception of distance students towards e-learning at NUST. Therefore, the assumption of this theory is that, emotional involvement of students in the study and their personal relations with teaching and learning is probable to contribute to their e-learning pleasure (Aydemir, Özkeskin, and Akkurt, 2015:1753). This is idle to the study because distance students` perceptions (views) of e-learning are central to their learning pleasure that will eventually breed motivation.

The significance of the theory of interaction and communication in this study will be shown through its provision of guided didactic conversation to investigate e-learning at NUST using the research questions. As a result, the outcomes of the conversation to investigate e-learning at NUST will add value to the body of existing knowledge in this field and is significant for ICT technologies such as e-learning. I am of the belief that this theory will bear the strength and academic weight of the study.

## **2.8 DISTANCE EDUCATION AND E-LEARNING AT NUST**

NUST, formerly known as the Polytechnic of Namibia, was established in 1995 by an Act of Parliament. According to Section 4 of its Act, it was mandated to provide “post-secondary career-education”, though no specific reference was made to distance education. Nevertheless, in 1997, a decision was taken to establish a separate distance education section, the Centre for Open and Lifelong Learning (COLL), to facilitate the delivery of Online Distance Learning (ODL) programmes (Polytechnic of Namibia, 2014). Currently, NUST is a mixed-mode institution with full-time on-campus students, part-time, and distance students catered for through the nine (9) regional centres across the country.

According to Kangandji (2008:180), NUST started with e-learning in 2004 when one of the students in the new Information Technology School conducted research on “*Classroom management systems, or internet, and how these technologies can also*

*be applied to support On-campus training*". In 2005, NUST resolved that one of its professional centres, namely, the Teaching and Learning Unit (TLU) be given the authority to standardise e-learning (Kangandji, 2008:180). At that stage, e-learning was only offered through a blended model, that is, face-to-face classes combined with online sessions and only offered to students on campus.

In 2010, NUST's Centre for Open and Lifelong Learning (COLL) introduced e-learning for students studying through distance learning mode at its regional centres. During this period, only one module, Computer User Skills, was offered through e-learning. In its 4th Strategic Plan (Polytechnic of Namibia, 2014) NUST's notable achievements were recorded in e-learning. The following were achieved:

1. the launch of e-learning as the 4th mode of delivery and fully operational model and systems in place to deliver e-learning courses;
2. the establishment of the Educational Technology Department;
3. the development of in-house professional e-learning training courses for online course development and online tutors;
4. the development of e-learning manuals and online template;
5. the development of an e-learning orientation program for students; and
6. the launch of online tutoring (Namibia University of Science and Technology, 2019).

NUST is aware that through the use of ICT, the institution can deliver education to students in a flexible way. ICT makes it viable to strengthen and bring variety to the delivery of teaching and learning (Polytechnic of Namibia, 2010). Still, in 2010, an ICT policy was drafted to respond to the ICT presence in education making e-learning fundamental to teaching and learning, as well as direct the application and successful utilization of e-learning within the institution. During the same period, MOODLE (Modular Object-Oriented Dynamic Learning Environment) was introduced as a suitable tool to support online training. A Virtual Learning Environment (VLE), called KEWL (Knowledge Environment for Web-based Learning), later replaced MOODLE.

The teaching, learning, and assessment framework of NUST (2015) states that the use of e-learning in the teaching, learning and assessment process, will ensure that quality education is made accessible to more students. As indicated in Chapter 1, NUST intends in its 5<sup>th</sup> strategic plan to advance to the next level by having all distance

courses offered via e-learning. NUST has realised the significance of investing in technology to fulfil the demands of distance students for a flexible learning environment.

Currently, when students register online, they are automatically linked to a student kiosk. With this, they can access useful online platforms such as that for registrations, applications and student inquiry. Students are able to register online, view assignment marks, examination timetables and results (Möwes, 2010:5). Similarly, e-learning accounts for students are created during first-time registrations. Students can access online course content, submit assignments, do online assessment tasks, and receive feedback from their lectures through their e-learning accounts. It is again through the e-learning that students have access to e-learning resources and interact with additional learning resources posted by the lecturers. Under the University's website, there is a dedicated COLL website with a student support link. By accessing this link, students can view and download assignment feedback, examination scopes and other additional resourceful learning materials.

It is thus important to note that NUST has responded positively to the Namibian government's call for 'education for everyone' by embedding distance education and e-learning into its educational processes. Efforts have been made to institutionalise e-learning so it is widely used by all students. However, with the current trend of technology, the institution needs greater investigation to identify the benefits and challenges that e-learning presents to students, hence my study. Most importantly, the observation has been that of adaptability, technical and structural issues of the current e-learning at NUST.

## **2.9 BENEFITS OF E-LEARNING AT NUST**

E-learning cannot be considered as a remedy to all distance education's challenges, however, there are many benefits. In most cases, these benefits allow distance students to openly choose options for learning environments that suit their learning needs. In so doing, this finally accords them an opportunity to customize the e-learning medium for their educational needs.

NUST, as stated in the Centre for Open and Lifelong Learning (COLL) Yearbook (COLL, 2015:9) adds that studying via e-learning enable students to

- access additional materials directly from the course site. This benefit is of access in nature and affords NUST distance students with access to richer content and interactive skills that will have a great influence on their learning. The most important part of e-learning accessibility is engaging learning content. Engaging content aims to create a meaningful performance change for the students. Callan and Bowman (2010) and Garrison (2011) add that integrating ICT into higher education instructional practices provides access to comprehensive resources that meet students' level of knowledge and interactions.
- be guided through the course on a weekly-by-week basis and have a dedicated tutor who provides online support during the duration of the course. In the NUST environment, e-learning could advance the teaching and learning to excellence as it supports face-to-face teaching approaches.
- interact regularly with the tutor and fellow students. Electronic learning can provide improved interactivity with peers and online specialists. It has been established that on-line users have improved contact with peers in the class, devote more time to academic work, have a greater grasp of online resources, and accomplish more than students in a conventional classroom (Guha & Maji, 2008:301). From the NUST perspective, e-learning appraises distance students as they experience the online learning procedure and at the same time, expand their encounters with tutors and peers.
- submit assignments via Virtual Learning Environment (VLE) and get timely feedback. With the challenging day-to-day life of distance students, online submission of assignments allows them to properly control their studies. As emphasised by Heinrich, Milne and Moore (2009:179), "the importance of e-learning technology for assessment is the removal of geographic limitations, the reduced risk of lost work, the time and resource savings if printing is not required, the long-term availability based on the ease of storage of electronic artifacts, and the efficient return of marked student work". Feedback is an integral part of the learning process because, through personalised feedback, students' motivation and confidence is increased (Heaney & Daly, 2004:120).

From a review of the literature, the most underlined benefits of e-learning are its flexibility. Frohlich-Avard, (2010:5) state that “time zones, locations and distance become a non-issue with e-learning”. Koory (2003 as cited by Wong, 2006:69), all use the terms “flexibility” and “convenient”. These terms are commonly used to express e-learning adaptability. Distance students need more flexibility for them to learn due to their life circumstances and various commitments.

In recent times, the flexibility feature of e-learning has been supported by Chinese researchers during the COVID-19 outbreak. During this difficult period, the education sector was heavily affected worldwide which resulted in many countries around the world, including Namibia, banning face-to-face teaching. Equally, several of these countries implemented flexible online learning strategies to maintain uninterrupted learning (Huang *et al.*, 2020:3).

Other scholars such as Suryawanshi & Suryawanshi (2015:107), bring in the asynchronous and synchronous features of e-learning as different benefits over conventional learning. E-learning has no predetermined time for learning to take place (asynchronous). With this, distance students can attend to their academic work at their own time, own pace. In the same way, e-learning enables interactions of students with lecturers at the same time via some form of technologies (synchronous). For example, Web conferencing and chat rooms can benefit students hugely. Students have a chance to ask questions in real-time, feel a sense of connection to their peers and lecturers, and it gives them a sense of collaboration.

Lastly, what has been highlighted above is perceived to be the usefulness of e-learning to distance students at NUST. The different dimensions such as adaptability, accessibility, interactive and flexibility afford distance students the ability to study despite the different life challenging circumstances in which they find themselves. The great positive experience that distance students draw from online learning makes them feel more engaged and in control of the learning process.

## 2.10 CHALLENGES RELATED TO E-LEARNING AT NUST

It is equally important to note that although Higher Education Institutions (HEI) in Namibia, including NUST, are increasingly integrating ICTs in their institutional practice, there are challenges that come with this innovation. As they integrate this in their organisational and instructional practice, they should be organised to react positively to these challenges to deliver. Some studies have revealed that most of the e-learning strategies in some developing countries do not last long because of a variety of factors (Tarus, Gichoya & Muumbo 2015:124). These challenges are mostly infrastructural and human factors.

Gunawardena (2005 in Tarus *et al.*, 2015:124) points out that, "for e-learning to succeed in the developing world, it needs to build on another important pillar: the existence of infrastructure, along with connectivity". Infrastructure plays a key role in the success of an e-learning system. Computers, ICT labs, and internet connectivity is needed to support students, especially those studying in the distance mode. It is revealed in the study (Tarus *et al.*, 2015) that most public universities in Kenya, for example, lack adequate ICT infrastructure to support the great number of students who want access to e-learning. Recently, the Namibian Minister of Higher Education, Technology and Innovation, in her statement on measures to deal with the COVID-19 threat to the Higher Education sector, indicated that "there is a need to improve and strengthen IT infrastructures at Namibian Universities (NUST included and prioritised) to help them mitigate the negative impact of COVID-19, and of course, place these Universities in a better position to embrace the Fourth Industrial Revolution (4IR) related study programs" (Ministry of Higher Education, Technology and Innovation, 2020:5).

Moreover, the lack of adequate internet connectivity due to low bandwidth is another limitation facing NUST. NUST depends on government subsidies for operational costs, hence their inability to contain the expenses of internet bandwidth. For institutions of higher learning to support online teaching and learning, faster internet connectivity is required. In the same vein, Almarabeh (2014:31) highlights software and hardware that is used to build an e-learning system as a more complex challenge. The e-learning system is multidisciplinary where its success depends on various factors. Software and hardware are core components of the e-learning system but come with financial

implications. It is thus commonly costly for a typical university, such as NUST, at an initial stage of e-learning during implementation (Tarus *et al.*, 2015:132). In Namibia during COVID -19, there was a need to upgrade the Bandwidth capacity at NUST, and the amount of N\$2.4 million was invested in this expansion (Ministry of Higher Education, Technology & Innovation, 2020:5).

On the other hand, the lack of interest, and know-how among teaching staff, lack of discipline, and motivation among students are other limitations that e-learning presents to NUST. Teaching staff need to convert the learning content to online versions. During COVID-19, NUST migrated to remote teaching, learning and assessment for all students, therefore, guidelines for online course development and training were developed and orientation on online teaching and learning course was immediately implemented (Namibia University of Science and Technology, 2020). This was done to ensure the successful roll-out of remote teaching and learning for faculty and students. From the students' side, a great amount of discipline and motivation is required if they want to successfully use technology in their learning. Motivation is another factor that enhances e-learners' performance and learning. What induces motivation in adult students is the interest in course content and their aspirations (Mamattah, 2016:9). A new job or promotion at work, for example, will evoke their interest despite challenges they may experience. Similarly, Bounhnik and Marcus (2006 as cited in Kattoua, Al-Lozi & Alrowwad, 2016:756) stated that learners' discontent in using e-learning takes account of a high level of self-control or self-direct and learners who lack inspiration or bad study practices, could drop behind.

Amidst the COVID-19 pandemic, Namibian universities cancelled physical teaching and learning and put plans in place to move all courses to e-learning disregarding possible consequences (SUN, 2020:2). The Student Union of Namibia (SUN) expressed great discomfort through a petition, dated 08 April 2020, to the Honourable Itah Kandji Murangi (Minister of Higher Education, Training and Innovation). Their discomfort was regarding the decision of universities to deliberately disregard the socio-economic and socio-psychological realities of Namibian students by imposing online education. The following factors were brought forth in the petition (SUN, 2020:2):

- Inclusive Accessibility: More than 50% of network coverage of MTC/ TN in the country is 2G limited which is an obvious barrier for effective and efficient e-learning.
- Lack of computer literacy: Most institutions provide compulsory computer literacy courses for first-year students to empower them with basic computer skills which they, unfortunately, do not possess coming into tertiary institutions
- Many students do not own devices to partake meaningfully in this imposed way of learning, given that the critical majority are seriously disadvantaged and underprivileged to have access to electricity or reliable network. In a bid to meet this compulsory online learning, a greater number of seriously disadvantaged students will be forced to scavenge from one place to another in search of proper technology facilities which will put their lives and of others at risk.
- Perhaps the most important is that students who are unable to operate or navigate through e-learning have a higher chance at failing modules and thus risk losing funding from the Namibia Student Financial Assistance Fund (NSFAF)
- The aspect of practical learning is completely omitted
- This method undermines the four educational goals of access, equity, quality and innovation.

The factors listed above by the student body presents a discomfort to amongst others, NUST students, especially distance students. This negatively impacts their learning. It shows that e-learning is one of the learning tools that can support students during educational disruptions, as in the case of COVID-19. Hence a call for higher educational institutions, including NUST, to regard possible consequences during disruptions or when the e-learning is not fully operational due to the above listed challenging factors.

What has been highlighted above are dynamic challenges to understand for any higher education institution wishing for a successful e-learning outcome. From the NUST perspective, these e-learning challenges relate to infrastructure, connectivity, human factors and management. They all seem to have a relation to each other, if one challenge is not addressed sufficiently, then the complete e-learning delivery will have shortcomings. Therefore, in any given institution of higher learning, a technology-

enhanced environment for lecturers and students need to be fully planned for e-learning to be a useful practice.

## **2.11 CONCLUSION**

Since the aim of the study was to develop a deeper understanding of distance education students at NUST Regional Centres regarding e-learning, this chapter explored the literature on how e-learning can enhance the distance learning experience for students. Attention was drawn to several important issues regarding e-learning within higher education and distance education in particular. An effort has been made in this chapter to present scholarly work that describes e-learning from the different discourse. It can be realised that while e-learning is currently a choice for many students due to its convenience, it also provides dynamic challenges that are described in this literature. A theoretical background of the study was also presented in this chapter. It should be noted that despite the challenges, distance education and e-learning has significantly improved since its evolution. Transitioning from the correspondence era to the internet web era, is a big boost to the distance education context. Similarly, e-learning has seen significant changes in its evolutionary tree, especially in the education sector. Grounded on human association, an expansion of network communication has been experienced. From the era of drill and practice to internet-based flexible courses, where delivery is a notable achievement. This demanding evolution, for both distance education and e-learning, cements the close relationship between the two concepts in the education sector.

Lastly, definitions of e-learning, as alluded to by many scholars, the history of distance education and e-learning, e-learning at NUST, benefits of e-learning in relation to the circumstances prevailing during the COVID-19 outbreak, and challenges associated with e-learning have been addressed. NUST can continue to grow its response to students' distance education and e-learning needs by the continued improvement of online curricula and instructions. At the same time, it is imperative to establish students' online learning needs through research. It was thus of vital importance to conduct a study such as this, which investigates distance students' perception of e-learning in the context of NUST where little research was previously done.

## CHAPTER 3

### RESEARCH METHODOLOGY

#### 3.1 INTRODUCTION

This chapter gives an outline of how the study was organised and carried out in terms of the research methodology used to answer the research question: *What is the perception of distance students towards e-learning at Namibia University of Science and Technology's Regional Centres?* The chapter starts with describing the research approach and design underpinned by the research paradigm which guided the study. The next sections present the research methods which includes the population and sampling, instruments, and data collection techniques, as well as the data analysis employed during the study. The trustworthiness of the study is accounted for as well as the ethics taken into consideration during the study.

#### 3.2 RESEARCH APPROACH AND DESIGN

This case study is qualitative exploratory using qualitative methods in natural settings framed within an interpretive paradigm (Creswell, 2007:212; De Vos, Fouché & Delport, 2005:325) to obtain meaning from distance students' perception of e-learning at NUST regional centres.

##### 3.2.1 The Interpretivist Paradigm

An interpretivist study involves understanding meaning and process as perceived from different perspectives, trying to understand individual and shared social meaning (Crowe *et al.*, 2011:4). The study is nested in an interpretivist paradigm because its aims and objectives were to discover the views of distance students towards e-learning at NUST regional centres. The use of interpretivist paradigm in the study was built on the credence that distance students became actively involved in the research process (De Vos *et al.*, 2011:7). The interpretivist paradigm allowed me to view e-learning at NUST through the perceptions and experiences of distance students and used these experiences to form an impression from the collected data. Different perspectives were sought from the distance students who had their views of e-learning

at NUST. This effort was made to understand the phenomenon through the meaning that distance students assign to e-learning (Maree, 2016:59). It then meant that the views of distance students towards e-learning were real but they were all individual views.

### **3.2.2 Qualitative Research Approach**

Qualitative research is multi-method in focus, involving an interpretative, naturalistic approach to its subject (Asper & Corte, 2019:142). This meant that the study was carried out in the students' natural setting and attempted to make sense of e-learning at NUST in terms of the meaning they bring to it. Yin (2015:9) maintains that the allure of qualitative study lies within its features of learning the sense of people's lives in their everyday roles and denotes the opinions and perceptions of participants. It was during the telephone interviewing process that I became acquainted with students' beliefs, sentiments, and thoughts about e-learning at NUST. Researching in naturalistic settings enabled me to understand distance students' perception of e-learning at the regional centres.

### **3.2.3 The inductive approach**

In an inductive approach to research, a researcher starts by gathering data that is pertinent to the topic of interest. As this study was qualitative in nature, an inductive approach was employed to collect data about e-learning from distance students through telephone interviews. It was necessary to use this approach because distance students' arguments were based on their e-learning experiences and were best expressed inductively (Soiferman, 2010:3). This data was then thematically analysed to reach conclusion regarding their perception of e-learning at NUST.

