

Students' perceptions towards ICTs used for emergency remote learning in higher education during Covid-19: A case study of the NWU Mafikeng Campus

TP Zethi



orcid.org/0000-0003-3971-0037

Dissertation accepted in fulfilment of the requirements for the degree *Master of Arts in Communication* at the North-West University

Supervisor: Dr TMM Lobelo

Co-supervisor: Dr Q Mgogo

Graduation: July 2023

Student number: 27666913

DECLARATION

I, Thato Pecunia Zethi, declare that the thesis entitled “**Students’ perceptions towards ICTs used for emergency remote learning in higher education during Covid-19: A case study of the NWU Mafikeng Campus**”, hereby submitted for the degree of *Master of Arts* in Communication Studies, Faculty of Humanities, North-West University, has not previously been submitted by me for a degree at this or any other institution. I further declare that is my original work in design and execution and that all sources and materials used in the dissertation have been duly acknowledged.

Signature: _

ACKNOWLEDGEMENTS

Postgraduate research is indeed a collaborative effort between the researcher and various communities both within and beyond the academy. I would like to sincerely thank everyone who helped and supported me academically, financially, emotionally, and spiritually during the production of this dissertation. Due to the enormity and long duration the study took I may not be able to mention each one of you. However, I remain indebted to your support and will always be grateful.

But first, gratitude goes to my sponsor. This research was made possible through funding from the National Research Foundation (NRF) to whom I am very much grateful for the support.

Equally important, the study will not have been possible without the guidance of my supervisors Dr. Mooki Lobelo and Dr Quatro Mgogo. I want to thank you all for the patience and faith you had in me throughout this journey. For Dr. Lobelo I will always be grateful for granting me an opportunity to be involved in the faculty as a Junior Lecturer. This role exposed me intimately to the teaching and learning environment, an experience that was quite instrumental in moderating focus group discussions with students during the data collection phase of the study.

Special mention also goes to Dr. Mgogo who stepped in as a co-supervisor right upon joining the NWU. Dr Mgogo, your stepping in was timely! You came at a very challenging moment of the journey and did not waste time to unlock all the dead ends that had marked, and kept me stagnant during, the first twelve months of the journey. I am most sincerely grateful for your intervention. I cannot thank you enough Dr Q!

I also want to thank Dr. Musara Lubombo, the Postgraduate Research Advising Specialist in the NWU Centre for Teaching and Learning (CTL) who supported me to develop the knowledge, skills, and disposition that is required, and I needed to finalise the dissertation. Your resourcefulness which enabled me to participate at my first conference where I shared results from this study and received invaluable comments that have enriched the thesis is priceless. I have benefited greatly from your wealth of knowledge in the discipline and meticulous critique of my work. Much appreciated Dr. Musa!

To my friend Kedibone Sethole and course mates Kitsiso Seete and Kabo Letlhogela. Your friendship and company cannot go unacknowledged. You were always there when I needed to soundboard you on anything related to our postgraduate studies.

Most crucially, I want to thank my supportive family for always being there for me. Granny, you are the love of my life, my hope and inspiration. Without your presence and prayers this dissertation would not have been possible. Thank you for all the strength you gave me. I love you. My mother, I love you. You are the queen of prayer. I know every step that I have made was through your prayers. God bless you. To the rest of the family ke lebogela go nkema nokeng ga lona. Ke a lo rata!

Oh my God! I cannot end these acknowledgements without appreciating your fulfilling presence, your enduring love, your embrace, and your guidance. Almighty, I will forever be grateful for always granting me strength and wisdom.

Thato P Zethi

November 29, 2022

DEDICATION

This study is dedicated to my family, my mother and father, Keitumetse and Danny Kisala, my grandparents, Msembenzi and Naledi Zethi, my uncles, Phindani and Zanempi Zethi, and my siblings, Lungo and Mapalo Kisala.

ABSTRACT

Communication plays a vital role in all spheres of activity where it helps people to share and understand meaning. This includes Teaching and Learning (T&L) whose key components are content and communication. It is from this perspective that the main thesis advanced in this study is that T&L during Covid-19 was a communication issue. The Covid-19 pandemic and its bearing on higher education has attracted wide scholarly interest, most of which was conducted from an education, digital transformation, and other perspectives. The uniqueness and contribution of this study is that T&L during Covid-19 is studied from a communication perspective focusing on how emergency remote teaching and learning (ERT&L) affected tuition delivered to learners of a traditionally residential university through electronic communications media. To address this concern, students' perceptions towards Information Communication Technologies (ICTs) used for ERT&L in higher education during Covid-19 were explored among North-West University (NWU) students at the Mahikeng Campus. The study departs from a premise that in residential universities, T&L usually takes place through face-to-face interpersonal communication. However, T&L during Covid-19 involved an abrupt and unplanned provision of learning activities to remotely and disparately located students through new media or ICTs, new tools that as Kist (2005) suggests required new literacies, additional social practices, skills, strategies, and dispositions by both students and lecturers to fully exploit their potential. Data was collected through focus group discussions with a sample of thirty-six (N = 36) students at different levels of their qualification programs to establish which ICT strategies the NWU adopted in response to the Covid-19 outbreak, explore students' experiences of ICTs used for T&L during Covid-19, discuss students' views towards ICTs used for ERT&L during Covid-19 and apply a communication analysis of the process. Two communication theories, Media System Dependency Theory (Ball-Rokeach & Defleur, 1976) and Transactional Model of Communication (Barnlund, 1970) are applied as an analytic framework. Findings suggest that different ICTs were used for T&L during Covid-19 and students' perceptions of the ICTs derive from both positive and negative experiences students had while using them. Both internal and external factors such as lack of training, understanding, and skills to operate these ICTs, limited access to digital technology devices, and connectivity issues were notable challenges that affected students' experiences and perceptions of these technologies. Together, these challenges can be surmised from a communications perspective as noise which affected effective communication, which in this context refers to the learning process. The findings also echo previous studies that revealed various affordances that digital technologies brought in the enhancement of independent learning skills required in higher education. Notable examples include among others the ability by students to study from the comfort of their homes, improved engagement with lecturers as well as the

ability to listen to recorded lectures at one's own convenience. From a communication perspective, it can be concluded that learning during Covid-19 was affected by various 'noises' around the channels of communication used. As a result, learning progress was generally challenging. Four conclusions are conceivable. First is that T&L was variously affected by the ICTs deployed to transfer learning. This as it (T&L) shifted from the classroom to online platforms through new media that required new literacies by students and lecturers who unfortunately were both unprepared to fully exploit their potential. The study also concludes that communication plays a vital role in the transfer of learning. That student-to-lecturer communication was the main issue around which both negative and positive perceptions towards ICTs were centered reveals this position. Accordingly, remote T&L's effectiveness is conceivably dependent on the ICTs communicative capabilities to facilitate lecturer-to-student engagement as well as student-to-student collaboration during the learning process. Taken together, the above demonstrates that indeed T&L during Covid-19 was a communication issue. Communication processes between lecturers and students as well as among students took place within a challenging environment influenced by different ICTs deployed for learning. For effective T&L (communication) to occur, the noises surrounding the whole process of communication needed to be moderated. This is because good content (message) alone may not be enough to achieve effective learning.

Keywords: Covid-19, emergency remote learning, students' perceptions, higher education, Information Communication Technologies (ICTs), NWU Mafikeng Campus, Teaching and Learning (T&L) as communication.

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CHAPTER ONE

INTRODUCTION TO THE STUDY

1.1 Introduction

This qualitative study explored students' perceptions towards Information Communication Technologies (ICTs) used for emergency remote teaching and learning (T&L) in higher education during Covid-19 using North-West University (NWU) Mahikeng Campus as a case study. The aim is to understand how these perceptions reveal on the deployment of ICTs for T&L in traditionally residential universities through electronic communications media. In residential or contact universities, T&L takes the form of face-to-face interpersonal communication process where two-way feedback is immediate (Prinsloo & Singh, 2021). Considered from this perspective, effective teaching and learning can therefore be explained through communication theories relevant for interpersonal communication. However, emergency remote teaching and learning (T&L) during Covid-19 involved what Jonassen, Davidson, Collins, Campbell & Haag (1995:14) described long time ago as the provision of "instruction through print or electronic communications media to persons engaged in planned learning in a place or time different from that of the instructor or instructors". This brings into focus the reliance that higher education institutions placed on information and communication technologies (ICTs) for the delivery of learning.

It is important to observe that while T&L during Covid-19 has attracted wide scholarly interest, most of the research was conducted from an education perspective (Daniel, 2020; Pokhrel & Chhetri, 2021), digital transformation perspective (Bogdandy, Tamas & Toth, 2020), and other perspectives. However, there is little to no research with a specific focus on the communication component of T&L during Covid-19 (Gabelaia & Vasadze, 2021) yet teaching is a scientific process whose "major components are content, communication and feedback" (Rajagopalan, 2019:6).

In this study, T&L is construed as a communication issue, not least because firstly, communication plays a vital role in the transfer of knowledge, teaching being a process that is fundamentally facilitated by communication between a lecturer and student. Secondly but most crucially, the study is in the discipline of communication studies, which lays the context within which it must be

read. Accordingly, two communication theories are relied upon to underpin the study. These are the Media System Dependency Theory (Ball-Rokeach & Defleur, 1976) and the Transactional Model of Communication (Barnlund, 1970). The Media System Dependency Theory is applied to explain the reliance that higher education institutions placed on ICTs for the delivery of learning during Covid-19 while the Transactional Model of Communication is most suited to explain T&L in residential universities as a form of interpersonal communication in a joint construction of knowledge process where two-way feedback is immediate (Prinsloo & Singh, 2021). Taken together, both theories are quite instrumental to guide such an inquiry, as this study attempts into how the ERT&L affect(ed) tuition delivered to learners of a traditionally residential university through electronic communications media.

In this introductory chapter, the investigation is introduced in its historical and disciplinary context. It begins with a brief background to the research problem after which the aim, problem statement, research questions and objectives as well as a brief methodological outline are presented. Key concepts underpinning the study are defined to put the study into a meaningful context.