### **3.2.4 A Qualitative Case Study**

According to Thomas (2011:512), "a qualitative case study is an in-depth exploration from multiple perspectives of the complexity and uniqueness of a particular project, policy, institution, program or system in a real-life context". A case can be a person, a programme, a group, a specific policy, and so on (Yazan, 2015:139). In this study, the particular system is e-learning at NUST. Since the study was to find the meaning distance students give to their experience in using e-learning during their study periods

at NUST, it was justified to use a case study to deeply involve me in this situation. Case studies can be used to explain, describe, or explore events or phenomena in the everyday contexts in which they occur (Crowe *et al.*, 2011:4). Taking into account the central objectives of the study, and that it is exploring a case, the exploratory qualitative case study was selected to determine how the research question could be best answered.

According to Akhtar (2016:73), an exploratory case study is done to achieve new insight into the phenomena. This is most appropriate for the research area that has not been adequately studied to which few references can be made for information, thus e-learning at NUST has not been studied in depth. By its nature, exploratory research in the use of technologies, such as e-learning at NUST, cannot be studied outside of its natural settings, hence its relevance to this study (Ponelis, 2015:537). In turn, possible insights into the basic details, settings, concerns, and a well-rounded picture of e-learning at NUST is developed.

The section above outlined a research approach that involved an exploratory qualitative method by subjectively interviewing distance students at their respective regional centres. This was done in search of an in-depth understanding of e-learning at NUST and draw a sound conclusion to the research problem.

### **3.2.5 Time horizon of the study**

This study was cross sectional in nature because data was collected within a short period of time and from a sampled population of third year distance students. This was particularly done to help understand distance students` current perception of e-learning at NUST. This study can be used as a springboard for further research in the areas of e-learning at NUST.

## **3.3 RESEARCH METHODS**

This section of the chapter discusses the population and the sampling technique use to select participants. Thereafter, the data collection instrument and the technique

used to collect data is described. In the final sub-section, attention is given to data analysis.

### **3.3.1 Population and Sampling**

The most important part of qualitative research lies in defining and choosing a suitable population for the study so that data can then be collected from that population (Lopez & Whitehead, 2013:124). In this study, the selection of a suitable population using purposive sampling was applied so that the focus of the study is properly researched. Purposive sampling was applied in selecting the nine (9) third-year distance students from across all NUST regional centres.

Accordingly, a criterion sampling guided my fellow regional coordinators in choosing students from their respective centres.

### **3.3.2 Population**

The population is described by Babbie (2010:199) and McMillan and Schumacher (2010:129) as a group of cases or individuals that comply with identified standards. The sampled population emerged from the NUST Regional Centres with a sample size of nine (9) research participants. The research respondents comprised of one third-year student, from the nine (9) NUST Regional Centres. Third-year students were eligible to represent the larger group of all distance students at the nine (9) Regional Centres, because, at their level of study, they have more experience of the e-learning system at NUST, and therefore could provide richer data. These students were chosen based on their typicality that they had done several e-learning modules through the years of their study and felt that they were proficient and well-informed with e-learning. As a result, their knowledge and experience, availability, and willingness to participate, the ability to communicate experiences and opinions expressively and reflectively were crucial to the study in order to better understand e-learning at NUST (Etikan, 2016:2).

### **3.3.3 Sampling**

According to De Vos *et al.* (2011:159), sampling is the selection of research participants from the whole population and includes choices about people, settings, events, behaviour and social processes.

To obtain a great deal of data that would assist in answering my research question, a purposive sampling method was used, which refers to the sampling of the population based on their characteristics and the objectives of the study. Leedy and Ormrod, (2005:206) state that "purposive sampling is when you select those individuals or objects that will yield the most information about the topic under investigation". It is a deliberate choice of particular distance students due to the qualities they possess, and most importantly, the researcher sets out to find students who can and are willing to provide information by experience (Etikan, 2016:2) which is e-learning at NUST. The focus was on particular characteristics of distance students which enabled me to answer the research questions.

My fellow Regional Coordinators conveyed a list of third-year students from their respective centres with experience of studying online. Because the study involved a smaller sample size, the researcher had decided at the design stage of the study to identify typical characteristics of the participants (Maree, 2016: 80), which meant that the Regional Coordinators could use the criterion for sampling. By definition, criterion sampling involves selecting participants that meet some predetermined criterion of importance to the study (Patton, 2015:281). The criterion sampling strategy was especially useful in this study for exploring e-learning at NUST in-depth (Schreier, 2018:93).

These students were conveniently chosen for a particular purpose that is of interest to this study (De Vos, Strydom, Fouché & Delpont, 2011:198). To avoid bias or subjectivity about the selection of the participant at my regional centre and taking into cognisance that I was the prime instrument (Terre Blanche, Durrheim & Painter, 2006:247) in the data collection process, it was imperative that another employee at the same centre (a Student Support Officer) who was thoroughly briefed about the study to select the students on my behalf.

In this study, sampling methods applied were vital in collecting data that assisted in answering the research question adequately. The purposive sampling procedure in this study greatly contributed to in-depth data collected. The selected particular distance students from the population of all distance students were informative about e-learning at NUST and could address the purpose of the study.

### 3.3.4 Instrumentation and Data Collection Techniques

Data collection relates to the coordinated activities aimed at gathering pertinent information, which will help to address the relevant research questions (Creswell, 2007:118) and makes use of a wide variety of data collection instruments. In this study, data were collected through telephone interviews, considered the main collection method. It was seen as a feasible approach of interacting with the distance students as NUST regional centres are spread throughout Namibia with long distances between them. They are geographically located in rural, semi, and urban areas (*cf.* Appendix H).

As argued by Bolderston (2012:72), telephone interviews allow participants to be interviewed in their familiar environment, which makes them comfortable in expressing their views. Considering the objectives of the study, which was to measure the perception of distance students towards e-learning at NUST Regional Centres, it was best to make use of the data collection technique that provided me with ample space for flexibility in data collection. This method was viewed appropriate as it gave participants the flexibility to answer the questions according to their views. It is further viewed appropriate as the sole purpose was to gain information from the participants and not a chance for the researcher to express their own experience and views regarding e-learning at NUST (Lopez & Whitehead, 2013:129). According to Lechuga (2012:253), telephone interviews allow for geographical access to research participants and they reduce costs of research. During data collection, the COVID-19 pandemic hit the country and access to distance education students was limited to protect the student and researcher.

Necessary documents such as participant information sheet (*cf.* Appendix F), interview guide (*cf.* Appendix D), and participant's consent forms (*cf.* Appendix E), were shared with them well in advance through their Regional Coordinators. The interview guide was shared well in advance not to influence the student's responses but to ensure their comfort during the telephone interviews and for me to collect reliable information. As an extra factor, the interview guide was provided to make certain that the students attended to their answers extensively and gave quality views to answer the research question (Babbie, 2010: 227).

A pre-interview telephonic conversation was carried out with all nine (9) participants. This was done to address participants' concerns, building rapport, creating interest, and explaining the telephone interview procedure (Farooq & De Villiers, 2017:303). In previous studies issues of participant anonymity and data, confidentiality was raised as concerns by participants. The pre-interview telephone conversation provided me with an opportunity to ease participants about these concerns (Chapple, 1999; Nassar, Al-Khadash & Sangster, 2011). It is at this stage that I have to build rapport and create interest in the research. This was done in a friendly yet professional manner by careful use of tone and language. Since the topic of research (e-learning) presents the distance students' day-to-day engagement with their studies, my role here was to maximise their interest by informing them of how their contribution was important and how it will benefit them and other distance students.

Howitt (2016:69) states that "a standard practice in the use of qualitative interviewing orders that a skeletal plan of the interview should be prepared before beginning the main data collection phase". Such a planned structure is referred to as the interview guide. The telephone interviews were built on an interview guide with four sections, with each comprising of sub-questions. This guide (*cf.* Appendix D) was structured in such a way that all the study research questions are answered and aims achieved. The questions were arranged in order of the research objectives.

To break the ice, participants were asked a few throwaway questions and then moved to topic-related questions. A combined approach of formal and informal words was used to start the telephone interview. The following approach was used to start the telephone interviews: "Hello/Hi!!!", "How are you?". Thereafter, I explained to students the context of the study and sought verbal consent for their participation and recording the telephone interview. Then I continued by saying, "Let me thank you for taking time out of your busy schedule to attend to this telephone interview ... can we start if you are ready?". Bolderston (2012:72) states that "as a rule, phone interviews should be fairly short, 30 minutes or so that fatigue may not impact the quality of data".

In terms of the length of the telephone interviews, each session varied from one participant to the other. Even though there was probing and paraphrasing during the interviews, some participants were able and willing to expand more than others. As probing and paraphrasing were part of the telephone interviews, and the fact that

participants were allowed to speak freely, these sessions lasts between 15 and 30 minutes. Aural cues, such as pauses, hesitations when answering questions and sometimes lowering of their voices (Lechuga, 2012:266), indicated that additional probing was necessary. As supported by Irvine, Drew and Sainsbury (2013:16), the use of acknowledging tokens such as 'okay', 'right', 'mm-hmm', and others indicated my presence and understanding of the process. Furthermore, these tokens were particularly important in this situation where visual options were not available.

To ensure that the entire telephone interview conversation was on record and that I was able to access the responses of the interviewees, a recording device (cellphone) 'was used. This was done following Tier-Bieniek's (2012) call in Farooq and De Villiers (2017:306) that interviewers need to use a hands-free telephone set. This was done after the participants had given their verbal consent. To record or not to record, is a key judgment call during an interview (Williams, 2015:500); however, this action brings life to the research report as it involves the real voices of the participants and allows the interviewer to be more active in the process. Voice recording helped me to listen to the conversation again at a later stage when the interviews were transcribed. Indeed, as alluded by McMillan and Schumacher (2010:360), voices assure the researcher of the wholeness of the verbal interactions of the interview session.

To ensure that the participants were left with a calm feeling and in a positive frame of mind, I returned to the casual chatting that started the interview and finished by asking them additional value and interesting information on the topic (Thompkins, Sheard & Neale, 2008:19). For example, I concluded it the following manner: "Thank you for your time again, this was very helpful!", "Is there any other additional information regarding e-learning at NUST that you think we left out during this telephone interview?".

### **3.3.5 Data Analysis Procedure**

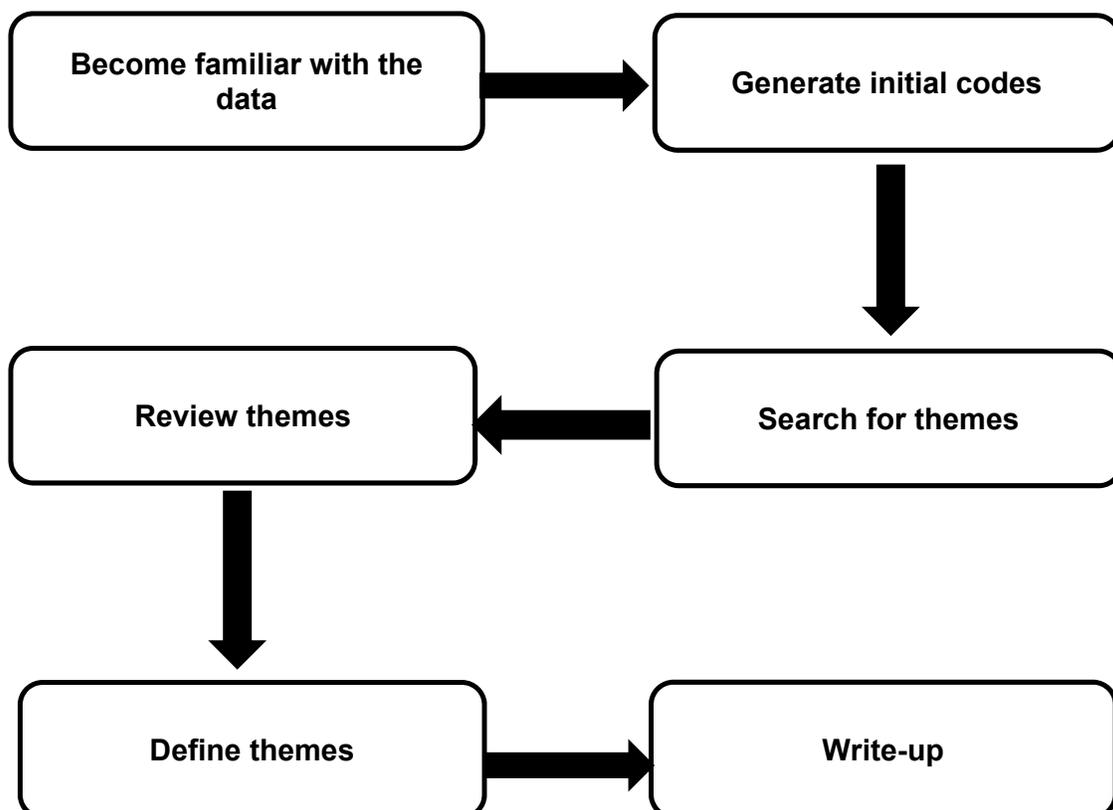
According to Flick (2013:5), analysing qualitative data means categorising of collected data to make statements about its meaning and what it represents. The data collected through qualitative research is mainly unstructured text-based (Wong, 2008: 14), and mean very little until it is analysed. It is for this reason that Mukhari (2016:110) indicated that data need to be analysed to gain a better understanding, and fully describe and attribute meaning to develop dependable conclusion suitable for

answering the research questions. This is why Maguire and Delahunt (2017:3351) state that "data analysis is central to credible qualitative research".

In this study, data were analysed using thematic analysis. According to Maguire and Delahunt (2017: 3352) "thematic analysis is the process of identifying patterns or themes within qualitative data". As it is stated further by Saunders, Lewis and Thornhill (2016:579), "the essential purpose of this approach is to search for themes, or patterns, that occur across a data set". Because thematic analysis can be used to analyse an enormous amount of data and smaller ones at the same time, it then helped me in this study to integrate related data drawn from the telephone interviews.

To elicit a comprehensive picture of e-learning at NUST, the literal words used by the participants as transcribed from the recorded telephone interview calls have been used to ease the data analysis process.

Based on the above reasons and to ensure a systematic analysis of the data obtained through telephone interviews, the study followed the work of Braun and Clarke (2006 as cited in Maguire and Delahunt, 2017:3355). The six-phase framework is illustrated in figure 4.1 and is discussed in detail below.



### **Figure 3.1: Six step framework for thematic analysis**

#### *Step 1: Become familiar with the data*

This step involved reading the transcribed data more than once to be familiar with the whole data so to grasp the meaning distance students assign to e-learning at NUST. It is at this stage that early impressions of useful information were noted down.

#### *Step 2: Generate initial codes*

At this stage, data were organized in a meaningful way by assigning codes to some text segments. These texts were color-coded to uniquely identify them. This was done with the concern of addressing relevant research questions.

#### *Step 3: Search for themes*

Here, the identified codes were examined and collated into themes. This was done concerning their significance in specific research questions.

#### *Step 4: Review themes*

This phase reviewed themes identified in phase 3. The purpose was to find out if these themes make sense and if they are sub-themes within them. This was done by carefully reading data associated with each theme to see if the data hold up to them.

#### *Step 5: Define themes*

This phase aimed to identify the quality of each theme and if there were sub-themes. If the later existed, their association with the themes were to be established.

#### *Step 6: Writing up*

Finally, the research findings from the data collected through telephone interviews were consolidated to generate a research report that describes the perception of distance students towards e-learning at NUST.

### **3.4 TRUSTWORTHINESS**

Connelly (2016:435) argues that trustworthiness is referred to as the level of confidence in the data, interpretation and methods used to ensure the quality of the study. To achieve the thoroughness of the study, Lincoln and Guba's (1985) criteria for trustworthiness that incorporated credibility, dependability, transferability, and confirmability is considered and discussed below.

#### **3.4.1 Credibility**

Credibility is necessary for establishing that the findings of the research are true. In this study, efforts were made to show that the true picture of e-learning at NUST is presented. To achieve this, the following provisions as adopted from Shenton (2004:64) were practised during the study:

- Firstly, and though it did not influence my formed impression of the collected data, familiarity was well developed as I am an employee of NUST at the regional centre and am well informed with the current operations of the e-learning system.
- The sampling of distance students (third-years) was based on the typicality that they have completed several e-learning modules.
- It was made clear to all participants that they had the right to withdraw at any stage of the interview process, this was to ensure that only genuinely willing distance students were prepared to speak freely and honestly.

#### **3.4.2 Dependability**

According to Maree (2016:124) dependability established through the research design and its implementation; the operational details of data gathering and the reflective appraisal of the research. To ensure that the results of the study are consistent or similar even if repeated by other researchers in the same context, the researcher employed and documented techniques such as a detailed research approach, sampling, and data collection methods that were deemed appropriate to answer the research question. This was further done to ensure that the study is traceable. On the other hand, it is important to note that dependability is not guaranteed in qualitative research, this is equally applicable to my study.

### **3.4.3 Confirmability**

This is the degree of neutrality in the study's findings. Maree (2016:114) states that "the more you become involved with the research participants and with the study, the greater the risk of bias creeping into the study". In the context of this study, steps were taken to justify that the findings emerged from the data and not from my predisposition (Shenton, 2004:63). The selection of participants during the data collection process was done by my colleagues who are also well informed with e-learning at NUST.

What was further established during data collection was that visible evidence of the telephone interview transcripts and voice recorded sessions are well kept (Anney, 2014:279). Although the intrusion of biases is inevitable because the interview guide was self-designed and the voice recorder operations depended on my skills, steps were taken to ensure that the findings were the results of the views of distance students towards e-learning at NUST (Shenton, 2004:72).

### **3.4.4 Transferability**

Transferability calls readers of the research to make connections between elements of a study and their own experience (Maree, 2016:124). It is stated by Leung (2015:324) that "most qualitative research studies, if not all, are meant to study a specific issue or phenomenon in a certain population or ethnic group, of a focused locality in a particular context, hence generalizability of qualitative research findings is usually not an expected attribute". However, the approach adopted and employed during sampling in the study proved to provide me with participants who confidently gave information that helped to answer the research question. This demonstrated that the results of the study could be widely applied to other groups of students (full-time and part-time students) within the institution, as it provided a detailed description of the e-learning situation at NUST.

In contrast, the study's case may be unique, but at the same time it does not undervalue the importance of its contextual factors, it can also be an example to a broader community of NUST students, and as a result, the argument for transferability should not be rejected (Shenton, 2004:69). It is also important to note that after a thorough understanding of the context of this study, readers may determine how far the findings and results could be transferred to other situations.

### 3.5 ETHICAL CONSIDERATIONS

Sound ethical measures were adopted throughout this study. According to De Vos *et al.* (2011:114), ethical issues in research are a set of moral principles that are suggested by an individual or a group and successively accepted as rules governing behaviour and conduct between the researcher and subjects.

During this study, ethical aspects such as permission, informed consent, and confidentiality were considered. Firstly, and in line with UNISA ethical principles, a research ethical clearance application was submitted and approval was granted as such by the College of Education 2020/05/13/61120731/16/AM (*cf.* Appendix C). Secondly, as the participants involved in the study were students from NUST, the researcher obtained formal approval (*cf.* Appendix B) from the Registrar's office through a written request to be allowed to interview distance students from the nine (9) Regional Centres. Thereafter, clear information and guidelines of the study were provided to all participants by issuing them with a participant information sheet (*cf.* Appendix F) that consisted of the purpose of the study, what was expected of them during the telephone interviews and the duration, the fact that participation was voluntary, and how confidentiality was being dealt with.

Participants signed letters of informed consent (*cf.* Appendix E) before participating in the telephone interviews. Informed consent is a voluntary agreement to participate in the research, and not a mere form that is signed by the participant but a process in which the subject has an understanding of the research process and the risks involved (Shahnazarian, Hagemann, Aburto & Rose, 2013:3) In this study, this process was done following proper respect for human freedom in research that includes two necessary conditions: (a) subjects must agree to participate in the study voluntarily without any physical or psychological coercion; and (b) their agreement must be based on the complete and freely available information (Christian, 2005:144).

Another important aspect is the issue of confidentiality of the results and protection of participants' identities. These results and findings will be used for this study only and treated as confidential. To keep a high level of confidentiality and anonymity, the telephone interview participants were not asked to provide their names and student numbers during the interviews. But instead, as alluded to by Flick (2014:42), one

needs to ensure anonymity and during data analysis, an encryption method of referring to students as participant numbers 1, 2, and so on, was adopted.

### **3.6 CONCLUSION**

This chapter described how the research methodology of the study was organised and carried out. The methodology followed was in search of an in-depth understanding of e-learning at NUST. The research approach with its relations to the exploratory case study and interpretive paradigm were discussed. The population and sampling method used in the study together with the instrumentation and data collection techniques employed were scrutinised. Furthermore, what is important is to emphasise as well as the data analysis process where Maguire and Delahunt's (2017) thematic analysis steps guided the analysis process of the study.

Descriptions of the ethical considerations were taken into account so that the results of the study can be established as a significant contribution for understanding students' perception of e-learning at NUST, and of course, for use by other researchers.

## **CHAPTER 4**

### **DATA PRESENTATION, ANALYSIS, AND DISCUSSION OF FINDINGS**

#### **4.1 INTRODUCTION**

This research investigated distance education students' perception of e-learning at nine (9) NUST Regional Centres. In this chapter, data collected through telephone interview calls are presented, analysed, and discussed. The purpose of the chapter is to present, analyse, and discuss findings to expand knowledge of e-learning at NUST. Data are presented in a table form and supported by the themes and sub-themes as emerging from the data collected about the research questions. Thematic analysis was applied to obtain more information on e-learning at NUST as emerging from the themes and sub-themes. Guided by research sub-questions, findings were discussed to develop the story of e-learning at NUST as emerged from the collected data. The theory of interaction and communication guided this study to investigate e-learning at NUST. The terms 'Participants' and 'distance students' are used interchangeably in this chapter.

#### **4.2 PROFILE OF THE PARTICIPANTS**

The sample for this study consisted of nine (9) distance education students from across NUST Regional Centres. The distance students were third-year students who had completed several e-learning modules and received compulsory e-learning orientation as per the e-learning NUST policy. This information tells their typicality which could be acknowledged as the reason behind their selection as suitable participants for the study. To ensure anonymity, the distance students who participated in this study were referred to as participant #1 - #9.

#### **4.3 RESEARCH FINDINGS**

This section spells out the research findings that emerged from the data collected through telephone interviews to answer the main research question for the study,

which was: *What is the perception of distance students towards e-learning at Namibia University of Science and Technology's Regional Centres?*

The findings from the nine (9) research participants are presented with the aid of a table and analysed using a thematic model.

The telephone interviews with distance education students were carried out guided by the set research questions. The main purpose of the telephone interviews was to explore the meaning distance students assign to e-learning at NUST. The organisation of the data collected through telephone interviews in a meaningful and orderly way resulted in the themes and sub-themes that were analysed further in the following section 4.4 to describe the perception of distance students towards e-learning at NUST. The themes and sub-themes that emerged from the telephone interview calls are presented in Table 4.1 below.

**Table 4.1: Emergent themes and sub-themes from the telephone interviews**

<b>Themes</b>	<b>Sub-themes</b>	<b>Corresponding Interview Question</b>
The ease of use of e-learning	Electronic devices using the internet	What is your understanding of e-learning?
	E-learning approach	Which learning approach do you prefer?
	Login frequency	How frequently do you log in on e-learning?
	E-learning key functions	What specific key functions do you find easy to use and which one do you find difficult to use?
	Managing difficult key functions	How do you manage these difficult key functions?
Perceived benefits of e-learning	Convenience	What are the benefits of e-learning in your studies?
	Cheap mode of study	
	Flexibility	
	Motivational	

Themes	Sub-themes	Corresponding Interview Question
	Interactive opportunities	
Perceived challenges of e-learning	E-learning content not detailed	What challenges do you encounter when using e-learning?
	Lack of motivation	
	Lack of stable Internet connectivity	
	Lack of mobile data and devices	
	Lack of synchronous interactions	
	Ineffective assignment submission link	
	Insufficient time allocated to online tests	
	Delayed feedback	
Recommendation for effective use of e-learning	Better internet connectivity	What measures can you recommend to the challenges you face when using e-learning?
	Upgrade assignment link	
	Access to affordable data	
	Synchronous interaction	
	Timely online feedback	
	Increased Online test duration	

#### 4.4 DATA PRESENTATION: ANALYSIS OF EMERGENT THEMES AND SUB-THEMES

Data analysis and presentation is an organised procedure of moving away from collected data to develop an understanding of the research participants` views to

describe and clarify the phenomenon under study. Bazeley (2013:5) asserts that qualitative analysis is case aligned. The analysis in this study was centred on a case, e-learning at NUST was the focus of the study. This section presents a detailed analysis of the findings from the telephone interviews with the distance students.

The analysis of the distance students' views collected through telephone interview calls resulted in the emergence of themes and sub-themes that were analysed below to give a detailed account of e-learning at NUST. In this regard, four important themes emerged from the telephone interviews with the distance students, that is, the easiness of use of e-learning, the perceived benefits of e-learning, the perceived challenges of e-learning, and recommendations for the effective use of e-learning.

#### **4.4.1 Theme 1: The ease of use of e-learning**

It was vital to first establish students' understanding and knowledge of e-learning before finding out if they preferred this learning approach. Five sub-themes emerged from this theme. There were: electronic devices using the internet, e-learning approach, login frequency, e-learning key functions, and managing difficult key functions.

##### **4.4.1.1 Electronic devices using the internet**

This sub-theme emerged from the analysis of data from distance students' telephone interviews that sought to determine their awareness and understanding of e-learning by asking them to define the term 'e-learning'. It emanated from the analysis that distance students were aware and understood e-learning by giving their views of how they understood it. This was made evident by the following extracts from the participants.

*“E-learning is learning that uses electronic devices such as computers”*  
(Participant # 2).

*“E-learning is learning taking place with the usage of electronic devices”*  
(Participants #3).

It was further revealed that other participants had slightly different views of how they understood of e-learning.

*"E-learning is electronic learning that takes place via the internet"* (Participant # 1).

*"E-learning is the delivery of learning through electronic devices connected to the internet"* (Participant #4).

From the extracts above, it transpired that the participants were aware and had a good understanding of e-learning. Even though they gave different definitions of the term, their opinions gave a clear picture of their understanding.

#### **4.4.1.2 E-learning approach**

This sub-theme emerged from the interview question *"If you were given a choice between face-to-face and e-learning approach to your studies which approach would you prefer?"* The sub-theme entailed the preference distance students have over face-to-face learning approach. It became prominent that most of the distance students preferred the e-learning approach towards their studies for various reasons. The students believed that e-learning was a convenient approach for them. These opinions are presented below.

*"I would prefer e-learning because it's more student-centred in the sense that I have much control of my academic work and self-paced"* (Participant #8).

*"I see e-learning to be more convenient so I choose that one"* (Participant #5).

However, one participant had a different choice from the rest. The participant preferred the face-to-face learning approach. In this regard, the participant stated:

*"I prefer face-to-face because it is conducive for me, the tutor explains learning content in detail, and questions asked get answers the same time"* (Participant # 6).

Despite the different choices from Participant #6, it was found that most participants considered e-learning a favourable mode of learning delivery when compared to the face-to-face learning approach.

#### **4.4.1.3 Login frequency**

This sub-theme emerged from the interview question which stated that: *"How frequently do you log in on e-learning?"* This question was to determine how many times participants, say in a day or a week, used to login on e-learning and of course the reason behind their login frequency. It became clear that some participants' login frequency relied on academic workload. Some participant had this to say:

*"To answer that question, it depends on the academic workload available, of which one is likely to login three times a week if the workload is less"* (Participant # 8).

*"In a week I might on e-learning two to three times to keep up with academic work"* (Participant # 7).

Other participants acknowledged that login on e-learning every day was necessary for academic updates. This showed that participants were eager and prepared to use e-learning every day. In supporting this claim, the participants stated that:

*"It's daily, that means, in the morning before I go to work, around 14:00, and later in the evening before I go to bed. I have to do this to be updated and stay on track with my studies"* (Participant # 3).

*"All the time because I have the luxury of having WIFI access"* (Participant # 1).

From the responses given by the participants on this theme, it can be inferred that distance students although with different circumstances and reasons use e-learning regularly in order to stay up-to-date with their studies.

#### **4.4.1.4 E-learning key functions**

This sub-theme emerged from the interview question: *"What specific key functions do you find easy to use and which one do you find difficult to use?"* This question was asked to judge whether it was easy or difficult for distance students to use the e-learning system at NUST. The participants revealed how most of the e-learning key functions were easy to use and how few or none of them were difficult to use. This revelation is described more in the following paragraphs.

It came to light that most key functions of e-learning at NUST were user friendly to distance students because some of them had completed the ICT introductory course or Computer user skills module in their first year as per the extracts below.

*“To me, yes, I find them to be user friendly because I can easily navigate through the site easily, maybe because I did an ICT introductory course in my first year”* (Participant # 7).

*“Yes, exactly, I find them to be user friendly maybe because I have done a Computer user skills module already, I do not struggle to get the information provided on e-learning, it’s just by a click, it is easy”* (Participant # 5).

The other participants pointed out specific key functions of e-learning that they found to be user-friendly. This line of thinking is divulged in the quotation below.

*“Yes, definitely, especially the assignment submission link, I have always used this link and it is straightforward”* (Participant # 1).

However, one participant had mixed views regarding the key functions of e-learning. This came to light from the expression below.

*“Yes, I do find them easy but let me say to a certain extent. Some of them are a bit of a challenge to use”* (Participant # 2).

It further emerged from the analysis that only a few participants faced minimal difficulties when using the e-learning key functions while the majority had no problem using such functions. These views were communicated in the following remarks by the participants.

*“It is not like I find them difficult to use, but it is my weakness to practice so I get used to them”* (Participant # 5).

*“Yes, the key functions that we constantly not use, like the enrolment key link, it is difficult to enrol yourself because of password issues”* (Participant # 3).

Some participants stated that they had no specific key function that was difficult for them to use. These claims are expressed below.

*"For me not at the moment really, nothing is difficult for me now" (Participant # 9).*

*"At this pointing time, no, there is no key function that is difficult for me" (Participant # 8).*

Given the remarks by the participants on the key functions of e-learning, one can conclude that e-learning key functions at NUST are user friendly but knowledge of and practice with the key functions are fundamental to its successful operation.

#### **4.4.1.5 Managing difficult key functions**

It became apparent in that some participants experienced difficulties when using the e-learning key functions. The participants revealed that the difficulty of key functions could still be managed by employing different strategies. This sub-theme is from the interview question: *"How do you manage these difficulty key functions"?*

Contacting the institution featured as one strategy that participants employed in managing difficult e-learning key functions. Some of the responses are presented below.

*"Phone calls were made to the relevant student support officers when I experience difficulties and assistance was offered on time. But as a student myself I could not manage to resolve these difficulties alone" (Participant # 3).*

Consultation with lecturers and peers emerged as one of the strategies that provided the participants with the prompt response when assistance was sought. The interviewed participants revealed how they could get help from the lectures and peers promptly, as quoted below.

*"Yes, through our WhatsApp group, I could get assistance on time from either the lecturer or my fellow students when I was experiencing difficulties with a specific e-learning key function" (Participant # 1).*

It is deduced that the participants acknowledged that the institution was helpful in addressing these difficulties so that distance students could successfully use e-learning for their academic activities. Additionally, the participants' decisions to contact

the institution was an indication that they realised that support was needed so that e-learning could enhance their learning.

Overall, it is sought that the emergent themes and sub-themes from the telephone interviews with distance students developed a meaningful perception that e-learning at NUST is user friendly. The logical responses presented by the participants in this regard provided insight into their consciousness and understanding of e-learning. This makes a compelling motive for distance students to continue choosing the e-learning approach for their studies.

#### **4.4.2 Theme 2: Perceived benefits of e-learning**

This theme came to light after the emergence of the interview question: *“As a distance student, what are the benefits of e-learning to your studies?”* This question was asked to determine whether distance students benefit in engaging with e-learning at NUST. The participants stressed the relevance of using e-learning and appreciated the benefits it presented to their studies. Six sub-themes emerged from this theme’s objectives. These were: convenience, cheap mode of study, flexibility, motivational, and interactive opportunities.

##### **4.4.2.1 Convenience**

The telephone interview data revealed how the sub-theme 'convenience' featured prominently in the participants’ responses. The interviews revealed how e-learning made it possible for the participants to have easy access to learning materials and how they can now manage their academic work with full-time work responsibilities. This was evident in the following extracts.

*“The benefits that I see is that e-learning provides easy access to learning resources. A lot of notes, slides are easily accessed online”* (Participant # 5).

*“As a student, I can access my course materials easily”* (Participant # 8).

Moreover, other participants stated that e-learning fitted in well with personal circumstances such as work responsibilities whereas they could attend to their academic activities after working hours. In support of this assertion, the participants stated that:

*"E-learning gives me time to attend to my assignments and tests after work"*  
(Participant # 2).

*"With e-learning, I can sit conveniently after work and attend to my assignments, online tests, and classes"* (Participant # 3).

From the quotations above, it can be understood that e-learning has afforded distance students with an opportunity to proceed with their academic journey at NUST with ease. The convenience that e-learning brings in has resulted in the enhancement of their learning.

#### **4.4.2.2 Cheap mode of study**

E-learning was identified as a cheap mode of study was found to be advantageous as students needed to travel to and from the regional centres for weekend tutorials, tests and assignment submissions. One needs to be in a good financial position to comprehend this situation. As a result, the majority of the participants who responded to the telephone interviews appreciated the financial relief that e-learning has brought to their academic journey at NUST. In applauding this cheap mode of study, the participants had this to say:

*"It reduces costs as I do not need to get a cab to go to the centre for classes anymore. I do not need to worry with transport money, so it is easy and cheap"*  
(Participant # 5).

*"Well, as for me, e-learning reduces costs on traveling to the centre to attend classes. I used to waste my money on travelling to the centre, but now with online classes, I am saving a lot"* (Participant # 4).

*"To me, it is the reduction of costs on traveling and study materials"* (Participant # 9).

Regardless of the participant's different financial positions, all of them appreciated that the e-learning mode of study reduces costs especially on traveling. With limited financial resources, distance students can still attend to their academic work without the need to travel to the regional centres.

#### **4.4.2.3 Flexibility**

The introduction of e-learning at NUST as an innovative approach to teaching and learning has afforded distance students with the opportunity to realise their educational objectives due to its flexibility. During the telephone interviews, it came to light that e-learning offers flexibility to distance students. These views are clear from the remarks below:

*"It is quite flexible; I can attend to my classes any time at any place as long I have access to the internet"* (Participant # 3).

*"There is a flexibility benefit because e-learning does not require a specific place to learn"* (Participant # 9).

In consensus with the above, another participant had this to say:

*"I can learn even after work, during weekends or in the evening after work"* (Participant # 2).

From the remarks above, it can be deduced that e-learning provides flexibility to distance students. It is also evident that the flexibility resulted in distance students taking control of their academic work despite their demanding full-time employment.

#### **4.4.2.4 Motivational**

During the telephone interviews, it was established that e-learning has had a motivational impact on distance students' educational journey at NUST. Some participants viewed e-learning as having increased their motivation to do more research and it has boosted their confidence because they have now learned how to use electronic gadgets better. This motivational impact of e-learning was referred to as follows:

*"Ok, e-learning contributed to me being actively involved in my studies and do more research to expand my horizon in different courses"* (Participant # 3).

*"For me, e-learning motivates me to find more resources online"* (Participant # 1).