1.2 Background to the problem

The Covid-19 pandemic which broke out in 2020 occasioned a global shutdown that affected the delivery of educational in tremendous ways. As governments imposed national lockdowns and travel restrictions as measures to contain the spread of the pandemic, higher education institutions were also compelled to suspend face-to-face classes that were perceived to be the vectors of the viral transmission (Joshi, 2020). To save the academic year, a 'pandemic pedagogy' (Millman, 2020) involving remote tuition provision through novel educational technologies was implemented.

In residential universities where teaching and learning is face-to-face, tuition moved from the classroom to virtual spaces where it was facilitated through novel ICTs with no to very little time to prepare academics and students to use these technologies which, as Kist (2005) suggests, required new literacies and additional social practices, skills, strategies as well as dispositions by both students and lecturers to fully exploit their potential. Accordingly, research has found that both lecturers and students experienced difficulties in the use of the new ICTs used for the implementation of remote T&L (Jelinska & Paradowski, 2021). Remote T&L has thus been found

to have affected learning experiences of students as it had a bearing on the quality and effectiveness of T&L especially in traditionally contact universities.

The shift from contact to ERT&L was abrupt (Prinsloo & Singh, 2021) and might not have been informed by the context of implementation such as student realities, as would have been required in implementing any technological intervention (Jelinska & Paradowski 2021; Ferri, Grifoni, & Guzzo, 2020). Meanwhile, in development communication, there is increasing interest in involving concerned communities in efforts aimed at finding solutions to their problems to find solutions to educational challenges affecting them (Servaes, 2008). Accordingly, to achieve its aim, this study explored students' perceptions towards ICTs used for emergency remote teaching and learning (ERT&L) in higher education during Covid-19. The aim is to understand what these perceptions reveal about the deployment of ICTs for T&L in traditionally residential universities through electronic communications media in residential or contact universities.

1.2.1 Teaching and Learning in Residential Universities and the Migration to ERT&L

In most residential universities, T&L takes the form of face-to-face interpersonal communication process between lecturers and students. Prinsloo and Singh (2021) studied how such a residential university migrated from contact to online learning where teaching is asynchronous. They note various challenges deriving from this transition not least because T&L in such institutions occur synchronously, which allows students to interact with peers and consult with lecturers in class and receive immediate feedback to queries. According to Rawat (2016:3059) the T&L process in residential universities is facilitated by “verbal communication that not only helps in the sharing of the knowledge but also creates an amicable environment to facilitate the sharing of ideas/opinions/feelings between the teacher and the students”. This approach derives from the assumption that teaching is a form of interpersonal communicative action aimed at influencing potential and behaviour of another person (Gage, 1963).

One of the most valued components of T&L in residential university is the quality of interaction and feedback and effective communication between students and lecturers as well as among students (Serhan, 2020). According to Jonassen, Davidson, Collins, Campbell and Haag (1995) in the traditional classroom, the lecturer is at the centre of the instructional interaction and contributes up to 80% of the verbal exchange. Thus, for Rajagopalan (2019:6) the identification of suitable T&L strategies for effective communication of content are of the key strategies

constituting the structure of teaching. Classrooms are therefore understood as spaces that create what has been referred to as communities of learners and practitioners where interactions and activities necessary for solving real-world problems are facilitated (Jonassen *et al.*, 1995:8).

With the Covid-19 pandemic pushing many higher education institutions into a fast-paced, and mostly unstructured, emergency remote education process, institutions were compelled to develop a variety of measures to deal with the effects of the pandemic while also allowing students to attain their educational goals (Petchamé, Iriondo, Villegas, Riu & Fonseca, 2021). Numerous methods had to be created to deal with the pandemic's effects and to enable students to achieve their learning objectives. A variety of measures to maintain learning frameworks were implemented as solutions for the resumption of T&L remotely (Petchamé *et al.*, 2021) through ERT&L, a mode of learning traditionally associated with T&L in open distance learning (ODL) institutions.

As surmised in this study, ERT&L refers to unplanned instructional approaches that were effected in response to the Covid-19 crisis, not necessarily planned online or virtual learning that are ordinarily implemented for ODL (Hodges, Moore, Lockee, Trust, and Bond, 2020). According to Srivastava, Jacob, Charles, Daniel, Mathew, Shanthi, Devamani, Mahasampath, and Rabi (2021) ERT&L provides a distinct method of learning that differs significantly from online learning. While the latter is well thought out and planned, the former is an immediate response, primarily to provide continued education during a crisis. Residential universities suddenly found themselves using webcasts, open educational resources, flipped instruction using video clips, group learning or online courses, learning management systems, instant messaging platforms, e-mails, webinars, and online videos as main methods of teaching (Nogemane & Magade, 2021; Petchamé *et al.*, 2021).

It is a reasonable expectation that the transition to virtual spaces by residential universities would sustain common classroom practices such as lecturer-to-student interaction and student-to-student engagement. However, literature suggests that many challenges accompanied this transition as different, novel ICTs deployed for T&L required users to have literacies, social practices, skills, strategies, and dispositions that some of the students and lecturers did not possess (Kist, 2005; Ferri, Grifoni & Guzzo, 2020; Lischer, Netkey & Cheryl, 2021; Petchamé *et al.*, 2021).

It is inconceivable that NWU students might have been spared from these challenges. The university, as with many other institutions of higher learning adapted to the new reality of T&L imposed by Covid-19 pandemic. The institution shifted from contact classes to ERT&L with lecturers quickly choosing a variety of ICT platforms with varying capabilities to support T&L during Covid-19 pandemic (Anon, 2021).

Since the outbreak of the Covid-19 pandemic in 2020, a growing body of scholarship has since emerged to explore its bearing on higher education. Available literature concentrates its focus on concerns of different disciplines such as education and digital transformation among others (see Daniel, 2020; Hedding, Greve, Breetzke & Jansen Van Vuuren, 2020; Pokhrel & Chhetri, 2021; Bogdandy, Tamas & Toth, 2020). Owing to the fact that communication is one of the critical components of teaching and learning (Rajagopalan, 2019) with its vital role in the transfer of knowledge, this study is an attempt at a communication analysis of students' perceptions towards ICTs used for ERT&L in higher education during Covid-19 with an intention to understand how this pandemic pedagogy might have affected tuition delivered to learners of a traditionally residential university through electronic communications media.

My interest in the study is further explained by my disciplinary roots in the School of Communication Studies where I have interest in new media technologies in development and corporate communication. It is from this perspective that the study argues that T&L during Covid-19 was a communication issue. To demonstrate this argument, two communication theories, Media System Dependency Theory (Ball-Rokeach & Defleur, 1976) and Transactional Model of Communication (Barnlund, 1970) are applied to provide analytic insights that enable a communication analysis of students' perceptions of ICTs used for T&L in higher education during Covid-19. The Media System Dependency Theory (De Fleur & Ball-Rokeach, 1976) explains the reliance on new media technologies for T&L. Unfortunately, this theory appears inadequate to address a pertinent question that arises from the fact that new tools required lecturers and students to have new literacies to fully exploit their potential: in this milieu; this question being: how was T&L affected by the emergency transition to remote delivery using novel media technologies?

The study argues that addressing this question demands an understanding of how T&L in contact universities should look. The limitation by the Media System Dependency Theory to explain the nature of T&L as a communication process, and how this can be affected by ICTs is explained

through the Transactional Model of Communication, a communication theory more relevant for interpersonal communication (Barnlund, 1970). The contexts of the communication process depicted in the model parallels the complexities that marked the ERT&L during Covid-19. That the model is meaning-centred and that both the sender and receiver (lecturer and students) create relationships through co-generation of shared meaning within a social, cultural, and relational contexts conjure effective T&L that ideally takes place in interpersonal face-to-face classroom situations. The model thus adds insight into the nature of interpersonal communication in academic contexts involving online written and verbal interaction amongst students as well as between students and lecturers.

The foregoing highlights the background that led to this investigation. Next is the description of the research problem, its facets and why it should be considered as a problem.

1.3 Problem Statement

In residential universities, T&L usually takes place through face-to-face interpersonal communication. However, T&L during Covid-19 involved an abrupt and unplanned provision of learning activities to remotely and disparately located students through new media or ICTs. In most cases, these were new tools that required new literacies, additional social practices, skills, strategies, and dispositions that both students and lecturers did not possess to fully exploit the technological affordances (Kist, 2005; Hobbs & Hawkins, 2020). The Covid-19 pandemic and its bearing on higher education has attracted wide scholarly interest (Jelinska & Paradowski 2021; Ferri, Grifoni, & Guzzo, 2020; Hedding *et al.*, 2020). However, it is worth noting that most of the studies were conducted from a pedagogic, digital transformation, and other perspectives. Less attention has so far been paid on how communication in T&L, whose key components are content and communication (Rajagopalan, 2019), might have suffered and affected tuition delivered to learners of a traditionally residential university through new ICTs.

1.3.1 General Research Question

The key research question that follows from the above problem is what can the students' perceptions of the ICTs used to facilitate T&L in HE during Covid-19 reveal about the deployment of ICTs for T&L in traditionally residential universities? Aligned to this central question are the following four specific questions delineating the scope of topics around which the objectives and data collection (focus group questions) revolved.

1.3.2 Specific Research Questions

The specific research questions for this research are as follows:

1. What ICT strategies did the NWU implement in response to the Covid-19 outbreak?
2. What are the students' experiences of the ICTs used during Covid-19?
3. What are the students' views towards ICTs used for technologically mediated emergency remote learning during Covid-19?
4. What can communication theory tell us about the deployment of ICTs for T&L in traditionally residential universities during Covid-19?

1.3.3 Research Objectives

To address the above key questions, NWU students' perceptions towards ICTs used for ERT&L in higher education during Covid-19 were explored in pursuit of the following four objectives deriving from the research questions:

- a. To establish which ICT strategies the NWU adopted in response to the Covid-19 outbreak.

Focus group discussions were used to generate data from NWU Mahikeng students to determine which ICT strategies the institution used to allow effective communication between students and lecturers during Covid-19.

- b. To explore students' experiences of ICTs used for T&L during Covid-19.

Focus group discussions were used to learn about NWU Mahikeng students' experiences of T&L technologies used during the Covid-19 pandemic.

- c. To discuss students' views towards ICTs used for ERT&L during Covid-19.

Focus group discussions were discussed to learn about students' views on using various ICTs for ERT&L during the Covid-19 pandemic.