It was also interesting to note that e-learning has availed an opportunity for some participants to become more skilled in the use of technology. This capacity is claimed below:

*"With e-learning, I have now learned to use electronic gadgets better than before which I think has given me motivation and be comfortable with the system"* (Participant # 3).

The acknowledgment by participants that e-learning has a motivational impact on their studies is an indication that this mode of learning delivery is favourable, enables them to get topical information that can enhance their learning and develops their ICT skills. Indeed, distance students cannot achieve their learning goals without this important life skill.

#### **4.4.2.5 Interactive opportunities**

It has been concluded in Kauffman (2015:10) that favourable results of online learning need an interchange between the students, lecturers and technology. The participants who responded to the telephone interview questions acknowledged that online interactions between students and lecturers and between students themselves were an important aspect in being successful in their studies conducted through e-learning. This was evidenced in the following extracts from the telephone interview calls.

*"Well, there are quite a several benefits of e-learning. Let me start with interactions. I get to understand the content better because I interact with other students and the lecturer"* (Participant # 4).

*"For me, my studies have become so easier because when I am stuck with difficult topics, I get help online from my fellow students"* (Participant # 6).

To supplement the above statements on interaction capabilities of e-learning, other aspects came to light as per quotations below:

*"Above all benefits, interactions with my fellow students and lecturers through the discussion forum stands out because active participation in online discussions means productive learning"* (Participant # 8).

*"E-learning has made me be more interactive and communicate ethically online and even made loyal friends through online interactions"* (Participant # 5).

The participants felt that online interactions with peers and lecturers could increase their understanding of the learning content. With this help, their expected learning goals can be realised.

Even though it is an unpleasant matter, the participants' responses revealed few benefits of e-learning at NUST when compared to the challenges presented in the subsequent Theme 3. However, the participants appeared to acknowledge the benefits of e-learning in their studies. They stipulated different ways in which they benefited when using e-learning. This may have a positive impact on their academic journey. Though with different life circumstances with which distance education students are faced, it is clear from what has been analysed in this theme that e-learning plays a crucial role in their studies and should be embraced.

#### **4.4.3 Theme 3: Perceived challenges of e-learning**

Numerous scholars have made observations that although ICTs can strengthen the learning and teaching processes, the realisation of this objective is yet to be reached in developing countries due to particular challenges (Khan, Hasan & Clement, 2012:62; Mtebe, Dachi & Raphael, 2011:292). In the context of this study, participants showed that they were eager and prepared to use e-learning based on the ease of use and benefits; however, several factors were identified to hinder their engagement with the e-learning system at NUST. This theme emerged from the interview question *"What challenges do you encounter when using e-learning"*? The theme explored the challenges that can negatively impact the effective use of e-learning by distance students.

Eight sub-themes emerged from the participants' deliberations and responses: learning content not detailed, lack of motivation, lack of stable internet connectivity, lack of mobile data and devices, lack of synchronous interactions, ineffective assignment submission link, insufficient time allocated to online tests and delayed feedback.

#### **4.4.3.1 E-learning content not detailed**

Given the fact that online learning takes place in the absence of the lecturer, participants expressed their concerns over the online content that is not detailed. This limitation arose from the fact that the course content is directly uploaded on e-learning as it should appear from the source - this can be from a study guide or a textbook. This information is therefore well presented or described, nor does it have online content features nor is it self-explanatory. To support this assertion, participants had this to say:

*“For me, the subject matter on e-learning is not explained in detailed for one to understand it” (Participant # 6)*

*“The other challenge I have is that of the learning content that is not explained in detail, especially when there is no face-to-face tutor to help out” (Participant # 1).*

These remarks do not signify an educational online learning environment conducive to learning. It indicates that the e-learning content for distance students is not maximized.

#### **4.4.3.2 Lack of motivation**

Kim and Frick (2011:1) suggest that in online settings lack of motivation is a primary cause of students' ineffectiveness. During the telephone interviews, the participants were concerned about the lack of motivation they received. Because e-learning is the current mode of study with no face-to-face interaction with lecturers, students felt isolated and alone. Although little is known about what determines motivation in online learning, the participants mentioned that the absence of face-to-face assistance and inactive online lecturers decreased their interest. These concerns are shown in the following extracts from the telephone interview calls:

*“The other challenge for me that I have experienced is that of face-to-face assistance. I remember one time I had a problem with my mathematics assignment, I really needed face-to-face explanation from the lecturer, but this help never came forth” (Participant # 1).*

*“Sometimes is lack of motivation. There is a point when you are studying that you need a face-to-face lecturer. In a face-to-face classroom, the lecturer will have time to motivate you” (Participant # 6).*

*“There is a time when you are stuck and you send a message on e-learning to the assigned online tutor, but you will only get help after a week or two after you have submitted your assignment. For me, this is inactiveness from the side of the lecturer and demotivates a lot” (Participant # 7).*

From the responses above, it can be deduced that motivation is another factor that affects the online learning performance of distance students. If students are motivated, this will inspire them to continue using e-learning to achieve their learning goals despite the challenging life circumstances they face. However, if they feel isolate and alone without any support from the lecturers and tutors, they will feel less motivated.

#### **4.4.3.3 Lack of stable internet connectivity**

The telephone interview data brought to light the concern of lack of stable internet connections as one of the challenges for the effective use of e-learning at NUST. These concerns ranged from slow internet to errors in accessing the NUST website during peak times. The quotations from the telephone interview data below clearly show the reality of this situation:

*“The most challenge that I face is the slow internet when accessing e-learning. Sometimes I do have access because it continues giving me an error when trying to log in that the page is not available, this is especially when it is time for the test. But if by chance I get access, the downloading becomes a problem because it will keep on loading quite a long time” (Participant # 4).*

*“Well, definitely is the connectivity issue. My internet sometimes does not want to work. I have to run around to make sure I have access to the internet” (Participant # 1).*

The other participants had this to say:

*“The congested network is a challenge to me. It takes longer for me to access the website for NUST or sometimes no access at all when everyone is on the server” (Participant # 7).*

*"First is the internet connectivity, especially during online tests. Sometimes when it is time to attempt an online test, we experience jams, maybe it is because there are many students online"* (Participant # 3).

The above remarks show how distance students at NUST are dissatisfied with the e-learning system due to a range of limiting factors. These technical challenges impede the effective use of e-learning. It thus shows that NUST is not spared from the routinely experienced challenges of technology.

#### **4.4.3.4 Lack of mobile data and devices**

Although a minimum number of participants who responded to the telephone interviews raised the concern of the lack of mobile data and devices, the researcher has considered this as an important aspect of online learning. The participants indicated that the issue of lack of devices was a concern as it hindered their learning. This is confirmed in the statements below:

*"I always have a challenge when downloading documents from the e-learning system. I do not have a smartphone that can support downloading applications so I have to borrow a phone or a laptop with necessary applications from my friends"* (Participant # 4).

*"Yes, on the challenges, to be honest with you. If one does not have the necessary device such as a laptop or smartphone, there is no way you can access e-learning"* (Participant # 8).

The other participants had concerns with access to data. This was revealed in the extracts below:

*"With me, I have a laptop, but the challenge is on data. If I recharge my 4G Netman Dongle, it will only save me for a week and then it is finished. It is very costing for me to keep it going"* (Participant # 7).

*"It is very difficult with me because I use to depend on SuperAweh packages for data, of which this is not enough for me to attend to my online tests and assignment submission"* (Participant # 5).

This challenge of access to data and necessary devices defeats the purpose of e-learning in alleviating distance students' struggle to pursue their learning goals without physically attending in a traditional academic setting. The participants indicated that the lack of data and devices was a challenging matter in their capacity to maximise the use of e-learning for academic accomplishment.

#### **4.4.3.5 Lack of synchronous interactions**

It emerged from the responses that some participants were concerned about the lack of same-time interactions between the students and the lecturer on the e-learning system. Consequently, the participants indicated that there was a need for real-time interactions between the students and the lecturer. In support of this reasoning, participants had this to say:

*"The lack of same time interactions between the students and the online tutor is a problem"* (Participant # 5)

*There are no same time interactions like in face-to-face classroom".* (Participant # 6)

*"The opportunity to engage the online tutor if you have a problem at the same moment is lacking in our e-learning system"* (Participant # 9)

This revealed how synchronous interactions are crucial in online learning. This online tool was found to be not in use at times or under-utilised.

#### **4.4.3.6 Ineffective assignment submission link**

Assignments are there to increase the learning capabilities of students. Therefore, if one aspect of the whole process appears to be ineffective, it tends to disadvantage the quality of learning. The participants expressed concerns about the inability of the e-learning assignment link to accommodate documents that are larger than 15 megabytes (MB). This was referred to as being unsatisfactory, as shown by the following remarks:

*"The assignment submission link only allows documents with a size less than 15MB. So, if your assignment is larger than this, then it means you have to reduce it. This is a problem because some assignments need a specific number*

*of words, so if we reduce then we fail the assignment because of this” (Participant # 2).*

This is an indication that distance students are not able to maximise the use of e-learning. In many instances, students fail to meet the requirements of assignments due to this limiting factor, as a result, they fail the assignments. Though this is a technical issue and it is common in contexts when technology is integrated into education (Al Zumor, Al Refaai, Eddin, and Al-Rahman, 2013:102), NUST should not overlook it because it negatively impacts on the effective use of e-learning.

#### **4.4.3.7 Insufficient time allocated to online tests**

It appeared from the telephone interviews that the participants felt that the time allocated to online assessments was insufficient. This indicated that the amount of work needed to complete an online test, which involves some technical issues which take up much of the allocated time. These processes include downloading the questions, answering the questions, scanning and uploading the answers was not proportioned to the time allocated for the specific test. The quotations below say it all:

*“Online tests require more time. I feel the time allocated to an online test should not be the same as that of a manual test. This is because the format of online tests is a challenge to us, first, you need to download the question paper, answer the questions, scan and upload the answers. These stages need more time, there is a lot of work here” (Participant # 5).*

*“Because some tests are not timed, the work of downloading the questions, reading, answering, scanning and uploading the answers on e-learning requires more time to attend to the test” (Participant # 8).*

There is a need to cautiously plan the design of online tests so that distance students with their demanding life are able to finish their online assessment activities with ease.

#### **4.4.3.8 Delayed feedback**

Delayed feedback was one of the challenges identified by the participants. Lemley *et al.* (2007:253) argue that immediate feedback to a completed task promotes retaining of acquired information. Jose (2015:23) states that assignments can be marked online

and thereafter, feedback can be given online as well. However, the participants expressed dissatisfaction with online lecturers in providing late feedback. The participants said:

*"When the assessment is handed in, it takes long before feedback is provided. For example, you have submitted assignment one, you will submit assignment two without receiving feedback for assignment one. You will only receive feedback at a later stage. So, it is difficult to know where you went wrong and where you need to improve" (Participants # 3 ).*

From the above responses, it can be deduced that delayed feedback promotes misunderstandings rather than further learning. Immediate feedback can be beneficial to distance students in the sense that interaction with it influences and informs learning.

The challenging factors that have been analysed under this theme are not a result of distance students' negative attitudes towards e-learning at NUST but a mere lack of means on the side of the student and lack of adequate resources on the side of the institution. The factors impede the maximum usage of e-learning by distance students. They show how teaching and learning with technology drawbacks affect the quality of education. Therefore, the challenges cannot be disregarded as they have an impact on the effective use of e-learning at NUST.

#### **4.4.4 Theme 4: Recommendation for effective use of e-learning**

The recommendations given by the participants who participated in the telephone interviews could serve as a platform for a favourable e-learning system at NUST. They are quite valuable recommendations that can be implemented to improve online education practices. This theme emerged from the interview question: *"What measures can you recommend to the challenges you face when using e-learning?"* The objective of the theme was to get a recommendation from the participants about the effective use of e-learning at NUST. Five sub-themes emerged from this theme. There were: better internet connectivity, upgrading of the assignment link, access to affordable data, synchronous interactions and increased online test duration.

#### **4.4.4.1 Better internet connectivity**

Better internet connectivity was identified by the participants as the key solution to most challenges experienced when engaging in e-learning at NUST. The participants had this to say:

*“All is run by the network, so I suggest better internet connectivity be established by the institution for us to be able to use e-learning better” (Participant # 3).*

*“I would suggest that better internet connectivity will ease our troubles with e-learning” (Participants # 1).*

In the same line, the other participant had this to say:

*“I think our internet connection is slow, maybe because of the limited bandwidth. I have seen during online assessments when a large number of students are all attending, say for example to an online test at the same time, the internet becomes very slow. So, the institution should consider doing something in this regard, maybe increase the capacity” (Participant # 6).*

These responses call for reliable internet connections. The participants made it clear that the successful operation of e-learning depends on a stable internet connection and once this is established, the distance students will have the opportunity to maximise the use of e-learning.

#### **4.4.4.2 Upgrade assignment link**

As the participants' telephone interviews revealed that the assignment submission link was a challenge in terms of the size of documents uploaded, a suggestion was given so to address this challenge. This statement is supported by the remarks below:

*“The assignment submission link only allows documents with the size below 15 Mega bites (MB). This needs to increase to allow submission of assignments with more than 15 MB” (Participant # 2).*

*“The assignment submission link be upgraded in such a way that it can accept documents integrated with Microsoft and PowerPoint versions” (Participant # 7).*

This made sense because students can only progress in their studies if the assessments are successfully submitted and graded. It was on this basis that the participants suggested an upgrade on the assignment submission link to allow for larger documents so that the submission of assignments should not be a barrier.

#### **4.4.4.3 Access to affordable data.**

Access to affordable data was one-factor inhibiting participants' full access to e-learning. Therefore, participants who attended the interview calls suggested that the institution should provide students with data dongles or negotiate with local internet service providers for a reduced cost on data products. In line with this suggestion, some participants had this to say:

*"I would like the university to provide us with 4G devices or TN mobile data so that we can have full participation in all online learning activities"* (Participant # 4).

*"I think NUST should emulate what other universities are doing, they should provide students with data"* (Participant # 6).

Inconsistent with the above suggestions, one participant had this to say:

*"NUST should negotiate reduced prizes on data for students from local suppliers or students should not be charged when accessing the website for the university, especially during these difficult times of COVID-19"* (Participant # 9).

The power of remarks is portrayed as a determinant of the effective use of e-learning. Access to affordable data should be seen as an advantage that enables distance students to achieve positive learning results.

#### **4.4.4.4 Synchronous interactions**

It came to light during the study that online synchronous interactions were crucial in the process of learning. Therefore, participants suggested that the e-learning system at NUST should have this feature to enable students to have the same-time discussions with lecturers on course-related matters. This suggestion was made in the following remarks:

*"E-learning should be designed in such a way that real-time discussions are possible. This will help us to get answers to our questions the same time like it is in the face-to-face classroom" (Participant # 6).*

These remarks point out the reasons why real-time interactions are necessary for online learning. This platform encourages distance students to continue learning despite the challenges. Real-time interactions could compel students to be successful in their learning and have an interest in engaging in e-learning.

#### **4.4.4.5 Increased online test duration**

Knowing the challenges experienced when engaging e-learning, especially during online assessments, the participants recommend that the time allocated to online tests should be increased and not be the same as manual test durations. Here is what the participants said:

*"I think the time allocated to online tests is less, so they should increase it. For example, it can be increased by 30 or 45 minutes. This will give us more time to attend to all test procedures such as uploading the questions, answering the questions, scanning and uploading the answers on e-learning" (Participant # 2).*

It was noted that participants highlighted the need for increased online test duration to overcome the challenge of limited time. This will spare students from the frustrations of not submitting their tests or submitting incomplete work.

The recommendations made by participants under this theme are an indication that distance students are willing to continue engaging in e-learning for their studies. It can be further deduced that the students are eager to explore this option to accomplish their learning goals. It thus serves as a call for NUST to start regimenting existing e-learning operations in line with the recommendations provided by the participants. In principle, the recommendations offered for addressing the challenges found with the practice of e-learning, if adopted by NUST, could influence distance students' decisions to continue using e-learning as an option for their studies.

## **4.5 DISCUSSION OF THE FINDINGS**

This study set out to establish the perception of distance students towards e-learning at NUST. Their perceptions were sought concerning the ease of e-learning, their views on the benefits and the challenges constraining the effective use of e-learning, and their recommendations to the best cause of e-learning at NUST. The theory of interaction and communication guided this study in investigating the research questions. The findings of this study will contribute to the existing knowledge of e-learning at NUST. In this section, as a result, the discussion is built on the findings to the following secondary research questions:

1. What are distance students' perceptions towards the ease of use for e-learning at NUST?
2. What are distance students' perceptions of the benefits of e-learning at NUST?
3. What are the challenges that distance students encounter when using e-learning at NUST?
4. What are the measures to be recommended for the effective use of e-learning at NUST?

### **4.5.1 RQ1: What are the distance students' perceptions towards the ease of use of e-learning at NUST?**

The perceived ease of use of e-learning in this study was sought to establish how distance students view e-learning in terms of how easy it is to use its key functions. In this regard, key functions for e-learning were referred to as the login link, announcement link, assignment submission link, test and quizzes links, self-enrolment link, discussion forum link, and other important links. The scope used to define this easiness was first to establish distance students' understanding of e-learning, opinions on whether they preferred to use e-learning or not, how often they use e-learning, the easy and difficult key functions of e-learning.

Before determining the views and experience of distance students the study first sought to establish their understanding of e-learning and see if they preferred this type of learning approach. The findings in this regard revealed that distance students were aware and understood what e-learning was by giving different types of definitions. It

must be noted that the fact that distance students knew the concept of e-learning, it meant that they were familiar with this type of technology. Hence their choice of e-learning over face-to-face learning. From the nine (9) students who participated in the telephone interviews, it became evident that all but one preferred the e-learning approach.