- d. To apply communication theories in the analysis of T&L during Covid-19.

The Media System Dependency Theory and the Transactional Model of Communication are applied to understand the deployment of ICTs for ERT&L during Covid-19.

1.4 Location of the Study

The study was conducted among students at North-West University (NWU). This is a residential public higher education institution with three sites of delivery namely Mahikeng Campus, Potchefstroom Campus and Vaal Triangle Campus. The three sites function as one institution and are quite far apart in terms of physical distance. Prior to 2018, the three campuses operated independently until it was decided that they should operate as one unitary institution with identical program qualifications with same course content across the three sites of delivery. This study was limited to one of the three sites, Mahikeng Campus situated in Mahikeng, the Provincial capital of North-West Province.

Mahikeng Campus is the second largest of the three campuses after Potchefstroom and followed by Vaal Triangle. With its strong ethos of community service and skilful blend of academic and research programmes, Mahikeng Campus embodies the NWU's commitment to being locally engaged, nationally relevant and internationally recognised (Anon, 2012). North-West University acquires, develops, and maintains ICT systems intended for direct and indirect support of the University's teaching, learning, research, community engagement activities as well as facilitating free exchange of ideas among members of the University community.

Historically, the study is located within a Covid-19 pandemic period when residential universities, including Mahikeng Campus were compelled to migrate learning from physical contact classes to ERT&L. This migration was implemented even among poor and first-generation university students who reside in rural areas and other marginalised places where the use and access to ICTs may be difficult due to lack of power, internet connectivity etc. The state of technology, skills to operate the technology as well as social access and people's actual exposure to the technologies are key issues that arise concerning technology deployment in such contexts (Narula, 2006:27). This is especially true for a student population such as that found at the Mahikeng Campus.

Paradigmatically, the study is located in the discipline and theories of Communication Studies. The discipline adheres to a variety of philosophies from positivism to interpretivism, meaning that

communication research can either be quantitative or qualitative (Berger, 2018). Based on the nature and purpose of the research problem outlined earlier, the study is informed by an interpretivist philosophy which believes that knowledge is relative to experiences of different communities. What this demand for researchers who seek to understand phenomena is engagement in dialogue with people who experience the phenomenon. The above paradigm and philosophy informed the methodology highlighted below.

1.5 Methodological Outline

This is a qualitative inquiry informed by an interpretivist philosophy which believes that knowledge is relative to experiences of different communities. Data was collected through focus group discussions with a sample of thirty-six (N = 36) purposely selected students at different levels of their qualification programs to establish their perceptions towards ICTs used for ERT&L during Covid-19 and apply a communication analysis of the process. Two communication theories, Media System Dependency Theory (Ball-Rokeach & Defleur, 1976) and Transactional Model of Communication (Barnlund, 1970) are applied as an analytic framework.

1.6 Significance of the Study

Communication plays a vital role in all spheres of activity where it helps people to share and understand meaning. This includes T&L whose key components are content and communication (Rajagopalan, 2019). The significance of this study lies in its uniqueness to examine T&L during Covid-19 from a communication perspective, a perspective that has been seldom acknowledged in the growing scholarship of T&L during Covid-19. Its main thesis that T&L during Covid-19 was a communication issue is an invitation to other scholars to engage on this important topic on the important role communication plays in T&L.

The study makes four important conclusions that demonstrate that communication processes between lecturers and students as well as among students took place within a challenging environment influenced by different ICTs deployed for learning. It reveals how communication theories can be applied to address T&L challenges that accompany ICTs deployment in tuition delivery. It can be learned from the study that good curriculum content alone may not be enough to achieve effective learning as effective T&L depends on the moderation of various cues surrounding and influencing the whole process of communication. This is an area that pandemic pedagogy scholars might want to turn their attention to.

1.7 Definition of Key Concepts

This study intersects both novel and specialised topics involving certain concepts that may require clarification for the reader. Below are some few key concepts that warrant to be defined in the context of the study:

Covid-19: This is a term used to refer to the coronavirus disease first identified in December 2019 in Wuhan, China and rapidly spread throughout the world. The World Health Organization (WHO) declared the outbreak a global pandemic in March 2020 prompting national lockdowns that led to the suspension of gatherings and classes in residential institutions of learning.

Emergency remote teaching and learning: The term is used in this study to refer the temporary or short term instructional responsive T&L strategy to the Covid-19 pandemic. Hodges *et al.* (2020) among others distinguish it from pre-planned online learning that is originally planned and designated to be delivered virtually.

Higher education: Higher education is used interchangeably in this study with terms such as universities or institutions of higher learning that include the North-West University. Higher education is associated with self-directed learning, the basis upon which I believe institutions of higher learning assumed that ERT&L which removed the student from the lecturer's presence was going to achieve instructional goals without difficulty.

Information Communication Technologies: ICTs are generally defined as a variety of collective technological resources which are useful to communicate (Patil & Dhembre, 2019). The term is used in this study to refer to new media technologies that were adopted and deployed to facilitate ERT&L during Covid-19.

Students' perceptions: This refers to ways in which participants in this study viewed ICTs used to facilitated ERT&L. These views or perceptions were shaped by individual experiences that each student had when they interacted with the ICTs. The perceptions reported in this study must not be generalized beyond the historical context within which they were generated. This is because perceptions are fluid and are easily influenced by the environment.

Teaching and Learning: The term is traditionally understood as a form of interpersonal influence to change the behavioural potential of another person (Gage, 1963). The closest definition that meets the purpose of this study is that offered by Rajagopalan (2019) who describes it as a scientific process whose key components include content, communication and feedback. This definition is preferred in this study not only because of its alignment with the thesis advanced herein but also because of it resembles of the process of communication depicted in the Transactional Model of Communication that underpins this study.

1.8 Dissertation Outline

The key research question that follows from the above problem is what can the students' perceptions of the ICTs used to facilitate T&L in HE during Covid-19 reflect about the deployment of ICTs for T&L in traditionally residential universities? Linked with this question is the thesis that T&L during Covid-19 was a communication issue. This thesis is treated in six chapters that constitute this dissertation chaptered as follows:

Chapter One: Introduction to the study

This introductory chapter introduces the study in its historical, disciplinary, physical, and paradigmatic contexts. It begins with a brief background to the research problem after which the aim, problem statement, research questions and objectives as well as a brief methodological outline are presented. Key concepts underpinning the study are defined to put the study into a meaningful context.

Chapter Two: Related literature review

This chapter reviews scholarly works on ICTs used for ERT&L in higher education during Covid-19. It outlines the background of ERT&L and the various new ICTs that were introduced in higher education during Covid-19. The chapter reveals that T&L during Covid-19 was dependent on these new media technologies. It also shows that as T&L transposed from the physical classroom to virtual platforms marked by new tools, lecturers and students required new literacies to fully exploit their potential.

Chapter Three: Theories underpinning the study

This chapter introduces and explains the two theories that inform the theoretical underpinnings of this study. The Media System Dependency Theory and the Transactional Model of Communication constitute this framework. The former is used to explain the reliance placed on new media technologies to deliver online T&L during Covid-19 while the latter compliments its limitations to explain the nature of T&L as a communication process, and how this can be affected by ICTs. The chapter argues that the two-way communication process depicted in the Transactional Model of Communication parallels the complexities that marked the online asynchronous T&L in institutions of higher learning delivered during ERT&L during Covid-19. It also argues that taken together, these two theories can provide analytical insights that have potential to enable a communication analysis of students' perceptions of ICTs used for T&L in higher education during Covid-19.

Chapter Four: Research Methodology

The chapter describes the qualitative research methodology applied in the execution of this study. The methodology is described under five main topics adapted from Saunders, Lewis, and Thornhill's (2019) research onion. The chapter highlights the interpretive paradigm and how it influences the qualitative research approach adopted for the study. The purposive sampling strategy and focus group discussion as well as deductive thematic approach to analysing data are described.

Chapter Five: Presentation and discussion of findings

This chapter presents and discusses findings that address questions on students' perceptions on the ICTs used for emergency remote learning in higher education during Covid-19. The findings do indeed suggest, learning during the ERT&L during Covid-19 was a communication endeavour facilitated by pedagogically appropriate ICTs. The chapter also shows that as with mediated interpersonal communication, learning was prone to different noises around the channel of communication. It reveals varied student experiences and views about the ICTs and their influence on learning and argues for the need to situate learning in appropriate contexts suitable for the learners. Finally, the chapter indicates student preferences on teaching modalities where undergraduate

students preferred contact classes whilst postgraduate students preferred remote learning.

Chapter Six: Summary, conclusion, and recommendations

The study concludes that the Transactional Model of Communication has potential to depict the technologically mediated learning processes that the NWU deployed to facilitate learning during Covid-19. It can be a useful tool to identify different challenges that technologically mediated teaching and learning may present. The study further concludes that T&L was affected by the ICTs deployed to transfer learning, that communication plays a vital role in the transfer of knowledge, that ERT&L's effectiveness is dependent on the ICTs communicative capabilities, and that T&L during covid-19 was indeed a communication issue.

1.9 Conclusion

The remit, scope, context, and methodological approach adopted for this study have now been set out. The chapters that follow elaborate on each of the aspects as they appear in the dissertation structure outlined above. Next is a review of related literature to locate the research problem in its context.

CHAPTER TWO

RELATED LITERATURE REVIEW

2.1 Introduction

The previous chapter has discussed the introduction and background to this study, aims and objectives, as well as the significance of the study. This chapter reviews related literature that serves as a foundation for this study. Firstly, this chapter outlines the historical traces of Covid-19 and its impact in institutions of higher learning. The chapter provides an overview of the communication strategies adopted in higher education institutions in response to the Covid-19 pandemic. Additionally, of interest is the discussion of the background of ERT&L as the force that enabled the delivery of T&L in institutions of higher learning during the Covid-19 pandemic. The chapter further provides an in-depth analysis of ICTs used for ERT&L to sustain remote T&L in traditionally residential institutions of higher learning during Covid-19. Lastly, the chapter discusses the rise of hybrid T&L approaches, inequalities in South-African institutions of higher learning, and the status quo in institutions of higher learning post-Covid-19. In essence, this chapter provided a review of the relevant literature, with a focus on current research on ERT&L and ICTs. To contextualize the literature review, the following section provides a summary of the historical traces of Covid-19.

2.2 The Historical Traces of Covid-19

The eruption of Covid-19, also called the Corona Virus, has affected everything around us and the way we live. The first Covid-19 report and subsequent outbreak, according to Liu, Kuo, and Shih (2020), were linked to a cluster of unique human pneumonia cases in Wuhan City, China, in late December 2019. The earliest symptom start date was December 1, 2019. Fever, lethargy, dry cough, and dyspnea were among the symptoms of viral pneumonia and initially, the disease was called Wuhan pneumonia. The scholars further assert that the world health organization (WHO) temporarily labelled the new virus 2019 novel coronavirus (2019-nCoV) on January 12, 2020, and then officially named the infectious disease coronavirus disease 2019 (Covid-19) on February 12, 2020. Later, the International Committee on Taxonomy of Viruses (ICTV) officially designated the virus as SARS-CoV-2. Moreover, Chauhan (2019) offers additional description, claiming that Coronavirus disease 2019 (Covid-19) is an infectious disease caused by severe

acute respiratory syndrome coronavirus 2. (SARS-CoV-2). According to the scholar, the disease was discovered in December 2019 in Wuhan, China's Hubei province's capital, and has since spread globally, resulting in the ongoing 2019e20 coronavirus pandemic. Stawicki, Jeanmonod, Miller, Paladino, Gaieski, Yaffee, De Wulf, Grover, Papadimos, Bloem, and Galwankar (2020) also notes that the genetic sequence of the 2019-nCoV was reported to the WHO on the 1st of December 2020 and identified as a b CoV of group 2B with at least 70% genetic sequence similarity to SARS-CoV and has been named 2019-nCoV by the WHO. The virus quickly spread throughout China during the Chinese New Year period and the WHO declared the outbreak a public health emergency of international concern on January 30, 2020, and recognized it as a pandemic on March 11, 2020. As per the preceding discussions, the disease has been declared a pandemic, which signifies that it spread throughout the globe to various countries, forcing sectors across the world to be on lockdown, and requiring officials to implement different measures to cope with the virus. Thus, one can note that the Covid-19 global pandemic has created extraordinary effects that have had a significant impact on people's lives and various sectors across the world.

Furthermore, in Africa, on the 14th of February 2020, the first case of Covid-19 was reported, in the City of Cairo, by the Egyptian ministry of health and population. While in South Africa, the first case of Covid-19 was recorded in early March in Kwazulu-Natal, the case was confirmed by the national institute for communicable diseases (NICD) on the morning of the 5th of March 2020 (South African Government, 2020). Since then, the number of infections and deaths increased drastically, and in South Africa little was known about how the virus might affect the country at the time (Arashi, Bekker, Salehi, Millard, Botha, & Golpaygani, 2022). Moreover, Khoza, Khoza, and Mukonza (2021) note that, due to the surge of the virus, in South Africa, like in other affected countries, the government responded to the threat of the virus by implementing a complete national lockdown with tight restrictions which, among others, included an immediate need for learning institutions, to close (both lower and higher education), and the closure of businesses, shops, stores, and work-spaces, as well as instituting social distancing, and a restriction mass gathering. Xiang, Li, Zhang, Jin, Rao, and Zeng (2020) further note that the Covid-19 outbreak had a devastating impact on human life and shattered economies around the world with a massive jolt to the education systems in developed and developing countries. Thus, one can deduce that without a doubt the spread of the Covid-19 pandemic has led to the closure of many sectors across the world. Like South Africa, non-essential services were prohibited from operating

throughout the lockdown, with restrictions gradually easing as the lockdown progressed. Many businesses and industries were unable to function as the result of lockdown. Domestic work, gardening, the taxi industry, and street vending are just a few examples of businesses that could not operate during the Covid-19 period or lockdown.

Institutions of higher learning, which are the primary focus of this study, were also severely impacted by the Covid-19 pandemic. Rashid and Sigh (2020) supports the statement by noting that the Covid-19 pandemic certainly affected institutions of higher learning and led to the closure of many universities and colleges across the world. Rahiem (2020) note that, institutions of higher learning were compelled to shift courses to virtual classrooms because of the Covid-19 pandemic. For example, many of the higher education institutions had to cancel all face-to-face classes, including laboratories and other learning activities, and requested students to study remotely from home to help avoid the spread of the virus that causes Covid-19. To sustain T&L, the higher education institutions adopted various technological platforms. In Africa, there are Universities such as The University of Ghana which adopted various technological communication platforms that gave students access to free rich online learning materials, video tutorials from lecturers, discussion forums to interact with peers, and chat rooms to connect with lecturers while on lockdown (Bozkurt *et al.*, 2020). Also, there are private and international universities in Egypt that were also using technological or communication platforms such as blackboard and zoom live sessions to meet and to effectively communicate with the students (Bozkurt *et al.*, 2020). Mncube, Mutongoza, and Olawale (2021) further contend that South African higher education institutions have been similarly affected by the Covid-19 pandemic as well. The authors maintain that Universities across South Africa closed as well during the Covid-19 pandemic and adopted various technologies to sustain T&L, and for effective communication with university stakeholders. The following section discusses in detail the communication measures that were implemented in various institutions of higher learning in response to the Covid-19 pandemic to sustain teaching, learning, and communication with university stakeholders.

2.3 Communication Strategies Adopted in Higher Education During Covid-19

Calonge, Aguerrebere, Hultberg, and Connor (2021) note that the immediacy of the Covid-19 pandemic highlighted the sheer importance of internal and external communication with stakeholders. The authors maintain that universities had to rapidly grasp an unfolding and fast-changing crisis, gauge their level of preparedness, review decision and implementation

processes, devise strategies, and adopt communication approaches for the institutions of higher learning to operate. Balog-Way and McComas (2020) also note that the Covid-19 emergency emphasized the importance of creating clear communication structures that enable organisations to “speak with one voice” and react quickly at the first sign of an outbreak. To achieve this, institutions had to adopt various communication platforms such as social media platforms given that these platforms are an important element in health crisis-related communication (Yu, Li, Yu, He, & Zhou, 2020). These communication platforms offer an opportunity for policymakers to apply risk communication principles to avoid misinformation and thus improve people's care (Malecki, Keating, & Safdar, 2020). Depoux, Martin, Karafillakis, Preet, Wilder-Smith, and Larson (2020) believe that tertiary institutions can also use these platforms (social media platforms) to communicate the reasons for campus shutdowns, providing reassurance and practical advice to avoid chaos, rumours, and panic. Cheng (2018) also believes that citizens can engage on these platforms, especially when governments and public authorities clearly explain their decisions. Fundamentally, these discussions confirm that, during a crisis like the Covid-19 pandemic, organisations such as institutions of higher learning may develop and implement clear communication strategies that serve as platforms for dialogue between the organisation and stakeholders. These platforms will allow policymakers to listen to stakeholders' opinions while also assisting stakeholders in understanding the university's efforts and ability to deal with the crisis. Furthermore, Gouëdard, Pont, and Viennet (2020) note that:

Given the scope of the shock affecting education systems across the world, the actual crisis calls for a strong central communication strategy, to inform and mobilise stakeholders, and for sustained school-centered communication at the local level to keep the community updated on the latest developments (Gouëdard et al., 2020:21).

Essentially, Gouëdard, et al. (2020) imply that because of the Covid-19 pandemic, the education system needs to foster transparency by engaging with the stakeholders and the community through various communication platforms, to update them on developments being implemented in dealing with the Covid-19 pandemic. To support the discussions, Jena (2020) notes that institutions of higher learning responded positively to the Covid-19 crisis by adopting different communication strategies. The author asserts that the government of India for example took several preventive measures to prevent the spread of the pandemic Covid-19. The ministry of human resource development (MHRD) and the university grants commission (UGC) made several arrangements by launching many virtual platforms with online depositories, e-books,

educational channels through direct-to-home TV, and Radios for students to continue their learning. Throughout lockdown, students were using popular social media tools like WhatsApp, Zoom, Google meet, Telegram, YouTube Live, Facebook Live, and so on for communication. Joshi (2020) states that countries across the globe have been using “high tech, low tech, and no tech approaches to ensure learning continuity. They, for example, used social media platforms like Facebook, WhatsApp, and YouTube channels. They also made use of broadcast media such as radio, audio instructions, and television. The author further states that, digital platforms have replaced traditional communication in institutions of higher learning.

In their study titled *Managing higher education institutions in the context of Covid-19 stringency: experiences of stakeholders at a rural South African University*, Mncube, Mutongoza, and Olawale (2021) established that during the Covid-19 outbreak, one of the South African universities adopted various strategies to effectively reach out to students. The strategies this university adopted are as follows:

- a. Development of support documents such as methodologies, guides, and resource packages for transitioning teaching to an online environment.
- b. Supporting students and parents by sending frequent messages, explanations, questions, and answers (via email and social media).
- c. The government provided laptops and telecommunication packages to low-income families.
- d. Reorganizing assessment procedures (adjusting, cancelling, or reprogramming exams); and
- e. Promoting decentralized solutions based on procedural decisions made by local governments.

Mncube, Mutongoza, and Olawale (2021) discussed how the rural universities in South Africa adopted coping communication strategies such as email and social media platforms to maintain effective communication with the stakeholders during the pandemic. According to the authors, the strategies were used to inform stakeholders about the transition to remote learning, keeping them updated on the Covid-19 developments being made by the university, and updating them on the decisions made by the government regarding Covid-19. The authors also note that the stakeholders were provided with technologies such as laptops and telecommunication packages to use for communication, teaching, and learning.

Relating to the context of this study, North-West University also adopted various communication strategies for communicating with stakeholders during the pandemic. The institution used platforms such as email and SMS to communicate with the academic and support staff to notify them about the adoption of new policies. Academic staff, for example, were informed about the necessary changes to the T&L curriculum through the mentioned two platforms. SMS messaging was often used by the former Vice-chancellor to communicate the developments made by the university regarding Covid-19 to students and staff. Furthermore, students used WhatsApp, Email, and eFundi for inquiries with lecturers because the platforms allow for quick dialogue with lecturers and allowed lecturers to provide students with quick feedback. The students' representative body, the SRC, primarily used social media platforms such as Facebook, LinkedIn, Twitter, and Instagram to inform students about university events and opportunities. For example, on LinkedIn, Twitter, and the SRC Facebook page; bursary and scholarship opportunities were shared. Events such as competitions and pageants (Mr. and Mrs. NWU) were promoted on Instagram; encouraging students to participate online. Additionally, Newsletters, Newspapers, and Magazines were primarily used for informing both the internal and external stakeholders about the developments the university is making during the pandemic. Essentially, the platforms were used to communicate the reasons for campus closures, as well as provide reassurance and practical advice to stakeholders to avoid chaos, rumours, and panic while on lockdown.