It seems that students worked continuously on their studies as the login of distance students on the e-learning system varied from three times a week to every day. This was due to various reasons, such as academic workload and available time. It has been inferred that despite different circumstances of distance students, e-learning is used all the time. To judge whether it was difficult or easy to use the e-learning key functions, it was revealed that most key functions were easy to use. It seems that the interface design of e-learning with most key functions of e-learning were user friendly. It transpires that most distance students had completed an introductory ICT course known as Computer User Skills in their first year and were technologically savvy. This is in agreement with (Mamattah, 2016:32) who maintained that IT basic knowledge enables students to participate in e-learning without many difficulties. The ability to execute the key functions of e-learning with ease enhances students' learning experience. Some key functions such as the assignment submission link were found to be easier for students to use because it is a straightforward link. Only a few students stated that they found difficulty when engaging the functions of e-learning, whereas some had no specific key functions that were difficult to handle for them.

Of those who had minimal difficulties in using e-learning key functions, the study revealed that the difficult key functions could still be managed. Contacting the institution and the lecturers featured as some strategies that participants employed as a managing tool for the difficult key functions. It is believed that the potential of students to use online resources is important because without managing strategies, students cannot enjoy the educational benefits e-learning provided over face-to-face learning (Mamattah, 2016:32). It was found that the institution's prompt response in addressing distance student difficulties was a due consideration as e-learning could enhance their learning.

From the discussions above, it can be assumed that e-learning is understood by distance students. The logical response presented in the study provided deep insight

into their consciousness and understanding of e-learning and made it a compelling motivation to continue engaging in this online learning approach. It is deduced that e-learning at NUST is not only perceived to be easy to use but also considered to be user friendly.

#### **4.5.2 RQ2: What are the distance students' perceptions of the benefits of e-learning at NUST?**

The findings from the study suggest that distance students felt e-learning was a favourable method of learning for their continued studies. Because the study was conducted at an under-resourced university, it is sensible to argue that a milestone has been achieved regarding e-learning at NUST.

During the telephone interviews, it was revealed that e-learning provided distance students with some level of convenience that they could not experience in a conventional setting. The majority of the research participants regarded e-learning to have provided them with the convenience of easy access to online learning materials. With the full-time work responsibilities, this gave them the convenience of not physically visiting regional centres to access learning materials. Besides, e-learning suited distance students' circumstances such as work-related responsibilities where they could attend to their studies after working hours. From this convenience, it is understood that e-learning allows distance students to pursue their studies with ease.

To overcome the financial barrier experienced by many distance students because of other financial obligations, the study revealed that e-learning was a cheap mode of study. This was found to be advantageous as students previously needed to travel to the regional centres for weekend tutorials, attended to tests, and submit assignments. Regardless of the different financial positions, most of the research participants appreciated that e-learning reduced costs of travelling as well as time. It was further revealed that e-learning reduced the cost of access to study guides and other learning materials. This was because these study guides are now provided on the e-learning system in the form of electronic resources.

The introduction of e-learning at NUST, as an innovative approach to teaching and learning, has provided distance students with an opportunity to realise their academic objectives due to its flexibility. It was found that e-learning provided students with an

opportunity to study where and when they decided, in other words, the students have the opportunity to study without physically visiting the university campus. Besides, the flexibility aspect of e-learning came in handy when students could submit their assessments electronically without necessarily being at any NUST Regional Centre. The flexible learning environment that e-learning has created, affords distance students access to a wide variety of learning materials and opportunities. This is aligned with the findings of Sun *et al.* (2008:5) that due to e-learning flexibility in time, location and methods, participation and satisfaction of students are eased. The insight gained from the study is that the flexible learning environment that e-learning has created has resulted in students taking control of their academic work despite their life dynamics.

It must also be noted that in the study, it was revealed that e-learning has a motivational impact on the students' academic journey. Kim and Frick (2011:16) stated that if students are motivated to learn, they are believed to be active in their learning, and if this happens, they are expected to attain their set of learning goals. The participants in the study viewed e-learning as having increased and maintained their motivation for various reasons. Some participants indicated that they were now motivated to do more research because of e-learning and this resulted in active learning. In the same vein, other participants indicated that they were motivated because they were now comfortable with using ICT and ICT-related gadgets. This means that students' motivation has resulted in them having a positive attitude towards it. Sun *et al.* (2008:4) stated that when students are not nervous about using computers, they will thus be content and successful with e-learning. Therefore, the acknowledgment by the participants in the study that e-learning had a motivational impact on them was an indication that this mode of study is favourable and can enhance learning. Indeed, distance students cannot achieve their learning goals without this important life skill.

Interactive opportunities were viewed by the majority of the participants that it considerably influences their e-learning satisfaction. The participants acknowledged that online interactions between the students and the lecturers were an important aspect of successfully using e-learning. This interaction makes students believe that the relationship established between them and the lecturers makes their learning efforts appraised (Sun *et al.*, 2008:6). In a virtual learning environment, interactions

between students and the others online or with the learning content, can assist in enhancing learning progress. Consequently, this interaction positively influences distance students' satisfaction with e-learning.

#### **4.5.3 RQ3: What are the challenges that distance students encounter when using e-learning at NUST?**

The findings revealed that there were more challenges than benefits in engaging e-learning at NUST. However, this does not suggest that the e-learning system at NUST is not an ideal learning tool for distance students. It simply implies that the research participants exhibited their concerns experienced when engaging in e-learning at NUST. These concerns were mostly inherent challenges of realising a successful e-learning adoption and integration in higher education, especially in the Namibian context (Mässing, 2017:7). The research participants' data revealed challenges of e-learning content not being detailed, lack of motivation, lack of stable internet connectivity, lack of mobile data and devices, lack of synchronous interactions, ineffective assignment submission link, insufficient time allocated to online tests, and delayed feedback.

The e-learning content that is not detailed proved to be one of the significant challenges for distance education students in this study. Given the fact that online learning takes place with students and the lecturers in different locations, it became a challenge for students to make sense of the online content due to lack of depth. This limitation arose because the learning content is directly uploaded on e-learning from the study guide. Although the learning content from study guides are self-explanatory, it lacks some online features such as visuals, and links as it is mainly text-based. It appeared that lecturers upload notes without changing them into technology-enabled formats, which means that the content is not interactive. It seems to be a document storehouse where presentations and notes are uploaded. Drawing from the previous study conducted by Sun *et al.* (2008:12) course quality holds up a relationship with e-learning satisfaction. This quality includes the design of the teaching and learning materials which should be adapted for e-learning use. The factual information currently provided in the learning content cannot yield a positive online learning experience for distance students.

Although the study revealed that distance students were eager and willing to continue utilising e-learning for their studies, the absence of face-to-face assistance from the lecturer reflected the lack of motivation in online learning. To stimulate a positive climate for distance students' active participation in the learning process, there should be assistance and guidance from the lecturers. Numerous studies have revealed the significant role that a teacher plays in easing online learning, such as encouraging engagement in collaborative learning (Lambropoulos, Faulkner & Culwin, 2012). It is therefore clear that lecturers can play an encouraging role to affect student motivation in online learning. In this regard, motivation is an enabling factor that ensures that distance students can use e-learning effectively. Motivated students can achieve learning despite the challenging learning environment.

Furthermore, the study revealed that lack of stable internet connectivity was a factor hindering access to e-learning resources. This limitation was mostly attributed to slow internet connections because of the size of the bandwidth. Internet speed connection is a huge bottleneck for NUST Regional Centres in an attempt to afford distance students' technological support. Unstable internet connections defeat the desired flexibility that e-learning can offer to distance students. In this study, the research participants expressed their discontent with e-learning due to this limiting factor. Indeed, the technological dimension has a significant consequence on the e-learning satisfaction (Sun *et al.*, 2008:13). Most e-learning systems are built in high-speed networks; however, this is not the case for a developing country like Namibia. Interestingly, there is an evident direct connection in the identification of the challenges and success factors around the access to the ICTs that are integral in establishing operations that are accessible to the learning citizens of educational institutions of developing countries (Mässing, 2017:44). This shows that NUST is not spared from the routinely experienced challenges of technology access.

The lack of mobile data and devices was found to be a challenge in access e-learning due to expensive data and lack of necessary devices such as laptops and smartphones. With limited data, it is very difficult for distance students to manage all online activities. Therefore, the participants in the study indicated that the issue of mobile data and lack of devices was a strain on their learning. Even though the internet has a great capacity to improve the standard of education, access due to limited data is still a challenge for students. From this, one can deduce that limited mobile data

presents students with a negative experience of e-learning, hence the need for access to unlimited data.

Lack of necessary devices such as computers, laptops and smartphones was also revealed as another challenge in the struggle for students to access e-learning. The participants stated that there were unable to download or properly interact with online learning content due to a lack of proper devices. As a result, a constructive approach to learning is hindered. Gikas and Grant (2013:20) stated that mobile devices provide students with a chance to collaborate with the learning content. In this regard, the lack of proper devices limits the capacity of students to maximise the use of e-learning.

The perceived lack of synchronous interactions was one limiting factor that came to light during the study. The participants expressed concern over the lack of same-time interactions between the students and the lecturers. It was revealed in the study that this type of interaction was not properly utilised for the benefits of the students due to the inactiveness of the lecturers. Lecturers play a key role in remote learning environments as communication between them and the students are also key to the success of instructions. It has been reported in Oye, Salleh and Iahad (2012:50) that synchronous interactions encourage faster problem solving, decision making and provides development opportunities. In online learning, these interactions may result in coherent subject matter discussions that can equally exhibit positive learning experiences for students. It should be noted that learning is social, therefore a sound relationship between students and lecturers develop knowledge in the field of online learning.

It was highlighted under the section of ease of use of the e-learning key functions that the assignment submission link was a straight forward function for some students and easy to use. However, there was one aspect of this key function that appeared to be a challenge for students, that is, the capacity to attach files larger than 15MB. Ramnarain-Seetohul, Karim and Amir (2012:2175) stated that the in-built problem with the email-based submission system lies in its capacity for attaching files. Assignments are meant to increase the learning capabilities of students, therefore, if one particular facet is ineffective, it places a great disadvantage on the quality of learning. From a life-long learning perspective, there is a need for effective assessment to improve

learning and instructions. An ineffective assignment submission link challenges the concept of effective assessment and it should be addressed.

Further investigations revealed that insufficient time is allocated to online assessments. The participants felt that time allocated for online assessments was not proportioned to the amount of work. The time spent by distance students on learning activities is reduced by work, family, and social commitment, hence the need for online assessment to have a degree of flexibility in terms of time allocation. The impact of distance students' time-related variables can be detrimental to their learning. Romero and Barberà (2011:126) referred to time flexibility as an appealing option for distance learning. From an assessment point of view, time flexibility means assessment time should be adapted to distance students' availability due to life commitment activities and their ability to regulate their time on task. Therefore, increasing the time allocated to online assessments raises the quality of learning for distance students. Consideration should not only be the effect of time allocation but also a general increase in e-learning satisfaction.

The findings further revealed that delayed feedback on completed tasks was one factor impeding the successful utilisation of e-learning by distance students. Sun *et al.* (2008:6) state that proper feedback mechanisms are important to online learning. Such a variable in online learning influences e-learning satisfaction. It was identified in the study that assessment tasks such as assignments are marked but feedback to the students is delayed for unknown reasons. Feedback from assessment tasks is beneficial because interacting with it influences learning and increases online satisfaction.

The obstacles breaking into the e-learning world are crucial elements that need to be addressed because they impede the maximum use of e-learning by distance students. They reflect how technology integration in teaching and learning can affect the quality of education. Even if there is a will for distance students to use e-learning, its effective utilisation is hindered by these challenges. They should therefore not be disregarded because they negatively impact e-learning.

#### **4.5.4 RQ4: What are the measures to be recommended for the effective use of e-learning at NUST?**

It is interesting to note how participants expressed themselves when suggesting measures that should be taken into consideration so that e-learning at NUST can be effective in their studies. To enhance the learning experience with e-learning, sound measures should be recommended in this regard. The findings of the study showed that better internet connectivity, upgraded assignment link in terms of uploading capacity, access to affordable mobile data and devices, the need for synchronous interactions, and increased online test duration were measures that were recommended for effective use of e-learning at NUST.

Arising from the findings of the study, better internet connectivity was recommended as a key factor in the improvement of e-learning at NUST. As e-learning is conducted using the internet, its success depends on stable internet connectivity. It has been stated by Tubaishat and Lansari (2011:212) that the basic requirement for e-learning is the access and availability of stable internet connections. This would be a major improvement in the ability of distance students to remotely access online learning resources on and off-campus.

An upgrade on the assignment submission link was proposed by the research participants as another critical measure in the successful usage of e-learning. Participants believed that this link was a barrier and needed to be addressed. It was, therefore, suggested that a well-designed assignment submission system to facilitate the proper collection of assignments is needed. It was proposed in the study (Ramnarain-Seetohul *et al.*, 2012:2175) that a web-based online submission system is considered to enhance and solve problems such as file size limit for uploading where students cannot upload their assignments if they are greater than the currently-assigned size. Moreover, the assignment submission system will be able to cater to a wide range of document requirements such as integrating Microsoft word with Powerpoint versions. This system will benefit students and it will allow them to submit an assignment with ease. It is thus worth pointing out that this assignment link upgrade will result in user-friendly e-learning at NUST and be in line with the fast-moving IT world.

To overcome the limiting factors of access to online learning, it was suggested that the institution looks into the matter of affordable data and devices for students. The success of e-learning depends on ICT infrastructure. According to Gikas and Grant (2013:19), mobile devices such as smartphones and laptops enable students to access content and communicate with peers and lecturers, and foster collaborative and authentic learning. This presents students with the potential for learning regardless of their location. The goal here is to add value to the flexibility feature of e-learning. Moreover, mobile data was another factor recommended for consideration from the side of NUST. The power of data determines the effective use of e-learning. The participants suggested that the institution should engage local internet service providers for affordable data deals for students. This could be in the form of reduced data tariffs for students when purchasing data bundles.

For successful online teaching and learning, it is important to use a synchronous mode of interaction. It was recommended during the study that the NUST e-learning system is designed in such a way that supports synchronous technology. There is evidence in previous studies (see Murphy, 2005; Wang & Chen, 2007) that synchronous instructions have a positive impact on e-learning. This technology will enable distance students to have same-time interactions with lecturers and peers. It will therefore result in active and meaningful learning for distance students.

The participants further suggested that the duration for online assessments should be increased. The concept of time in this suggestion is emphasised. The participants suggested that the duration of an online assessment should not be the same as that of a manual assessment. Although there is a great advantage for students to take online assessments because they can do them whenever convenient, this however, is bound by time, and once the test is attempted the student cannot interrupt and continue later. There is, therefore, a need for increased time because the dynamics of a distance student requires sufficient time to work through the online assessments from start to finish.

#### **4.6 CONCLUSION**

The purpose of this chapter was to present, analyse, and discuss the data collected through telephone interviews from distance students at NUST Regional Centres

concerning their perception of e-learning at NUST as guided by the theory of interaction and communication. The key themes concerning the research questions and objectives were presented and thematically analysed. Direct quotes from the participants were used in the analysis to draw attention to their views expressed during the telephone interviews. The chapter further discussed the data on the key research questions of the study as the ease of the use of e-learning, benefits, challenges, and recommendations towards the effective use of e-learning at NUST.

## **CHAPTER 5**

### **CONCLUSIONS AND RECOMMENDATIONS**

#### **5.1 INTRODUCTION**

This chapter, the final chapter, provides an overview of the study as well as the drawing conclusions and offering recommendations that became apparent from the study. Here, the aims and objectives are revisited to determine if they have been achieved. The five chapters of the study are also revisited to show how the research was organised. The limitations of the study, where possible challenges that emerged during the study are highlighted. This is followed by the findings and conclusions to the research questions and a summary of the researchers' views of the study and conclusions. Drawing on the findings of the study, recommendations for the effective use of e-learning at NUST are presented. Finally, recommendations for future research are presented, and then the chapter makes the final conclusion of what has been learned and the way forward.

#### **5.2 REVISITING THE CHAPTERS**

This study explored the distance students' perception of e-learning at NUST Regional Centres. The study was organised into five chapters.

Chapter 1 is regarded as the instrument that drove the study as it provided the context of the research. The aims and objectives of the study, the statement of the problem, research questions, and how the study was organised were all described in this chapter. To enhance the readers' understanding of the key concepts and terminology used in the study, definitions of these key concepts were provided.

Chapter 2 examined and evaluated what has been already written about e-learning. The focus was to establish the relevance of such information to e-learning at NUST. This was done based on the definitions of e-learning, history and theories of distance education and e-learning, and the benefits and challenges related to e-learning.

Chapter 3 outlined the plan of the study. The chapter introduced the research methodology, where all methods employed in the study were explained in detail. This

was done to give readers a picture of what, how, and where data has been collected. To give enough details about the methodology used in the study, the research approach, population and sampling, instruments and data collection techniques, data analysis procedure, research ethics, and trustworthiness of the study were as well explained.

Chapter 4 presented the profiles of the research participants and research findings of the data collected from the distance students through the telephone interviews. The data analysis process, discussions of the research findings were also presented in this chapter.

Chapter 5 presented a summary of the study. This included revisiting the aims and objectives of the study, a summary of the findings and recommendations to the identified challenges of e-learning at NUST. Finally, limitations and delimitations of the study and recommendations for further research were presented based on the research findings.

### **5.3 REVISITING THE AIMS AND OBJECTIVES OF THE STUDY**

The study was conducted at the Namibia University of Science and Technology Regional Centres to explore distance students' perception of e-learning. The aims and objectives of the study were to find answers to the following research questions:

1. What are distance students' perceptions towards the ease of use for e-learning at NUST?
2. What are distance students' perceptions of the benefits of e-learning at NUST?
3. What are the challenges that distance students encounter when using e-learning at NUST?
4. What are the measures to be recommended for the effective use of e-learning at NUST?

In exploring these research questions, the conclusions and recommendations were drawn from the study findings. In the context of this study, distance students are perceived to be positive about the ease of use of e-learning at NUST and that it is an appropriate method of learning for their continuing studies. The challenges experienced are not as a result of negative perception but are that of a lack of

adequate resources. Therefore, adequate resources are needed to help redesign e-learning for effective use.