To bring in more perspectives, Calonge *et al.* (2021) note that universities should consider integrating social media as the main platform to communicate during every crisis. While Fredericks (2020) is of the view that social media platforms which are forms of communication platforms, are normally deployed in crisis communication. Derani and Naidu (2016) cited in Ferericks (2020) emphasize that, for organisations, the use of various types of social media platforms has become an "important strategy" in crisis management to share information with their stakeholders quickly and easily. In an online news article in University World News, there is evidence that supports these discussions. According to the article, University leaders in South Africa are embracing social media and are acknowledging the role it can play in engaging with staff and student stakeholders. The article quotes Professor Tshilidzi Marwala, Vice-chancellor of the University of Johannesburg (UJ) who said that

They are hooked on Facebook, Twitter, LinkedIn, Instagram, etc. As vice-chancellors, we should go where our students and staff are. We should use all forms of media to

communicate as much as possible. These should include social media, radio, television, internal memos, etc. (Naidu, 2020).

Prof Adam Habib, the then Vice-Chancellor of Wits University at the time told the same publication that Twitter allowed him *“to engage with the broader university community, including students, academic and administrative staff and alumni”*. Prof Habib added:

It [Twitter] allows me to understand and have a feel for the university community that I wouldn't have had if I wasn't on Twitter. I can engage easily, if there are things that happen, for example, the aircon goes down in the law library, somebody will tweet it. I pick it up. That's important, something I find valuable (Naidu, 2020).

When exploring first-year students' use of social media sites at one of the South African universities of technology, Basitere, and Mapatagane (2018) confirmed that students become more interactive when they use platforms that they are familiar with, such as social media sites, compared to learning management systems imposed by the university. A recent review conducted by Manca (2020) on the integration of social media sites into learning, revealed that both Twitter and Facebook are the most used social media sites in higher education. Furthermore, social media sites' content is easily accessible because it is compatible with both computers and mobile devices, and this makes life easier for students (Clement, 2020; Dlamini and Nkambule, 2019; Manca, 2020). Consequently, one can deduce that various communication platforms such as social media and ICTs played an important role in creating a platform for institutions and stakeholders to communicate, teach, and learn remotely during the Covid-19 pandemic. Through these platforms, stakeholders were able to share their views and the institutions were able to share the developments they were making as well.

The preceding discussions correctly depicts that the various social media platforms, as forms of communication strategies, were essential during the Covid-19 pandemic. This means that social media platforms can be useful in an emergency for quick communication. For instance, during the pandemic, North-West University relied heavily on ICTs and social media platforms for communication with the stakeholders. Through these platforms, the institution was able to maintain communication with stakeholders throughout the pandemic. ICTs are thus important for an organisation to provide effective communication especially during a crisis.

The preceding discussion demonstrates that institutions of higher learning tried their level best to sustain their operations during the Covid-19 crisis by adopting various communication strategies to ensure that information as well as teaching, and learning continued to be shared regardless of the lockdown caused by Covid-19. The foregoing discussion clearly places communication at the centre in, and as a driver of all spheres of activity in higher education institutions and other sectors. While the above focuses on communicating messages about university activities to its wider community, this study focuses on T&L as communication. The main argument advanced in this study is that T&L during Covid-19 is a communication issue, which involved mediated communication between lecturers and students through specific ICTs. As a new form of T&L, the use of ICTs would ordinarily be experienced differently by different students in the universities, especially those traditionally residential or contact like the NWU. The central question that the study therefore asks is how the students experienced and perceive the various ICTs that were used for ERT&L at the NWU. A Media System Dependency Theory and a Transactional Model of Communication is applied to describe T&L process during Covid-19 from a communication perspective. Below is an overview of how T&L transpired in institutions of higher learning during Covid-19.

2.4 Teaching and Learning During Covid-19: An Overview

The Covid-19 pandemic compelled universities to shift entirely from face-to-face to remote T&L, resulting in an unexpected new educational environment for both lecturers and students. Some scholars hold that remote teaching and learning has not been anticipated, and most of the course syllabus were not designed to be an online or a distance learning experience. For example, Rahiem (2020) maintains that lecturers designed and implemented remote teaching and learning programs without any preparation or training. Similarly, students did not have the opportunity to be prepared for this transition in learning. Despite all these limitations, everybody tried their best to make the situation a success, with quick, and reliable temporary access to education in an unprecedented time (Rahiem, 2020). For Serhan (2020), some universities provided professional training sessions to their university stakeholders to ease the transition from face-to-face to remote instruction. Other universities provided internet access and different ICT platforms such as computers and laptops to their students to facilitate this quick transition. He further notes that the transition was challenging for students, lecturers, and management.

Remote T&L appear to have presented lecturers and students with several unexpected challenges. For instance, lecturers and students had to learn how to use new technologies quickly to teach and learn remotely (Lischer, Netkey & Cheryl, 2021). On the other hand, lecturers had to design new educational content that fit the new educational environment, provide an interactive remote learning environment, and adopt new assessment strategies so that T&L could carry on. Khlaif, Salha, and Kouraichi (2021) in their study titled: *Emergency remote learning during COVID-19 crisis: Students' engagement* acknowledges the notion that students and lecturers encountered difficulties with remote T&L. Their findings suggests that the transition to online teaching was sudden as there was no time to design high-quality content suitable for students. They also revealed that lecturers needed more time to design good content for their students, so they attended training to design content for all students. However, this needed a lot of time because of preparation and planning involved in designing the kind of content required for this emergency (Khlaif *et al.*, 2021).

It is clear from the above that T&L in institutions of higher learning was heavily affected by the Covid-19 pandemic due to lack of preparedness to deploy available technologies. This effect was more severe for lecturers and students who were not prepared for remote T&L. To provide additional perspectives on how remote T&L unfolded during Covid-19 Lischer, Saff, and Dickson (2021) in their research study titled: *Remote learning and students' mental health during the Covid-19 pandemic: A mixed-method inquiry* revealed that most university members experienced unexpected challenges with T&L due to the Covid-19 outbreak. The challenges include a lack of online T&L experience, a lack of time for developing distance-learning courses, and difficulty figuring out how to employ support from educational technology teams. Furthermore, the findings showed that the Covid-19 outbreak caused psychological consequences in students, such as anxiety, fear, and worry, among other things lack insufficient hardware and unstable networks. Whalen (2020) notes that most of the university stakeholders never attempted ERT&L or online teaching before, therefore, most of them felt overwhelmed and unprepared to use online or remote teaching strategies and devices.

Other scholars have suggested that ICTs have got some dividends that higher educational institutions have and going forward can harness (Mare, Woyo, & Amadhila, 2023). For Watson (2020) ICTs used for remote T&L have definite advantages which lecturers are happy about.

According to Jili, Ede, and Masuku (2021), the derivable benefits of remote T&L in the context of South African institutions of higher learning include social coexistence and cohesion. For example, ERT&L promoted peaceful coexistence and harmony between institutions of higher learning and students who comfortably studied from home. Moreover, the rate of social injustice and moral decadence on campuses dropped abruptly; therefore, the good institutional images of higher institutions in South Africa were sustained. The scholars' further note that ERT&L reduced financial burdens for students, and it also reduced T&L administrative costs for institutions of higher learning. Also, lecturers had limited physical contact with students, which invariably reduced incidents of abuse, blackmail, exploitation, and gender-based violence in universities (Hodges *et al.*, 2020).

For students, Rahiem (2020) in a study titled: *The Emergency Remote Learning Experience of University Students in Indonesia amidst the Covid-19 Crisis* argued that learning remotely at home gave them the flexibility to manage their time and they have a lot of family time and could study in a comfortable and quiet place. One of the student participants in the study stated that "*the flexible learning schedule matches our lifestyle, young people. Lecturers and students are increasingly turning to online learning as a viable alternative to study anyway, anytime*". The other student was also quoted saying "*studying online makes it easy for us to find places that make it easier to think about, such as open spaces, indoor rooms, and family rooms at home*" Rahiem (2020:15).

It can be concluded from the above that T&L during the Covid-19 pandemic had both shortcomings and benefits. The benefits are that remote T&L allowed students and lecturers to work from the comfort of their own homes, at their own time and pace, and without having to wake up each day to prepare for classes. Also, lecturers discovered that it was simpler to share academic content and conduct classes online because the content was easily accessible to students at any time. It is also evident that when remote T&L was implemented in institutions of higher learning during the pandemic, some students and lecturers struggled to adjust, while others positively experienced remote T&L.

Besides the foregoing dividends, Jili *et al.* (2021) highlight some factors that affected the operation and efficacy of remote T&L in South African institutions of higher learning. According to the scholars, the factors include the socioeconomic factors, the political and administrative climate in South Africa, the technological base, the psycho-cultural factors, and geographical factors.

Liyambo and Geduld (2019) note that several students from poor socio-economic backgrounds in South Africa had unfavourable learning environments such as being surrounded by negative influences from peers, places of work, and communities that do not value education. Thus, chances of students not performing well during remote T&L were high. The scholars further note that remote T&L was not effective in some of the South African institutions of higher learning because the South African government did not prioritise the administration of ERT&L. This means that the South African government did not implement good policies compliant with the latest trends in innovation and technological development to promote ERT&L for all students eligible for higher education. As a result, the experiences of students and lecturers with remote T&L during Covid-19 were challenging.

Another dimension which has received little attention in literature, and what this study attempts to address, is the impact that ERT&L had on communication between students and lecturers. This aspect is addressed in a study *The effect of online learning on communication between instructors and students during Covid-19 pandemic* by Alawamleh, Al-Twait, and Al-Saht (2020). Their findings suggest that students preferred classroom classes over online classes due to among other things many problems deriving from the decrease in communication levels between the students and their lecturers. The importance of communication in T&L is also emphasised by Wulff and Wulff (2004) who demonstrate the value of communication in aligning the content, students, and lecturer throughout the course. They conclude that communication plays an important role in learning.

Reflecting on my experience as a student at NWU, the transition to remote T&L appeared to be difficult for many students who struggled to maintain motivation and productivity in the new class format while others absolutely enjoyed it. Literature has linked effective engaging and interactive students-lecturer communication with motivation to learn (Jeffery & Bauer, 2020). Some students complained about the difficulty of working remotely as most of them had a shortage of internet connection at home, a lack of access to computers to attend online classes and at the same time, it was difficult to have effective communication with their lecturers, which contributed to poor academic performance. However, other students preferred remote T&L because it allowed them to work from the comfort of their own homes, at their own time and pace leading to good academic performance. Accordingly, it can be argued that remote T&L had positive and negative effects on students' T&L experiences in higher education institutions. For instance, remote T&L were perceived and experienced differently by students from various institutions of higher learning in

South Africa and around the world. It is from this perspective that this study seeks to better understand students' experiences with ICTs used for ERT&L during the Covid-19 pandemic. The conceptualisation of ERT&L as the concept that was used for temporary instructional responsive T&L during the Covid-19 crisis is discussed below.

2.4.1 Conceptualising Emergency Remote Teaching and Learning

The term "emergency remote teaching and learning" is defined as "temporary instructional responsive T&L to the crisis," as opposed to "pre-planned online learning" (Jeffery & Bauer, 2020). For Hodges *et al.* (2020), ERT&L is referred to as unexpected short-term instructional delivery to an online delivery model because of a global crisis, contrary to the online academic programs originally planned and designated to be delivered virtually. Similarly, the UNESCO IESALC report defines the term ERT&L as 'transforming the classes to a virtual mode, but without changing the curriculum or the methodology of the face-to-face format (UNESCO IESALC, 2020). Basically, the 'emergency' aspect of remote learning relates to the sudden and unintentional shift to online course delivery through different delivery modes and technological tools as a response to restrictions from face-to-face instruction (Schwartzman, 2020).

Different terms have been used by different scholars to describe the T&L process since the outbreak of the Covid-19 virus (Kumar Basak, Wotto, & Belanger, 2018). The terms include digital learning, e-learning, distance learning, virtual learning online learning, and emergency remote learning. Although these terms may have different meanings, they have been used interchangeably to describe what has been taking place in higher education institutions during the pandemic. Jili *et al.* (2021) contends that whether ERT&L were conceptualised as open learning, online learning, and distance education, based on respective individual or institutional perceptions, this phenomenon gives all students unlimited and unrestricted access to meet their higher education needs outside of institutions, in the comfort of their own homes and the nearest libraries. Thus, the term ERT&L is defined from various viewpoints by different scholars.

There are considerable gaps in theory and numerous different definitions of ERT&L, limiting the extent to which effective comparison and conclusion can be made. Therefore, the numerous definitions of ERT&L cannot be generalised or combined as they have various connotations and meanings. For instance, emergency remote learning may take place online, and share similar components as online learning, digital learning, e-learning, distance learning, and virtual learning,

but it differs from these methods of learning because of design. The difference in design may be the reason for several other differences such as the structure, policies, communication, quality assurance, delivery instructions, and integration of technologies.

Korpershoek, Harms, de Boer, van Kuijk, and Doolaard (2014) note that the word “remote” is derived from the Latin word *removere*, which transmuted to *remotus*, to mean “move away or move back” or simply “removed”. In its basic form, “remote” therefore implies far-flung (or far afield), isolated and distant (from the actual source or epicentre). ERT&L, therefore, entails delivering curricular contents, instructional material, or educational resources to the target learning audience physically away from the centre or institution of learning. For Jili *et al.* (2021) ERT&L is a feasible alternative amongst learning students unconventionally dispersed, either locally or abroad, with limited contact to educational facilities and instructional materials for their learning needs. The scholars further note that ERT&L is the transmission of curricular contents, which de-emphasizes person-to-person contact. This contact involves both educators and learners, therefore, it is transmitted overboard beyond the limit of space or number through an online medium (employing electronic networks and devices).

There can be no doubt that the transmission of curricular contents to students in remote spaces through digital technologies fits the description of mediated communication between sender and receiver in different locations. It is thus important to emphasise here that the ICTs deployed for communicating teaching during the Covid-19 pandemic was not designed for T&L but was an emergency response to new circumstances in which in-person teaching was not possible. While other scholars emphasised that there was not enough time to plan and prepare the teaching content in a way that is usual for online courses, the communicative capabilities of these ICTs in a learning environment might not have been given adequate attention. The following section reviews available literature on what are commonly believed to be the shortcomings and benefits of ERT&L in higher education institutions.

2.4.2 The Shortcomings and Benefits of Emergency Remote Teaching and Learning

As previously alluded to T&L during Covid-19 had both benefits and shortcomings. To bring this discussion into more perspective, it is important to further highlight some of the benefits and challenges as found by previous scholars. For Rahiem (2020), in a study titled: *The Emergency Remote Teaching and Learning Experience of University Students in Indonesia amidst the Covid-*

19 Crisis, students saw ERT&L as flexible, but on the other hand, they also saw it as challenging. The study found that learning remotely at home gave students the flexibility to manage their time by being able to access lecture content asynchronously at their own convenience. Students said that during remote learning, they had a lot of family time and could study at convenient times. This time was however affected by the fact that recorded content did not allow real-time communication between students and lecturers. There was also concern about work overload in the form of fleeting messages and many assessment tasks which prompted students to miss on important communication and sometimes find it difficult to do self-care (Rahiem, 2020).

Contrary to the above benefits, some students felt that compared to face-to-face learning, remote T&L was much more tiring. Learning remotely made students susceptible to interruption by their siblings and other events at home, which from Shannon and Weaver's communication perspective could be likened to 'noise' (Narula, 2006). These noises, comprise of semantic noise, channel noise and feedback noise. One of the main shortcomings of technologically mediated emergency remote teaching and learning reported in literature concerned channel noises, which for Narula (2006:27) has various connotation such as state of technology, operation of technology, social access to these channels and people's actual exposure to the technologies. These noises are adequately captured by Rashid (2020) whose study reported students' complaints about accessing internet from the village. According to Rashid (2020), learning during Covid-19 was affected by technological disruption, expensive internet costs, and difficulties in obtaining learning materials during the emergency remote learning.

The difficulty of accessing the Internet, I was at home during this distance learning process. This makes me experience delays in getting information because access to the Internet in the village is a bit difficult, the internet connection is bad in my area (Rahiem, 2020:17).

Other scholars who reported limited internet access or a lack of a dedicated workspace where students could take their classes are Means and Neisler (2020) and Perets, Chabeda, Gong, Huang, Fung and Ng (2020). Concerns about effective communication in T&L especially regarding lecturer-to-student communication and the understanding of course content have been raised by many other scholars. Dutaa, Panisoaraa and Panisoaraa (2015) suggests that without effective communication, the T&L process can hardly take place accordingly. Conversely,

effective communication has potential to “create a more successful T&L ambience for the students” (Dutaa, Panisoaraa and Panisoaraa, 2015:1008).

In the South African context, studies that have solicited students’ perspectives on T&L during Covid-19 had similar findings. In their study titled: *Students' Perceptions of Online Teaching and Learning amid Covid-19: A case of University of Limpopo*, Malatjie, Masuku, and Baloyi (2021) revealed that online T&L in South African universities had both positive and negative impacts on the students. Several challenges were raised by students which include poor connectivity, lecturers' unpreparedness, and a lack of devices. Moreover, some students indicated that the new system has advantages such as recording the lecturers for revision purposes. And considering all this, the scholars recommended the implementation of online T&L policies at the institutions of higher learning.

The greatest undoing of remote T&L, that also emerges in Chapter Five of this study relates to how communication was interrupted during Covid-19. ERT&L was in some cases experienced as more linear mode of communication which compromised simultaneous engagements between students and lecturers. Previous studies have reported that some students have found course concepts more challenging or confusing largely due to a lack of clear communication from their instructors online (Hsu & Goldsmith, 2020). Due to distance between the lecturer and students, there was reduced engagement and motivation in ERT&L more particularly because of reduced opportunities for social interaction with peers and professors (Hsu & Goldsmith, 2020).

However, researchers have also identified additional benefits for students in T&L during Covid-19. One study found that students were more willing to attend office hours in a virtual setting, which has had a positive on their learning achievements (Hsu and Goldsmith 2020). Further, students had more time in general due to the pandemic, which enabled them to dedicate more time focusing on their studies and schoolwork (Supriya 2021). According to Mukhartar, Javed, Arooj, and Sethi (2020), emergency remote teaching and learning enabled students to easily access teaching materials. It also reduced the use of travel resources and other costs. It simplified administrative tasks such as recording lectures and marking attendance, and the students had evolved into self-directed learners who could learn asynchronously at any time of day.

Yousey (2021) examined the *perceptions and experiences of seniors about in-person and Emergency Remote Teaching and Learning at Harvard University*. Participants' perceptions were

generally negative, with a few positives. The study revealed that participants could identify both the benefits and drawbacks of remote learning. The findings also revealed that the flexibility afforded to students and the ability to take learning into their own hands continued to be a benefit for many students during Covid-19. On the other hand, many negative attributes have also carried over. These include reduced engagement and motivation in emergency remote courses have been found to have negative impacts on students' perceptions of their learning.

Together, the pros and cons of ERT&L have brought into sharp focus the use of ICTs in T&L, which is discussed in detail below.

2.4.3 The Use of ICTS in Teaching and Learning During Covid-19

The pandemic has compelled the education sectors to shift dramatically to virtual and blended modes of T&L using various Information and Communication Technology (ICT) tools. ICTs played an important role in almost all spheres of life during the spread of Covid-19. During that time, many countries were in lockdown, and ICT tools were used to communicate with citizens to decide on further strategies to run, and make citizens aware of different plans and policies, what decisions have been taken, and information about the current situation. In institutions of higher learning, ICT tools were used to prevent students' academic loss, to keep students in touch, to keep them engaged, to assign some work to them, and take responses.