#### **5.4 FINDINGS AND CONCLUSIONS TO THE RESEARCH QUESTIONS.**

The main aim of the study was to explore distance students' perception of e-learning at NUST. This section concludes the qualitative findings from the distance students' telephone interviews conducted at NUST Regional Centres. These results allowed me to draw the following research conclusions.

##### **5.4.1 Distance Students' Perceptions towards the Ease of Use for e-learning at NUST**

The ease of the e-learning system and its tools were perceived to be stress-free for use by distance students. The distance students' perceptions first revealed their awareness and understanding of e-learning and this online learning concept. Distance students preferred e-learning over face-to-face learning, engaging with e-learning daily for academic purposes. Distance students are confident in using e-learning key functions as ICT introductory courses had developed their ICT skills or the e-learning interface design is well structured. On a positive note, the students who experienced difficulties in engaging with some e-learning key functions could still manage key functions. Distance students manage the difficult functions by either contacting the institutions' student support services or their fellow students for technology assistance. Distance students' perception of the use of e-learning at NUST are generally positive.

##### **5.4.2 Distance Students' Perceptions of the Benefits of e-learning at NUST**

The benefits of e-learning to distance students indicated that e-learning at NUST was a favourable learning approach as it was convenient, affordable, flexible, motivational, and offered interactive opportunities. The perceived convenience of e-learning suited distance students' circumstances taking into account their full-time work and family responsibility. E-learning enabled students to easily access learning materials and attend to academic work without being physically present at any NUST Regional Centre. In addition, online support and access to learning resources as well as the affordability of this mode of learning was seen as a benefit.

The flexibility benefit of e-learning offered distance students the opportunity to enrol for higher education without being present at any NUST Regional Centres and is seen as an advantage given the vast size of the country. Other benefits emerging from the study was the motivational impact on distance students' learning as the technology allowed for interactive opportunities with lecturers and other students online which enhanced their learning. This study, therefore, shows that e-learning is perceived to be useful to distance students.

#### **5.4.3 Challenges Encountered by Distance Students when using e-learning at NUST**

Challenges were also experienced by the distance students. It was concluded that these challenges were not as a result of their negative perception but a mere lack of adequate resources from both the students and the institution, and few of the design and technology-related challenges of e-learning.

The e-learning content uploaded by lecturers was viewed as a challenge as it had not as yet been adapted for a technology mode and was mainly text-based and not interactive. The lack of interactive features integrated into the learning content resulted in students no fully engaging in the e-learning system. Of major concern was the lack of stable internet connectivity which hinders the effective use of e-learning. Slow internet connections at the regional centres were due to limited size of the bandwidth. Linked to this aspect was distance students' lack of access to affordable mobile data and appropriate electronic devices such as laptops and smartphones which hindered distance students' full access to e-learning. High cost of data bundles as well as electronic devices such as laptops and smartphones were a challenge as access to these is vital for students to properly interact with the e-learning content.

Issues which the institution needs to address with e-learning is the challenge of uploading assignments larger than 15 MB. In addition, online assessment proved to be a challenge in terms of allocated time and accessibility during peak periods. The insufficient time allocated to online assessments places the distance students under pressure when working on their online tests. This becomes severe when students fail to submit their work due to time constraints. The study concluded that the allocated to online tests was not sufficient when compared to the amount of work done. Feedback

to students is a vital component of e-learning as it informs further learning and this was seen to be a stumbling block.

In conclusion, these findings are an indication of the challenges facing institutions of higher learning that offers distance education and are related to the design of online learning and lack of adequate financial resources to build comprehensive e-learning systems.

#### **5.4.4 Recommended Measures for the Effective Use of e-learning at NUST**

Suggestions for the effective use of e-learning at NUST Regional Centres emerged from distance students' experiences of e-learning and provided insight that could produce the best practices of e-learning at NUST.

As all learning in online, stable internet connectivity was seen as a key factor in the improvement of e-learning at NUST as its success depends on stable internet connections. It was therefore concluded that there should be stable internet connections at NUST Regional Centres by increasing the size of the bandwidth. Certain applications on the e-learning model needs revision such as the assignment submission system which should be upgraded in terms of file size. This will help to facilitate the proper collection of assignments and cater to a wider range of documents that are uploaded by the students on the system. Another conclusion in the study is the issue of access to affordable data and electronic devices such as laptops and smartphones. In this regard, it was concluded that NUST should negotiate for affordable data packages for distance students with local network service providers. The institution should also consider introducing a scheme that will allow distance students to be provided with laptops.

It has also been revealed that for e-learning to provide a positive online learning experience to distance students, synchronous interactions between the students and the lectures, and students to students should be an integrated element of the system. This means that e-learning at NUST needs to be redesigned to support synchronous technology. Lastly, the duration of online assessments needs to be reconsidered as they are being completed in an online mode rather than a manual one. This means that the time allocated to online tests should be considered taking into account the

various challenges. If implemented, this will be of great advantage to distance students because their dynamics require sufficient time to complete online tasks.

## **5.5 REFLECTION ON CONCLUSIONS**

Drawing from the conclusion above, the researcher has learned that e-learning at NUST is a familiar concept among distance students and that it is perceived to be a user-friendly learning tool. However, some distance students still have difficulty in interacting with some e-learning key functions and it is important for distance students to ensure that they are technologically savvy to ensure that this mode of learning is effective.

In general, distance students seem to have a positive experience with e-learning at NUST as many of them felt that they were benefiting from the different support it presented to them. E-learning is thus a good enabler in distance education. On a different note, many benefits as well as challenges were encountered when interacting with e-learning. The researcher can confirm that these challenges do not deter the distance students from engaging in e-learning as they have adopted strategies to continue using e-learning for their studies.

## **5.6 RECOMMENDATIONS**

As it came to light from the study, and if put into practice, the following recommendations will lead to the effective use of e-learning by distance students at NUST Regional Centres.

- There should be stable internet connectivity with increased bandwidth at the regional centres.
- The assignment submission system should be upgraded or redesigned in such a way that students can upload files larger than 15 MB.
- NUST should negotiate reduced prizes for data bundles with local network service providers to enable students to fully access e-learning with ease when off-campus. In the same line, students should be provided with an opportunity to own laptops with the assistance of the institution.

- The synchronous interaction technology should be integrated into the e-learning system to enable students to have the same time discussions with lecturers and fellow students.
- The duration of online assessments should be proportioned to the amount of work done concerning online tests.

The effective use of e-learning by distance students at NUST can be realised through the implementation of stable network connections at the regional centres. Accessing e-learning off-campus can be much easier if NUST negotiates with local internet service providers for reduced data bundle packages for students. The technical upgrade of the e-learning system could have a positive impact on distance students' experience of technology integration in learning and be motivated to use e-learning in alike ways.

## **5.7 RECOMMENDATIONS FOR FURTHER RESEARCH**

The study focused on distance students' perception of e-learning at NUST Regional Centres. There is therefore a need for further in-depth investigation of e-learning at NUST by looking at the matters that have emerged from the study. The following areas could be considered for further research on e-learning.

- Extending the present study over to students in other modes of study (full-time and part-time) should be considered for further research.
- The present study revealed that there are more challenges than benefits in engaging with e-learning at NUST. It is therefore suggested that a study be conducted to investigate further on the challenges related to e-learning.

## **5.8 LIMITATIONS OF THE STUDY**

Qualitative research is subjective in nature. Nobel and Smith (2015:1) state that qualitative research is criticized for its dependence on the researcher and findings that are just participants' views subject to researcher bias. The purposive sampling method employed in the study has its drawbacks due to its subjective nature (Harding, 2013:17). Even though it is not an unjustified argument in qualitative research, the results are not normally popularized in other settings, the sampling method did not

represent the total population of distance students at NUST. The study involved distance students at nine NUST Regional Centres only.

This study experienced some important limitations during the data collection process, particularly the telephone interview stage. Even though participants were allowed to set the date and time for the telephone interviews, adhering to the agreed date and time slots was a challenge. Two of the participants asked for postponement of the interviews twice, due to other commitments. Poor network reception was experienced during the telephone interview with one of the participants. The interview was interrupted for a few minutes to allow the participant to locate a better place with the network.

Among other limitations was the issue of the distraction of participants by activities in their environment. One participant preferred to take the interview at home after work, during the interview I was asked to hold on to the call due to household needs.

Lastly, the results of this study could not apply to NUST Distance Students at the main campus and other Universities in Namibia such as the International University of Management (IUM) and The University of Namibia (UNAM).

Despite the mentioned limitations above, I am optimistic that it will be motivation for future studies on e-learning at other three leading Universities in Namibia

## **5.9 DELIMITATIONS OF THE STUDY**

Firstly, this study focuses on the NUST context only. The other delimiting factor of the study is the distance students at the main campus. For practical reasons, I chose not to study distance students at the main campus because of accessibility concerns. It would become a lot more difficult to interpret the results or come to a meaningful conclusion with so many students. To narrow the focus more, the study concentrated on third-year distance students at regional centres who have done more courses via e-learning and had better views and experience. As this study was confined to third-year distance students only, first and second-year distance students were not covered to avoid unrelated data.

## 5.10 CONCLUSION

The purpose of this chapter was to present conclusions and recommendations that arose from the telephone interviews with the distance students at nine NUST Regional Centres concerning their perception of e-learning. The conclusions were presented concerning the research questions. Recommendations for the effective use of e-learning by distance students were also presented.

It has been acknowledged that e-learning plays a critical role and is an essential component in online teaching and learning. In probing distance students' perceptions, the study revealed that e-learning has the potential to raise the standard of distance education at NUST. The study has significant inference for the e-learning application at NUST to support and improve online teaching and learning. The effective application of e-learning can create better opportunities for online teaching and learning which is considered to be important in this technological era. However, there are some barriers that need to be addressed at an institutional level for the effective use of e-learning by distance students. The study prompts NUST to examine and redesign the e-learning system for effective use by distance students.

The conclusions and recommendations in this study will contribute to the positive perception of e-learning by distance students at NUST. I am therefore of the view that e-learning at NUST is perceived as useful to distance students and should be fully integrated into teaching and learning at all levels of the institution.

*In times where small instructor-led classrooms tend to be the exception, electronic learning solutions can offer more collaboration and interaction with experts and peers, as well as a higher success rate than the live alternative.*

Keith Bachman, Corporate e-learning Executive

## LIST OF REFERENCES

- Akhtar, D.M.I. 2016. *Research design*. (February 1, 2016). Available at: <http://dx.doi.org/10.2139/ssrn.2862445>. Accessed on 5/08/2020.
- Almarabeh, T. 2014. Students' Perception of e-learning at the University of Jordan. *International Journal of Emerging Technologies in Learning* 9(3):31-35.
- Al Zumor, A.W.Q., Al Refaai, I.K., Eddin, E.A.B. & Al-Rahman, F.H.A. 2013. Students' perceptions of a blended learning environment: Advantages, limitations, and suggestions for improvement. *English Language Teaching* 6(10): 95-110.
- Anney, V.N. 2014. Ensuring the quality of the findings of qualitative research: Looking at trustworthiness criteria. *Journal of Emerging Trends in Educational Research and Policy Studies (JETERAPS)*, 5(2): 272-281.
- Aoki, K., 2012. Generations of distance education: Technologies, pedagogies, and organizations. *Procedia-Social and Behavioral Sciences*, 55:1183-1187
- Aspers, P & Corte, U. 2019. What is qualitative in qualitative research? *Qualitative Sociology*, 42(2): 139-160.
- Aydemir, M., Özkeskin, E.E. & Akkurt, A.A. 2015. A theoretical framework on open and distance learning. *Procedia-Social and Behavioral Sciences*, 174:1750-1757.
- Babbie, E. 2010. *The Practice of Social Research*. Wadsworth, Belmont.
- Bates, A.W. 2014. Teaching in a digital age: *Guidelines for designing teaching and learning*. Open BC Campus. CA.
- Bazeley, P. 2013. Qualitative data analysis: *Practical strategies*. Sage. New Delhi
- Bitzer, D. L., Lichtenberger, W., & Braunfeld, P. G. 1962. PLATO II: A multiple-student, computer controlled, automatic teaching device. In J. E. Coulson (Ed.), *Programmed learning and computer-based instruction*: 205-216. New York: John Wiley.
- Bless, C., Higson-Smith, C. & Kagee A. 2006. *Fundamentals of Social Research Methods: An African perspective*. Cape Town: Juta.

- Bolderston, A. 2012. Conducting a research interview. *Journal of Medical Imaging and Radiation Sciences*, 43(1): 66-76.
- Boote, D.N. & Beile, P. 2005. Scholars before researchers: On the centrality of the dissertation literature review in research preparation. *Educational Researcher*. 34(6), pp.3-15.
- Bosamia, M.P. 2013. Positive and Negative Impacts of ICT in our Everyday Life. *Research Gate*, 1(1):1-8.
- Bouhnik, D. & Marcus, T. (2006). Interaction in Distance-Learning Courses. *Journal of the American Society for Information Science and Technology*, 57: 299-305.
- Bozkurt, A. 2019. From distance education to open and distance learning: A holistic evaluation of history, definitions, and theories. *In Handbook of Research on Learning in the Age of Transhumanism*, 252-273). IGI Global.
- Callan, V.J., & Bowman, K. 2010. Sustaining e-learning innovations: A review of the evidence and future directions: *Final report. Australia: Australian Flexible Learning Framework*. <https://espace.library.uq.edu.au/view/UQ:227750>
- Cambridge English Dictionary. (n.d). Perception. Available at: <https://dictionary.cambridge.org/dictionary/english/perception> (accessed on 13/09/2019).
- Chapple, A. 1999. The use of telephone interviewing for qualitative research. *Nurse Researcher*, 6 (3): 85-93.
- Chen, E.T., 2008. Successful e-learning in corporations. *Communications of the IIMA*, 8(2)
- Chitanana, L. & Museva, L. 2012. Adult education students` perception of e-learning: A case study of Midlands State University. *Zimbabwe Journal of Educational Research*, 6(2): 34-52.
- Christian, C.G. 2005. *Ethics and Politics in Qualitative Research*. 3rd edition. California: Sage Publications.

- Connelly, L.M. 2016. Trustworthiness in qualitative research. *Medsurg Nursing*,25(6): 435-437.
- Crea, T.M & Sparnon, N. 2017. Democratizing education at the margins: faculty and practitioner perspectives on delivering online tertiary education for refugees. *International Journal of Educational Technology in Higher Education*, 14 (43): 2-19
- Creswell, J.W. 2007. *Qualitative inquiry and research design: Choosing among five approaches*. 2nd ed. London: Sage.
- Crowe, S., Cresswell, K., Robertson, A., Huby, G., Avery, A. & Sheikh, A. 2011. The case study approach. *BMC medical research methodology*, 11(1):100.
- De Vos, A.S., Strydom, H., Fouché, C.B. & Delport, C.S.L. (Eds.).2005. *Research at the Grassroots for social sciences and human science professions*. 3rd Edition. Hatfield, Pretoria: Van Schaik.
- Eisenstadt, M. & Vincent, T., 2000. *The Knowledge Web: Learning and Collaborating on the Net*. Psychology press.
- Epignosis, L.L.C. 2014. *E-learning concepts, trends, applications*. San Francisco, California.
- Etikan, I. 2016. Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics*, 5(1):1-4.
- Farooq, M.B. & De Villiers, C. 2017. Telephonic qualitative research interviews: When to consider them and how to do them. *Meditari Accountancy Research*.
- Flick, U. (Ed) 2013. *The SAGE handbook of qualitative data analysis*. London: Sage
- Flick, U. 2014. *An introduction to qualitative research*. London: Sage
- Frohlich G.L. 2010. Is e-learning the way to go? *Perception of Novice e-learning distance education students to the possibility of studying online*. Centre for Open and Lifelong Learning, Polytechnic of Namibia.
- Garrison, D.R. 2011. *E-learning in the 21st century: A framework for research and practice*. Routledge.

- Gikas, J. & Grant, M.M. 2013. Mobile computing devices in higher education: Student perspectives on learning with cellphones, smartphones & social media. *The Internet and Higher Education*, 19:18-26.
- Guha, A.S. & Maji, S. 2008. E-learning: the latest spectrum in open and distance learning. *Social Responsibility Journal*.
- Gunawardena, K.D. 2005. An empirical study of potential challenges and benefits in implementing e-learning in Sri Lanka. *Proceedings from Second International Conference on E-Learning for Knowledge-Based Society, 4-7 August, Bangkok*
- Guri-Rosenblit, S. 2005a. Distance education and e-learning: not the same thing. *Higher Education*, 49:467-493.
- Guri-Rosenblit, S. 2005b. Eight Paradoxes in the implementation process of e-learning in higher education. *Higher Education Policy*, 18:5-29.
- Harasim, L. 2006. A history of e-learning: Shift happened. *In The international handbook of virtual learning environments: 59-94*. Springer, Dordrecht.
- Harasim, L. 2017. *Learning theory and online technology*. 2nd edition. Athabasca University. AU Press.
- Harding, J. 2013. *Qualitative data analysis from start to finish*. London: SAGE.
- Hassenburg, A. 2009. Distance education versus the traditional classroom. *Berkeley Scientific Journal*, 13(1):7-10
- Heaney, D. & Daly, C. 2004. Mass production of individual feedback. *In Proceedings of the 9th annual SIGCSE conference on Innovation and technology in computer science education: 117-121*.
- Heinrich, E., Milne, J. & Moore, M. 2009. An investigation into e-tool use for formative assignment assessment–status and recommendations. *Journal of Educational Technology & Society*, 12(4):176-192.
- Heydenrych, J.F. & Prinsloo, P., 2010. Revisiting the five generations of distance education: *Quo vadis? Progressio*, 32(1): 5-26.

- Holmberg, B. 1960. *On the methods of teaching by correspondence*. Lund, Sweden: Gleerup.
- Holmberg, B. 1977. *Distance education: A survey and bibliography*. London: Kogan Page.
- Holmberg, B. 2005. *The evolution, principles and practices of distance education* (Vol. 11). Oldenburg: BIS-Verlag der Carl von Ossietzky Universität Oldenburg.
- Howitt, D. 2016. *Introduction to qualitative research methods in psychology*. Pearson UK.
- Huang, R.H., Liu, D.J., Tlili, A., Yang, J.F. & Wang, H.H. 2020. Handbook on Facilitating Flexible Learning during Educational Disruption: *The Chinese Experience in Maintaining Undisrupted Learning in COVID-19 Outbreak*. Beijing: Smart Learning Institute of Beijing Normal University.
- Imran, S.M. & Malik, B.A., 2017. Evaluation of e-learning web-portals. *DESIDOC Journal of Library & Information Technology*, 37(3): 205.
- Irvine, A., Drew, P. & Sainsbury, R. 2013. 'Am I not answering your questions properly?' Clarification, adequacy and responsiveness in semi-structured telephone and face-to-face interviews. *Qualitative Research*, 13(1):87-106.
- Jose, J. 2015. Moodle e-learning in English as a Foreign Language programs (EFLP) at English Language Centres (ELCs) in colleges of technology in e-Oman. *International Journal of English Language, Literature, and Humanities* 3(1): 14-32.
- Kangandji, L. 2008. Determining how the lecturing staff at the Polytechnic of Namibia are responding to the introduction of e-learning in the form of blended learning. *NAWA: Journal of Language and communication* 2(1):179-198.
- Kanuka, H. & Conrad, D. 2003. The name of the game. *Quarterly Review of Distance Education*, 4(4).
- Kattoua, T., Al-Lozi, M. & Alrowwad, A. 2016. A review of Literature on E-learning Systems in Higher Education: *International Journal of Business Management and Economic Research* 7(5):754-762.

- Kauffman, H., 2015. A review of predictive factors of student success and satisfaction with online learning. *Research in Learning Technology*, 23.
- Keegan, D.J. 1980. Published online: 28 Jul 2006. *On defining distance education*. Available at: <https://doi.org/10.1080/0158791800010102>. Date accessed: 13/05/2020.
- Keegan, D. 1986. *The Foundations of Distance Education*. London: Croom Helm.
- Keegan, D. 1995. Distance Education Technology for the New Millennium Compressed Video Teaching. ZIFF Papiere 101.
- Keller, C. & Cernerud, L. 2002. Student's perceptions of e-learning in university education. *Journal of Education Media* 27(1-2): 55-67.
- Khan, S, Hasan, M & Clement, C. 2012. Barriers to the introduction of ICT into education in developing countries: The example of Bangladesh. *International Journal of Instruction* 5(2): 61-80.
- Koohang, A. & Herman, K. 2005. Open Source: A metaphor for e-learning. *Informing Science Journal*, 8: 75-86.
- Koory, M.A. (2003). Differences in learning outcomes for the Online and F2F version of "An Introduction to Shakespeare", *Journal of Asynchronous Learning Networks*, 7(2): 18-35.
- Kim, K.J. & Frick, T.W., 2011. Changes in student motivation during online learning. *Journal of Educational Computing Research*, 44(1):1-23.
- Lambropoulos, N., Faulkner, X., & Culwin, F. 2012. Supporting social awareness in collaborative e-learning. *British Journal of Educational Technology*, 43(2): 295–306.
- Lechuga, V.M. 2012. Exploring culture from a distance: The utility of telephone interviews in qualitative research. *International Journal of Qualitative Studies in Education*, 25(3):251-268.
- Leedy, P.D. & Ormrod, J.E. 2005. Practical Research: *Planning and Design*. The United States of America.

- Lemley, D., Sudweeks, R., Howell, S., Laws, R.D. & Sawyer, O. 2007. The effects of immediate and delayed feedback on secondary distance learners. *Quarterly Review of Distance Education*, 8(3):251.
- Leung, L. 2015. Validity, reliability, and generalizability in qualitative research. *Journal of family medicine and primary care*, 4(3):324.
- Lincoln, Y. & Guba, E.G.1985. *Natural inquiry*. Beverly Hills, Calif: Sage.
- Lopez, V. & Whitehead, D. 2013. Sampling data and data collection in qualitative research. *Nursing and Midwifery Research: Methods and critical appraisal for evidence-based practice*, 124-140.
- Maguire, M. & Delahunt, B. 2017. Doing a thematic analysis: A step-by-step guide for learning and teaching scholars. *AISHE-J: The Ireland journal of teaching in higher education* 9 (3):3351-33514.
- Mamattah, R.S. 2016. *Students' Perceptions of E-learning*. Linkopings University.
- Maree, K. (Ed). 2016. *First steps in Research*. 2n ed. Pretoria: Van Schaik.
- Mässing, C. 2017. Success Factors and Challenges for E-learning Technologies in the Namibian Higher Education System: *A case study of the University of Namibia*.
- McMillan, J. H. & Schumacher, S. 2010. *Research in Education: Evidence-based Inquiry*. 7th edition, Pearson: New Jersey.
- Meskhi, B., Ponomareva, S. & Ugnich, E., 2019. E-learning in higher inclusive education: needs, opportunities and limitations. *International Journal of Educational Management*, 33(3): 424-437.
- Ministry of Education Arts and Culture. 2005. *ICT integration for Equity and Excellence in Education*. Windhoek: Ministry of Education Arts and Culture.
- Ministry of Higher Education, Technology and Innovation. 2020. *Measures to deal with COVID-19 at Higher Education sector*. Windhoek
- Moore, J.L., Dickson-Dane, C. & Galyan, K. 2011. E-learning, online learning & distance learning are they the same? *Internet and higher education*, 14: 129-135

- Moore, M.G. 1973. Towards a theory of independent learning and teaching. *Journal of Higher Education*, 44: 661-679
- Moore, M. 1994. Autonomy and interdependence. *The American Journal of Distance Education*, 8(2): 1-5.
- Moore, G. & Kearsley, G. 2012. *Distance Education: A System view of online learning*. 3rd edition. Cengage Learning. Wadsworth.
- Mouton, J. 2011. *How to succeed in your Masters and Doctoral Studies*. Pretoria: Van Schaik.
- Möwes, D. 2010. *A Management Model in Open and Distance Learning at the Polytechnic of Namibia to Ensure Competitive Advantage and Optimum Benefits*. Windhoek. Commonwealth of Learning. <http://oasis.col.org/handle/11599/2130>
- Mtebe, J S, Dachi, H & Raphael, C. 2011. Integrating ICT into teaching and learning at the University of Dar es Salaam. *Distance Education* 32(2): 289-294.
- Mukhari, S.S. 2016. *Teachers' experience of information and communication technology use for teaching and learning in urban schools*. Doctoral Thesis: South Africa.
- Murphy, E. 2005. Issues in the adoption of broadband-enabled learning. *British Journal of Educational Technology*, 36(3): 525-536.
- Namibia University of Science and Technology. 2015. Yearbook- Part 9: *Centre for Open and Lifelong Learning*. Windhoek. Namibia.
- Namibia University of Science and Technology. 2019. *NUST Strategic Plan: 2019-2023*. Windhoek. Namibia.
- Nassar, M., Al-Khadash, H.A. & Sangster, A. 2011. The diffusion of activity-based costing in Jordanian industrial companies. *Qualitative Research in Accounting & Management*, 8 (2): 180-2000.
- Nicholson, P. 2007. A history of e-learning. *In Computers and education*: 1-11. Springer, Dordrecht.

- Oye, N.D., Salleh, M. & Iahad, N.A. 2012. E-learning methodologies and tools. *International Journal of Advanced Computer Science and Applications (IJACSA)*, 3(2).
- Ozkan, S. & Koseler, R. 2009. Multi-dimensional students' evaluation of e learning systems in the higher education context: An empirical investigation. *Computers & Education* (53) p. 1285–1296. <http://dx.doi.org/10.1016/j.compedu.2009.06.011> [12]
- Patton, M.Q. 2015. *Qualitative research and evaluation methods*. 4th ed. Newbury Park: Sage.
- Peters, O. 1973. Distance education and industrial production: *A comparative interpretation in outline*.
- Polytechnic of Namibia. 2010. *E-learning Policy*. Windhoek. Namibia.
- Polytechnic of Namibia. 2014. *4th Strategic Plan (PSP-4) 2014-2018*. Windhoek. Namibia.
- Polytechnic of Namibia. 2014. *General information and regulations, yearbook 2014*. Windhoek: Polytechnic of Namibia.
- Ponelis, S.R. 2015. Using interpretive qualitative case studies for exploratory research in doctoral studies: A case of Information Systems research in small and medium enterprises. *International Journal of Doctoral Studies*, 10:535-550.
- Pyari, D., 2011. Theory and distance education: At a glance. *In 5th International Conference on Distance Learning and Education IPCSIT*, 12.
- Quest, R., 2014. *Principles' perception of ICT implementation in secondary schools in the Khomas education Region, Namibia*. Master's dissertation: University of Namibia.
- Ramnarain-Seetohul, V., Karim, J.A. & Amir, A. 2012. A Case Study of an Online Assignment Submission System at UOM. *International Journal of Social, Behavioral, Educational, Economic, Business, and Industrial Engineering*, 6(8).

- Rangara, T.A. 2015. *Assessing learner support services rendered to undergraduate students at selected distance learning institutions*. Doctoral dissertation. University of South Africa.
- Romero, M. & Barberà, E. 2011. Quality of Learners' Time and Learning Performance beyond Quantitative Time-on-Task. *International Review of Research in Open and Distributed Learning*, 12 (5): 125–137
- Rumble, G. 1989. Concept: On defining distance education. *American Journal of Distance Education*, 3(2):8-21
- Sadeghi, M. 2019. A Shift from Classroom to Distance Learning: Advantages and Limitations. *International Journal of Research in English Education*, 4(1):80-88.
- Sangrà, A., Vlachopoulos, D., Cabrera, N., & Bravo, S. 2011. *Towards an inclusive definition of e-learning*. Barcelona: eLearn Center. UOC.
- Saunders, M., Lewis, P. & Thornhill, A. 2016. *Research methods for business students*. 7th edition. Pearson.
- Schreier, M. 2018. Sampling and generalization. *The Sage handbook of qualitative data collection*, 84-98.
- Shahnazarian, D., Hagemann, J., Aburto, M. & Rose, S. 2013. Informed consent in human subjects research. *Office for the Protection of Research Subjects (OPRS)*, University of Southern California.
- Shehu, S.B. 2012. Teachers` and students` attitudes toward the use of modern information and communication technology. *Research project for PGDE*. Kano. Bayero University.
- Shenton, A.K. 2004. Strategies for ensuring trustworthiness in qualitative research projects. *Education for Information*, 22(2):63-75.
- Shikulo, L. 2018. *Evaluation of student support services at the Namibia University of Science and Technology Centre for Open and Lifelong Learning*. Doctoral Thesis: University of South Africa.

- Simonson, M., Schlosser, C. & Hanson, D. 1999. Theory and distance education: A new discussion. *American Journal of Distance Education*, 13(1): 60-75.
- Soiferman, L.K. 2010. Compare and Contrast Inductive and Deductive Research Approaches. *Online Submission*.
- Stockley, D. (2003). *E-Learning Definition and Explanation*. Retrieved February 19, 2010, from Derek Stockley' human Resources Development: <http://www.derekstockley.com.au/elearning-definition.html>
- Student Union of Namibia. 2020. Schools must remain on lockdown. *Petition*. Windhoek. Namibia
- Study.com What Is Distance Education? - Definition & History. 2017. Retrieved from <https://study.com/academy/lesson/what-is-distance-education-definition-history.html> Date accessed 15/05/2020.
- Sun, P.C., Tsai, R.J., Finger, G., Chen, Y.Y. & Yeh, D. 2008. What drives successful e-learning? An empirical investigation of the critical factors influencing learner satisfaction. *Computers & Education*, 50(4):1183-1202.
- Suppes, P. 1964. Modern learning theory and the elementary-school curriculum. *American Educational Research Journal*, 1(2):79-93.
- Suppes, P. 1966. The uses of computers in education. *Scientific American*, 215:206-220.
- Suppes, P., Neilson, W. & Gaffield, C. 1986. Computers and education in the 21st century. *Universities in Crisis: A mediaeval institution in the twenty-first century*. 137-151.
- Suryawanshi, V. & Suryawanshi, D. 2015. Fundamentals of E-learning Models: A review. *Journal of Computer Engineering* 202(20):107-120.
- Tarus, J.K., Gichoya, D. & Muumbo, A. 2015. Challenges of implementing e-learning in Kenya: A case of Kenyan public universities. *International review of research in open and distributed learning*, 16(1). <https://doi.org/10.19173/irrodl.v16i1.1816>

- Taylor, J.C. 1995. Distance education technologies: The fourth generation. *Australasian Journal of Educational Technology*, 11(2):1-7.
- Terre Blanche, M., Durrheim, K. & Painter, D. 2006. Research in practice: applied methods of the social sciences. University of Cape Town City Press.
- Thomas, D.R. & Hodges, I.D. 2010. *Designing and managing your research project: Core skills for social and health research*. Sage Publications.
- Thomas, G. 2011. A typology for the case study in social science following a review of definition, discourse, and structure. *Qualitative Inquiry*, 17(6):511-521.
- Thompkins, C.N., Sheard, L. & Neale, J. 2008. Methodological Reflections on Closing Qualitative Interviews with Women Drug Users. *Methodological Innovations Online*, 2(3):18-29.
- Tier-Bieniek, A. 2012. Framing the telephone interview as a participant-centred tool for qualitative research: a methodological discussion. *Qualitative Research*, [12\(6\)](https://doi.org/10.1177/1468794112439005): 630-644. <https://doi.org/10.1177/1468794112439005>
- Tubaishat, A. & Lansari, A. 2011. Are students ready to adopt e-learning? A preliminary e-readiness study of a university in the Gulf Region. *International Journal of Information and Communication Technology Research*, 1(5).
- Unisa History and Memory Project website  
<http://www.unisahistory.ac.za/timeline/periods/the-imperial-project-1800s-1918/#1858> Date accessed on 22/04/2020.
- Wang, Y., & Chen, N. (2007). Online synchronous language learning: SLMS over the Internet. *Innovate*, 3(3).
- Wani, H.A., 2013. *The relevance of e-learning in higher education*. ATIKAN, 3(2).
- Warschauer, M. & Liaw, M.L., 2010. *Emerging Technologies in Adult Literacy and Language Education*. National Institute for Literacy.
- Wedemeyer, C. & Childs, G.B. 1961. New perspectives in university correspondence study. *Chicago, IL: Centre for the study of Liberal Education for Adults*.

- Williams, C. 2015. 'Conducting Semi-Structured Interviews' in Newcomer et al. (eds) *Handbook of Practical Program evaluation*. John Wiley & Sons: 492-506.
- Wong, D. 2006. Fulltime students and working Adults` perception of e-learning in Malaysia. *Journal of computer engineering*, 4(1): 67-84.
- Wong, L.P. 2008. Data analysis in qualitative research: A brief guide to using NVivo. Malaysian family physician: *the official journal of the Academy of Family Physicians of Malaysia*, 3(1):14.
- WVAdultEd Instructor Handbook 2016-17 Section 13 Distance Education, 2016-17. [Online]. Available at: [https://wvde.state.wv.us/abe/tcher\\_handbook\\_pdf/section13.pdf](https://wvde.state.wv.us/abe/tcher_handbook_pdf/section13.pdf)
- Yazan, B. 2015. Three approaches to case study methods in education: Yin, Merriam, and Stake. *The Qualitative Report*, 20(2):134-152.
- Yin, R.K. 2015. *Qualitative research from start to finish*. Guilford publication
- Zigerell, J. (1984). Distance education: An information age approach to adult education. Information. Series no. 283, Columbus: ER IC Clearinghouse on Adult, Career, and Vocational Education, The Ohio State University, 1984. (ERIC Document Reproduction Service No. ED 246 311).

## APPENDICES

### **Appendix A: Request for permission to conduct research at NUST**

Request for permission to research at the Namibia University of Science and Technology`s Regional Centres

Title of the title of the research: "Distance Students` perception towards e-learning at Namibia University of Science and Technology`s Regional Centres"

Date: 26 May 2020

Mr. Moss Garde

Registrar

Office of the Registrar

T: +264 61 207 2008

E: mgarde@nust.na

Dear Mr. Garde

I, Charles Lushu, am researching under the supervision of Dr. Louise Schmidt, a lecturer in the Department of Curriculum and Instructional Studies, towards the Masters of Education in Open and Distance Learning at the University of South Africa. We are inviting your institution to participate in a study entitled "Distance Students` perception towards e-learning at Namibia University of Science and Technology`s Regional Centres".

The study aims to establish distance students' perceptions of e-learning. Your institution`s regional centres that fall under the Centre for Open and Lifelong Learning (COLL) have been selected because of the study focus on distance students. The study will entail a sample size of nine (9) research participants to the telephone interviews that will be of open-ended nature. This interview will last between 20 to 40 minutes. It will comprise of one third-year students from the nine regional centres. These nine (9) distances students will be chosen based on their typicality that they did several e-learning modules through the years of their study.

The benefits of this study are of great importance to your institution as they may provide insight into your e-learning custodians to devise ways of improving the e-learning system. There is no potential risk involved and I do not anticipate any harm or participant's discomfort. There will be no reimbursement or any incentives for participation in the research and participation in the study is voluntary.