Patil (2020) explains that during the lockdown period of covid-19, all schools and colleges were closed. To avoid losing academic time, educational communities across the world came together to figure out various ways to support students and teachers with innovative platforms and strategies. Various ICT tools were employed to keep students engaged. Sharma (2021) mentions how, during the pandemic's uncertainty and constant fear, technology has been a source of hope and a support system in many ways. School/College teachers used social media platforms such as WhatsApp to share audio clips, documents, and PDFs, as well as assign students' duties such as completing assignments, taking tests, and publishing results, among other things. Technology allowed for the mitigation of the extreme damage that could have been done to the sector. Educational communities have been using various platforms like Google Classrooms, Microsoft Team, Zoom, and many more to continue the process of learning for students amid the pandemic. This has revealed the potential ICT tools hold to sustain the education sector in times of crisis.

NWU, as was the case with many other universities adopted various ICT platforms to reach out to students in difficult times. Students and teachers relied on various ICT platforms for T&L. As will be shown in Chapter Five, there was at NWU a widespread use of ICT tools like Zoom, MsTeams, Emails, WhatsApp, SMS messaging, and eFundi, to facilitate communication with students. These and other web-based collaborative tools allowed for video conferencing that provides quality audio, video, and screen sharing, virtual conferences, online meeting, webinars, which, taken together, were ideal for online lectures (Serhan, 2020).

Without a doubt, the incorporation of new technologies has greatly helped to ensure that meaningful activities are conducted in institutions of higher learning, particularly under the exceptional conditions caused by the impact of Covid-19. Here, virtual applications significantly improving educational access by university students (Mendoza, Rodríguez & San Andrés, 2020). The incorporation of these ICT tools has resulted in the saving of an academic year that had been impacted by the severity of the Covid-19 restrictions. The impact of technology incorporation in institutions of higher learning can be observed not only in the methodologies used in the teaching-learning process but also in the possibilities for innovation and skill development in response to the changes that educational institutions have had to undergo because of the pandemic (Moreno, Rodriguez, Gomez, Ramos, 2020).

Based on the foregoing, it is evident that the unexpected global crisis of Covid-19 has presented numerous challenges to the education sector, and these difficulties have prompted people all over the world to consider potential solutions to the challenges. Technological advancements have enabled the educational sector to navigate through such trying times. The industry has been utilizing technology to develop a variety of potential solutions, such as the adoption of various ICT tools. These initiatives ensured that students had access to a variety of educational resources and allowed them to continue their education virtually. The value of e-learning using ICTs has been acknowledged by a variety of stakeholders in the educational community. One such value is to enable lecturer-to-student communication in almost the same way the interaction occurs in a face-to-face class-room environment. This is particularly so because of the interactive capabilities the new media bring (Serhan, 2020). However, questions on the effectiveness of student-to-lecturer communication, which is one of the issues central to this study, cannot be ignored as any communication through ICTs is susceptible to channel noises (Narula, 2006).

T&L, as argued in this thesis, is a communication process. The Transactional Model of Communication surmises that in this process communication is a simultaneous interaction where feedback is central. Here while lecturer is speaking, a student generates feedback in many ways including through non-verbal cues and spatial distance from the lecturer (Narula, 2006). T&L thus translates into what the Transactional Model surmises as simultaneous participation in the communication situation, hence the argument that T&L during Covid-19 is a communication issue that must be studied from a similar perspective as this study attempts to do. Perhaps the importance of student-to-lecturer communication in the T&L process can be seen through the enduring presence of face-to-face lectures which remained indispensable during the pandemic. The need for face-to-face lectures compelled institutions of higher learning to combine both online remote learning and face-to-face lectures in what has come to be known as hybrid T&L.

2.5 The Rise of Hybrid Teaching and Learning Approaches

Hybrid learning, according to Ahmed, Mia Bhuiyan, Alam Helal, and Banik (2020), is a course delivery approach that combines face-to-face classroom instruction with online activities. As most countries gained control of Covid-19 and implemented various pandemic management strategies, hybrid T&L approach gained momentum in institutions of higher learning. During Covid-19, the approach reduced the amount of time students spend in a traditional face-to-face course and shifted the course delivery to various online platforms. Ahmed *et al.* (2020) observed that class activities in hybrid learning during Covid-19 were completed online while a limited number of in-person classrooms or other on-site group activities were required. This method of T&L was implemented in universities when Covid-19 restrictions began to ease. Universities executed this approach because some courses required students and lecturers to meet for lessons. For instance, at NWU students studying nursing, teaching, and science courses such as animal and plant sciences are expected to complete practical work to finish their academic qualifications. As a result, these students were asked to travel to their respective campuses to complete practical work in a face-to-face set-up with their instructors.

Literature suggests that students who were taught using the blended methods performed significantly better than students who were taught using the conventional methods. According to Bowen (2012), using innovative approaches while retaining the best aspects of pre-existing approaches has a positive impact on student achievement. For Ahmed *et al.* (2020), the hybrid practice provides flexibility to teachers in the preparation of learning materials and helps students

to juggle home and research requirements. Teachers do not need to deliver content at a specific time as it can be posted online for on-demand access. Nonetheless, teachers should review students' involvement on a regular basis and set up online appointments for students who have special needs or questions. Creating an asynchronous interactive classroom gives teachers and students more freedom. Bowen (2012) asserts that for individuals who cannot attend a traditional full-time face-to-face school due to personal or financial circumstances, the flexibility of asynchronous e-Learning may provide more comprehensive access to education. Moreover, even within traditional higher education institutions, hybrid or blended forms may help improve the quality of face-to-face teaching by moving content delivery online and focusing in-person sessions on active learning (Bowen, 2012).

Hybrid T&L have beneficial effects that were evident during Covid-19. Students were able to access lessons regardless of their physical ability or location. Crucially, hybrid approach enables improved dialogue between students and lecturers. The importance of communication between students and lecturers has been emphasised in the previous sections. The other advantages of hybrid T&L includes its ability to allow more time for students to learn at their own pace or on their own schedule, and a variety of learning methods from which students can choose. While universities globally have invited students and lecturers back to campuses as Covid-19 is manageable and restrictions have been lifted, in some institution's lectures are not being fully delivered face-to-face as some students choose to attend virtually. Certain institutions allow a limited number of students to attend classes, and students who are unable to attend classes are given the option of attending online.

The implementation of ERT&L, which included hybrid learning, is however varied from context to context. There is no doubt that the experiences in developed countries differ from those in resource constrained settings. The section below highlights the South African Socio-economic environment within which teaching, and learning occurs and its possible bearing.

2.6 Inequalities in South African Higher Education

In South Africa, the Covid-19 pandemic has revealed the inequalities in South African societies in general and its education system. More specifically it has laid bare the gross inequalities that are the legacies of apartheid. Wangenge-Ouma and Kupe (2020) argue that the spread of the Covid-19 pandemic in South Africa is intertwined with a pre-existing socioeconomic context

marked by poverty and unsustainable inequalities. Deep inequalities among institutions and within institutions remain unchanged more than a quarter-century after the democratic transition. The impact of apartheid-era underfunding and underdevelopment of universities that were historically designed to serve the educational needs of black South Africans continues to shape institutional categorizations within the higher education system. The impact of Covid-19 has stretched to breakpoint levels of these inequality fault-lines (Wangenge-Ouma & Kupe, 2020).

Schleicher (2020) and McDonald (2020) note that the call to adopt options for remote teaching and learning during the Covid-19 pandemic raised questions, because of the extent of inequalities in the South African universities. Many scholars believed that this crisis caused by the Covid-19 pandemic exposed the many inadequacies and inequities in the education systems ranging from access to the broadband and computers needed for online education and the supportive environments needed to focus on learning, to the misalignment between resources and needs. Mzangwa (2019) argues that since 1994 not much has been done in higher education to redress the inequalities of the past through higher education institutions' policy amendments through the National Plan for Higher Education (Ministry of Education, 2001). However, these amendments have not led to benefits for most previously disadvantaged black South African universities in terms of access to e-learning. Accordingly, when Covid-19 spread in South Africa, there was already an existing inequality in the South African higher education system that impacted South African disadvantaged institutions because of their disadvantaged social status.

According to Wangenge-Ouma and Kupe (2020), the shift to ERT&L has aggravated existing socioeconomic fault lines in South African higher education and society, mainly due to existing differential institutional resources in the sector and students' socio-economic circumstances, which limit their experience to receive the benefits of online education. A lot of universities are struggling with this transformation, mainly due to a lack of information technology infrastructure, insufficient expertise for online approaches, and an inability to provide computers and data to their students. For Wangenge-Ouma and Kupe (2020), historical resource differences in the sector have significant implications. They aggravate existing equity challenges, affect the ability of under-resourced universities to provide elite education, and undermine their public good role. These issues have developed over time, and the need for the sector and government to implement solutions to address them cannot be overemphasized. As such, there is a real possibility that some institutions may be permanently left behind.

Czerniewicz, Agherdien, Badenhorst, Belluigi, Chambers, and Chili (2020) contend that in South Africa specifically, the focus of the higher education response to the Covid-19 crisis emphasized the material inequalities that exist between historically white urban universities and historically black rural universities possessing the necessary technology and infrastructure to migrate its systems to the online space. One can see that South Africa has a deep-rooted inequality issue that impacts all sectors of the country. In the South African higher education sector, the Covid-19 pandemic has adversely affected an already broken and unequal system, putting students from disadvantaged academic institutions at a significant disadvantage. Before the end of apartheid in 1994, South Africa's higher education landscape was characterized by institutions that were differentiated along the lines of race and ethnicity. These institutions are usually referred to as historically advantaged (white) institutions and historically disadvantaged (black) institutions. In terms of this differentiation, historically advantaged institutions were advantaged relative to historically disadvantaged institutions regarding financial resources that were made available to each institution. For that reason, one can assume that under-resourced universities in marginalized areas struggled during the Covid-19 pandemic, whereas well-resourced universities, primarily in major urban areas, did not struggle during the pandemic. One of the key questions this study addresses are students' experiences of ICTs used for T&L during Covid-19. It is conceivable that these experiences would have been impacted by students' socio-economic status. As illustrated in Chapter Three, some of the dimensions of the channel noises include social access and exposure to technologies (Narula, 2006) which together are dependent on one socio-economic status. This brief overview of the higher education environment and socio-economic status quo in South Africa will be useful in the analyses of students' experiences of the technologies used for T&L during Covid-19. This analysis is provided in Chapter Five of this dissertation.