Yours sincerely

\_\_\_\_\_ (insert signature of researcher)

\_\_\_\_\_ (insert name of the above signatory)

\_\_\_\_\_ (insert above signatory's position)

## Appendix B: Consent to conduct Research



**NAMIBIA UNIVERSITY  
OF SCIENCE AND TECHNOLOGY**

13 Jackson Kaujeua Street  
Private Bag 13388  
Windhoek  
NAMIBIA

T: +264 61 207 2118  
F: +264 61 207 9118  
E: registrar@nust.na  
W: www.nust.na

### Office of the Registrar

17 June 2020

Mr Charles Lushu  
Email: [clushu@nust.na](mailto:clushu@nust.na)  
Windhoek  
NAMIBIA

Dear Mr Lushu

#### **RE: CONSENT TO CONDUCT YOUR RESEARCH WITH THE NAMIBIA UNIVERSITY OF SCIENCE AND TECHNOLOGY STAFF AND STUDENT**

The email dated 09 June 2020, has reference.

Approval is hereby granted for you to conduct the research on "*Distance Students perceptions towards e-learning at Namibia University of Science and Technology's regional centres*" in the Namibia University of Science and Technology. Any information gathered during the research is to be used for the purpose of the study only and must be treated as confidential. The results of the study should be shared with the University. Individual information of staff and students will not be made available, nor will biographical information of students be made available in such a way that individual students can be identified.

You are advised to contact the Acting Director COLL: Mr Wynand Diergaardt to compile a list of possible respondents to your data collection instrument.

I wish you all the best with your research.

Yours sincerely,

**Mr Maurice Garde  
REGISTRAR**

CC:

Acting Director: COLL  
Deputy Vice-Chancellor: Research and Innovation  
Assistant Registrar



## Appendix C: UNISA Ethical Clearance



### UNISA COLLEGE OF EDUCATION ETHICS REVIEW COMMITTEE

Date: 2020/05/13

Ref: **2020/05/13/61120731/16/AM**

Dear Mr CS Lushu

Name: Mr CS Lushu

Student No.: 61120731

**Decision:** Ethics Approval from  
2020/05/13 to 2023/05/13

---

**Researcher(s):** Name: Mr CS Lushu  
E-mail address: 61120731@mylife.unisa.ac.za  
Telephone: +264 811296773

**Supervisor(s):** Name: Dr. L. Schmidt  
E-mail address: schmil@unisa.ac.za  
Telephone: +27 (0)12 441 5668

**Title of research:**

**"Distance Students` perceptions towards e-learning at Namibia University of Science and Technology`s regional centres"**

**Qualification:** MEd Open and Distance Learning

---

Thank you for the application for research ethics clearance by the UNISA College of Education Ethics Review Committee for the above mentioned research. Ethics approval is granted for the period 2020/05/13 to 2023/05/13.

*The **low risk** application was reviewed by the Ethics Review Committee on 2020/05/13 in compliance with the UNISA Policy on Research Ethics and the Standard Operating Procedure on Research Ethics Risk Assessment.*

The proposed research may now commence with the provisions that:

1. The researcher will ensure that the research project adheres to the relevant guidelines set out in the Unisa Covid-19 position statement on research ethics attached.
2. The researcher(s) will ensure that the research project adheres to the values and principles expressed in the UNISA Policy on Research Ethics.



3. Any adverse circumstance arising in the undertaking of the research project that is relevant to the ethicality of the study should be communicated in writing to the UNISA College of Education Ethics Review Committee.
4. The researcher(s) will conduct the study according to the methods and procedures set out in the approved application.
5. Any changes that can affect the study-related risks for the research participants, particularly in terms of assurances made with regards to the protection of participants' privacy and the confidentiality of the data, should be reported to the Committee in writing.
6. The researcher will ensure that the research project adheres to any applicable national legislation, professional codes of conduct, institutional guidelines and scientific standards relevant to the specific field of study. Adherence to the following South African legislation is important, if applicable: Protection of Personal Information Act, no 4 of 2013; Children's act no 38 of 2005 and the National Health Act, no 61 of 2003.
7. Only de-identified research data may be used for secondary research purposes in future on condition that the research objectives are similar to those of the original research. Secondary use of identifiable human research data requires additional ethics clearance.
8. No field work activities may continue after the expiry date **2023/05/13**. Submission of a completed research ethics progress report will constitute an application for renewal of Ethics Research Committee approval.

*Note:*

*The reference number **2020/05/13/61120731/16/AM** should be clearly indicated on all forms of communication with the intended research participants, as well as with the Committee.*

Kind regards,



**Prof AT Motlhabane**  
**CHAIRPERSON: CEDU RERC**  
motlhat@unisa.ac.za



**Prof PM Sebate**  
**ACTING EXECUTIVE DEAN**  
Sebatpm@unisa.ac.za

decision template updated 16 Feb 2017



## **Appendix D: Telephone interview guide**

### **COVER LETTER FOR THE TELEPHONE INTERVIEW GUIDE**

Title of Interview: “Distance Students` perception towards e-learning at Namibia University of Science and Technology`s Regional Centres”

Dear respondent

This telephone interview forms part of my master`s research titled: “Distance Students` perception towards e-learning at Namibia University of Science and Technology`s Regional Centres” for the Masters of Education degree in Open and Distance Learning at the University of South Africa. You have been selected through a purposive sampling strategy from the population of your regional centre. Hence, I invite you to take part in this survey.

This study aims to investigate your perception as a distance student towards e-learning at NUST. The findings of the study may benefit your institution as they may provide insight into the e-learning custodians to devise ways of improving the e-learning system.

You are kindly requested to attend this telephone interview, comprising four sections as honestly and frankly as possible and according to your personal views and experience. No foreseeable risks are associated with participating in this telephone interview, which is for research purposes only. The telephone interview will take approximately 20 to 40 minutes to complete. For record purposes, this telephone interview will be recorded.

Anonymity is assured as you are not required to indicate your name, student number, and level of the study period. All information obtained from this telephone interview will be used for research purposes only and will remain confidential. Your participation in this telephone interview is voluntary and you have the right to omit any question if so desired or to withdraw from answering to this telephone interview without penalty at any stage, but remember as a potential participant, the information you provide will be of great importance to the completion of this study.

Permission to undertake this telephone interview has been granted by the Registrar at Namibia University of Science and Technology and the Ethics Committee of the College of Education, UNISA. If you have any research-related inquiries, they can be addressed directly to me or my supervisor. My contact details are: +264 811296773, e-mail: charlessihope27@gmail.com and my supervisor can be reached at Tel: +27 (0)12 441 5668 or Cell: +27 (0)83 325 4951. Department of Curriculum and Instructional Studies College of Education, UNISA, e-mail:schmil@unisa.ac.za

This telephone interview is aimed at obtaining information from you on your perception of e-learning at your institution. As a potential participant, you are urged to provide answers in an honest and straight forward way.

### **TELEPHONE INTERVIEW QUESTIONS**

#### **VERBAL CONSENT**

Would you like to participate in this telephone interview?

Are you comfortable with me recording the telephone interview?

#### **VIEWS REGARDING THE EASENESS OF USE FOR E-LEARNING AT MUST**

1. What is your understanding of e-learning?
2. If you were given a choice between face-to-face and e-learning approach to your studies, which one would you prefer?
  - Can you explain to me why you prefer such type of an approach to your learning?
3. How frequent do you use e-learning for your studies?
  - Kindly explain to me why you do so?
4. Do you find the e-learning functions to be user friendly?
  - Explain to me why you find them so?
5. What specific key functions of e-learning do you find easy to use?
  - May you kindly explain to me why you find them easy to use?

6. What specific key functions of e-learning do you find difficult to use?

- May you kindly explain to me why you find them difficult to use?

7. How do you manage these difficult key functions of e-learning?

#### PERCEIVED BENEFITS OF E-LEARNING

8. As a distance student, what do you think are the benefits of e-learning to your studies?

- To what extent has these benefits contributed to your studies?

9. What do you appreciate most from these benefits?

- May you explain to me why you appreciate these benefits most?

#### CHALLENGES ENCOUNTERED WHEN USING E-LEARNING

10. What challenges do you encounter when using e-learning?

11. How do you deal with these challenges?

- Can you explain to me how effective are these strategies that you use to deal with these challenges?

#### RECOMMENDATIONS FOR THE EFFECTIVE USE OF E-LEARNING

12. As a third-year student, what measures can you recommend to the challenges you face when using e-learning?

13. What key functions of e-learning can you recommend to be upgraded?

- Can you explain to me how they can be upgraded?

14. As a third-year student, what advice can you give to first and second year students regarding using e-learning for their studies?

15. Do you have any other additional information regarding e-learning that you think we left out during this interview?

*End of telephone Interview*

*Thank you for your time and good luck with your studies*

**Appendix E: Consent letter to participate in this study**

CONSENT TO PARTICIPATE IN THIS STUDY (Return slip)

I, \_\_\_\_\_, confirm that the person asking my consent to take part in this research has told me about the nature, procedure, potential benefits and anticipated inconvenience of participation. I have read (or had explained to me) and understood the study as explained in the telephone interview information sheet. I have had sufficient opportunity to ask questions and I am prepared to participate in the study.

I understand that my participation is voluntary and that I am free to withdraw at any time without a penalty. I am aware that the findings of this study will be processed into a research report, journal publications and/or conference proceedings, but that my participation will be kept confidential unless otherwise specified.

I agree to answer the telephone interview as requested.

I have received a signed copy of the informed consent agreement.

Participant Name & Surname (please print)

\_\_\_\_\_  
\_\_\_\_\_

Participant Signature

\_\_\_\_\_

Date

Researcher's Name & Surname (please print)

\_\_\_\_\_  
\_\_\_\_\_

Researcher's signature

\_\_\_\_\_

Date

## **Appendix F: Participant information sheet**

Date: 20 March 2020

Title: "Distance Students' perception towards e-learning at Namibia University of Science and Technology's Regional Centres"

### **DEAR PROSPECTIVE PARTICIPANT**

My name is Charles Lushu and I am researching under the supervision of Dr. Louise Schmidt, a lecturer in the College of education towards the Masters of Education in Open and Distance Learning at the University of South Africa. We are inviting you to participate in a study entitled: "Distance Students' perception towards e-learning at Namibia University of Science and Technology's Regional Centres".

### **WHAT IS THE PURPOSE OF THE STUDY?**

This study is expected to collect important information that could assist the management and e-learning custodians of the university to enhance online teaching and learning.

### **WHY AM I BEING INVITED TO PARTICIPATE?**

You are invited because you are a third-year student who has done several e-learning modules through the years of your study. They are nine (9) distance students from across all nine regional centres taking part in this study.

### **WHAT IS THE NATURE OF MY PARTICIPATION IN THIS STUDY?**

The study involves a telephone interview with few introductory questions, and further to e-learning related questions. This telephone interview will take between 20 to 40 minutes to complete.

### **CAN I WITHDRAW FROM THIS STUDY EVEN AFTER HAVING AGREED TO PARTICIPATE?**

Participating in this study is voluntary and you are under no obligation to consent to participation. If you do decide to take part, you will be given this information sheet to keep and be asked to sign a written consent form. You are free to withdraw at any time

and without giving a reason, but the information you provide as a potential participant will be of great importance to the completion of this study.

**WHAT ARE THE POTENTIAL BENEFITS OF TAKING PART IN THIS STUDY?**

The study will contribute to the structured knowledge that will be used to guide the practice of e-learning at the institution.

**ARE THERE ANY NEGATIVE CONSEQUENCES FOR ME IF I PARTICIPATE IN THE RESEARCH PROJECT?**

Please take note that I do not anticipate any potential level of inconvenience and/or discomfort to the participant.

**WILL THE INFORMATION THAT I CONVEY TO THE RESEARCHER AND MY IDENTITY BE KEPT CONFIDENTIAL?**

To keep a high level of confidentiality and anonymity, the participants will not be asked to give their names and student numbers during the telephone interviews. Furthermore, your answers will be given a code number or a pseudonym and you will be referred to in this way in the data, any publications, or other research reporting methods such as conference proceedings. You should also note that the obtained information will be made available to UNISA, this shows evidence that the study has been carried out. Besides, this information will be treated according to UNISA Research ethics policy (Part 2, sec. 4)

**HOW WILL THE RESEARCHER(S) PROTECT THE SECURITY OF DATA?**

The researcher will store hard copies of notes taken during telephone interviews for five years in a locked filing cabinet at the office/home for future research or academic purposes; recorded telephone interviews will be transferred on a computer and stored on a password-protected document folder. Future use of the stored data will be subject to further Research Ethics Review and approval if applicable. The destroying of information will be done by the use of a shredder machine and electronic copies, audios permanently deleted from the hard drive of the computer/cellphone using a relevant software program.

**WILL I RECEIVE PAYMENT OR ANY INCENTIVES FOR PARTICIPATING IN THIS STUDY?**

Participants will not receive any payment or reward, financial or otherwise for participating in the study. The researcher further anticipates that participants will not incur any cost during their participation in the study.

**HAS THE STUDY RECEIVED ETHICS APPROVAL?**

This study has received written approval from the Research Ethics Review Committee of the College of education, UNISA. A copy of the approval letter can be obtained from the researcher if you so wish.

**HOW WILL I BE INFORMED OF THE FINDINGS/RESULTS OF THE RESEARCH?**

If you would like to be informed of the final research findings, please contact Charles Lushu at cellphone number, +264 811296773 or email at charlessihope27@gmail.com. The findings are accessible for five years.

Should you have concerns about how the research has been conducted, you may contact my supervisor at telephone: +27 (0)12 441 5668 or cell: +27 (0)83 325 4951 schmil@unisa.ac.za

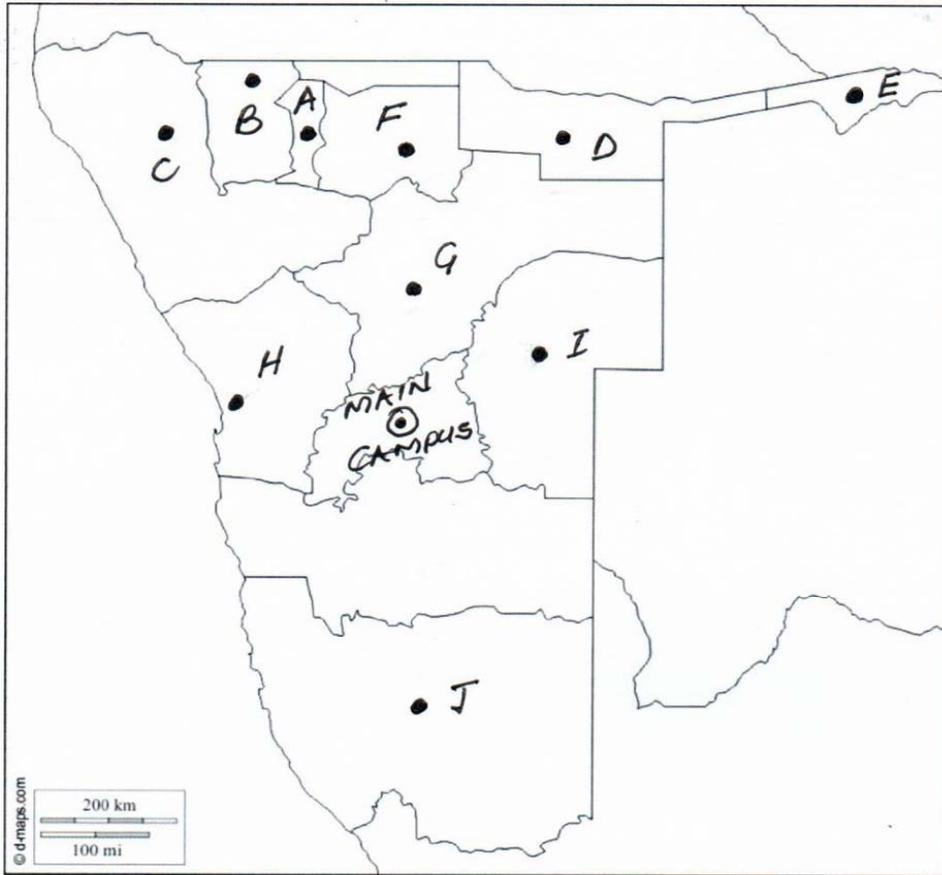
Thank you for taking the time to read this information sheet and for participating in this study.

Thank you.

---

MR Charles Lushu

## Appendix G: Map of NUST regional centres



### COLL REGIONAL CENTRES

- A- ONGWEDIVA
- B- OUTAPI
- C- OPUWO
- D- RUNDU
- E- KATIMA MULILO
- F- TSUMEB
- G- OTJIWARONGO
- H- WALVIS BAY
- I- GOBABIS
- J- KEETMANSHOOP

**Appendix H: Proof of editing**

**EDITING SERVICES**

**To whom it may concern**

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Master's Dissertation

**Distance Students' Perception Towards e-learning at Namibia University of  
Science and Technology's Regional Centres**



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## Appendix I: Turnitin report



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#### CHAPTER 1: ORIENTATION AND BACKGROUND OF THE STUDY

##### 1.1 Introduction

In this modern-day world, there is no doubt that Information and Communication Technology (ICT) is largely responsible for extraordinary changes in our education sector for the last few decades (Shehu, 2012:11). These technologies have been attainable by people and increased their living standards (Bosamia, 2013:2). Noteworthy, ICT has brought changes in teaching and learning, especially in distance education. Investigations on the influence of technology in education vary, but a few of them among adult learners suggest benefits worth inquiring (Warschauer & Liaw, 2010: 1). Distance students' ways of dealing with ICT methods and practice of teaching may determine whether e-learning as another mode of study could be coordinated into their learning. In its ICT policy of 2010, Polytechnic of Namibia (2010) states that e-learning is used as a tool for learning and teaching, making effective and efficient use of all resources whilst maintaining quality standards required university.

The reason for this study was to establish distance students' perceptions towards e-learning at Namibia University of Science and Technology's regional centres. This chapter addressed some research components such as the background of the study, rationale for the study, statement of the problem with its related research questions, and aims and objectives. The chapter also made clarity on key concepts that guided the study by defining them and outlines for the research chapters.

##### 1.2 Background of the study

According to the Ministry of education, Arts and Culture, (2005:4) "The Education and Training sector, long seen as the torchbearer for capacity development in Namibia, created the Information and Communication Technology (ICT) policy for education to enhance the use of ICT in the delivery of education and training". Some of the policy