Wangenge-Ouma and Kupe (2020) further assert that in the South African context, public universities are contact institutions, and many of them lack established capabilities for online education, the preferred model for ERT&L. The country's only dedicated distance education university, the University of South Africa (UNISA), has consistently performed no better. Many universities have complained about a lack of efficient approaches in the country from which to design their online provisioning. However, some universities have been developing or conducting experiments with a hybrid or blended learning model in which contact sessions, seminars, laboratories, and practical are supplemented with online learning platforms that provide additional

activities, notes, and other learning resources. The approach has served those institutions well in their transition to ERT&L. In South Africa, historically advantaged institutions were already using the hybrid or blended approach and had already invested in technological resources to offer this method of T&L. Because of their privileged economic status, these universities were spared the effects of the Covid-19 pandemic when it spread throughout the country. Historically disadvantaged institutions, on the other hand, struggled because they had not yet offered online learning and were compelled to adapt despite lacking advanced technological resources (Wangenge-Ouma & Kupe, 2020).

NWU is one of the universities that combines both these characteristics due to the merger of historically privileged and historically disadvantaged universities whose historical characteristics are enduring even today. This study was conducted at the NWU site of delivery resembling a historically disadvantaged institution. It is interesting to find out how students attending at this campus experienced ICTs used for T&L during Covid-19.

Regardless of the varied social context and socio-economic inequalities characterising institutions of higher learning in South Africa and beyond, Covid-19 has occasioned significant changes in teaching and learning provision that even those institutions in resource constraint setting may need to contend with. There is no doubt therefore that institutions of higher learning must reflect on how to build a sustainable system of teaching, doing research, and engaging with society using technologies. The post-Covid-19 T&L environment, as outlined below, envisages a new and robust system in which online and physical presence is well balanced, efficiently articulated, and scientifically backed up.

2.7 The Post-Covid-19 Pandemic and Implications in Higher Education

Higher education institutions all over the world switched to technologically mediated emergency remote teaching and learning due to the national lockdown. As the lockdown eased, getting schools opened was a top priority for many countries. However, with Covid-19 restrictions continuing, a wider debate is in the spotlight over the future of education, particularly the role of universities and other institutes of higher learning. The debate focuses on how, in a new future for higher learning facilities, one of the most important considerations should be to shape the use of physical spaces. For instance, some existing areas in universities will need to be redeveloped, and new build locations will require a different approach to design and purpose. Furthermore, the

discussion is about how universities should embrace technology and invest in online learning. Gomez Recio and Colella (2020) are consistent with the views above. Gomez Recio and Collella (2020) note that going back to face-to-face activities will have to go hand in hand with re-thinking and re-designing the education model.

Post-Covid-19 in higher education Institutions will radically transform the way in which they offer teaching, learning, international mobilities, and collaborations. This will happen for various reasons, but mostly because the Covid-19 crisis questioned the status quo and showed the potential for change in higher institutions and the society in general. Moreover, the economic implications that will follow the pandemic (it is already happening), will generate massive gaps in the labour market, urging for new ideas and methods to ensure the re-entrance in the labour market for graduates. A more flexible approach to education will allow students to work while studying and build a tailor-made learning experience (Recio & Collella, 2020). Pham and Ho (2020) argue that to prepare for higher education institutions' future in a post-Covid-19 world, governments should have projects to financially and academically support higher education institutions that have not yet begun e-learning during the pandemic. With this kind of foundation, all institutions can establish universal platforms to function with the most updated management systems. Regarding the e-learning infrastructure, Pham and Ho (2020) maintain that the university has to prepare for the technological advancements of the modern global environment and also remain resilient to social challenges such as Covid-19.

Post-Covid-19 in higher education, no doubt, will require a massive transformation. Given that Covid-19 has shifted T&L to remote learning, institutions will need to invest in a variety of technologies to support the new approach to T&L. Higher education institutions should ensure that all their stakeholders (students, academic staff, and support staff) have the necessary resources, such as computers and laptops, to work remotely. Universities will need to upgrade their ICT tools to offer online learning. However, the transition will not be easy because universities might encounter various implications such as needing funds to invest in new technologies and stakeholder training to work remotely. Furthermore, another implication could be that there is a massive labour market gap caused by Covid-19; therefore, academic institutions must develop an education system that will prepare students for the workplace environment.

Additionally, given Africa's current status quo as a developing continent with most of its universities lacking advanced technologies prior to Covid-19, the transition of its universities

following Covid-19 might be difficult. In the context of this study, the focus is on South African universities, particularly those that are previously marginalized, with most students coming from disadvantaged backgrounds. The study investigates how students at those institutions, managed the transitions to remote learning. Institutions that are disadvantaged will need a lot of funding to make a drastic change in transitioning to online learning. It will require a lot of planning and change of policies to implement the method of learning and the universities will also have to make sure that students have the necessary resources for online learning. To be sustainable this process will require participation of students to give their input from their varied perspectives. Studies which solicit students' views on T&L, as the present study attempts to do, become imperative.

2.8 Conclusion

It is evident from the foregoing that the Covid-19 pandemic has highlighted the benefits and shortcomings of the education systems, as well as the need for digital literacy development in both developed and developing countries. Greater digitalization of educational services and communication may become the norm post-pandemic. The situation has called into question long-held beliefs about the role of higher education institutions in providing quality education, mode of delivery, accessibility, and the importance of lifelong learning (Rashid & Singh Yadav, 2020). In this scenario, higher education institutions may need to be innovative and creative to have a strong T&L foundation that accommodates both contact and online learning. It is critical that universities invest in advanced technologies so that, in times of emergencies, university operations are not affected, T&L carry on and communication remains effective. But the success of such efforts will depend on the involvement of students as key stakeholders in decision making. The NWU students' views and experiences of ICTs used for T&L during Covid-19 are presented in Chapter Five. Next is an outline of the theories underpinning this study.

CHAPTER THREE

THEORIES UNDERPINNING THE STUDY

3.1 Introduction

The previous chapter outlined the background of ERT&L and the various new ICTs that were introduced in higher education during Covid-19. The chapter revealed that T&L during Covid-19 was dependent on these new media technologies. It also showed that as T&L transposed from the physical classroom to virtual platforms marked by new tools, lecturers and students required new literacies to fully exploit their potential (Kist, 2005). The reliance on new media technologies for T&L communication is explained in this study through the lenses of the Media System Dependency Theory (De Fleur & Ball-Rokeach, 1976). However, that new tools required lecturers and students to have new literacies to fully exploit their potential raises questions on how T&L might have been affected by the emergency transition to remote delivery using novel media technologies. Addressing this question demands an understanding of how T&L in contact universities should look, an aspect that the Media System Dependency Theory falls short of explaining. To complement this deficiency, the study appeals to the prescripts of the Transactional Model of Communication (Barnlund, 1970; Narula, 2006) to explain the nature of interpersonal communication in academic contexts involving online written and verbal interaction amongst students as well as between students and lecturers. Taken together, these two theories, which are explained in this chapter in the context of media and society, provide analytical insights that have potential to enable a communication analysis of students' perceptions of ICTs used for T&L in higher education during Covid-19.

3.2 Media and Society

We live in an information society, where the media is a powerful tool for communication and connectivity. Lindgren, (2017) note that media and society are closely related to each other. Media helps to inform, educate, and entertain society. During Covid-19, the world discovered that the media could support individuals and communities to stay connected even when they are located far away. Governments and corporations used the media to make people understand events that were taking place around the world. Institutions of higher learning, as previously stated in this study, adopted various media platforms or ICT platforms for effective communication with

stakeholders, and for T&L. Tsao, Chen, Tisseverasinghe, Yang, Li, and A But (2021) share the same sentiments that media became a crucially important communication platform for governments, organisations, and universities to disseminate essential information to the public during the pandemic. For example, governments effectively communicated health information to the public through the media. Corporations used the media to communicate with their employees, keeping them informed on events and operations of the organisation.

Parvin, Ahsan, Rahman, and Abedin (2020) emphasize that people all over the world were largely depending on reliable news media. People wanted to know how their lives were changing during the lockdown, how many people had lost their jobs, how many had become infected, and how many had died through the media. Therefore, this means that the media can be used effectively as an important tool of communication to disseminate messages across the public in trying to ensure that the public is informed about contemporary events taking place around the world.

In South Africa, for example, the South African President Cyril Ramaphosa used media platforms such as television, radio, YouTube, and social media to disseminate the message to the citizens informing them about Covid-19 health regulations. The Covid-19 updates were delivered during the state of the nation address, during which the president requested citizens to follow Covid-19 protocols. The purpose of the state of the nation address was to keep the public informed about the government's efforts to combat Covid-19. Therefore, one can infer that the media in South Africa was a significant platform used to broadcast important Covid-19 news to the citizens. Moreover, in higher education, various media platforms such as ICT platforms were adopted for effective communication with stakeholders. For instance, at North-West University, the former Vice-Chancellor Prof Dan Kgwadi used various ICT platforms to communicate important institutional policy amendments to stakeholders. On the other hand, students and lecturers used media platforms such as WhatsApp, Zoom, MsTeams, Emails, and eFundi for effective communication, and T&L.

Zhou, Wang, Xia, Xiao, and Tang (2020) emphasize that the media played an important role during the pandemic, serving as a key source of health information for the public. The authors claim that media reporting about the Covid-19 influenced the public's attitude towards the disease, enhanced their self-protecting awareness, and convinced them that media coverage contributed to the prevention and control of the infection.

Taken together, the foregoing reveal the important role played by the media in societies around the world during the pandemic. The media was a useful tool to inform the public about the trends and global protocols to contain Covid-19. The institutions of higher learning were also through the media able to communicate with their stakeholders and deliver tuition without major interruption of the academic year. As a result, one could argue that the media facilitated changes in various societies and were a catalyst for social development as societies depended on the media whilst movement was restricted.

3.2.1 New Media as a Catalyst for Social Development

The media has a significant influence on society and can act as a catalyst for social development. In today's world, where everything works because of information, it is the media that introduces all types of changes and makes decisions based on public opinion. It raises public awareness. When social capitals use their power and privileges to do constructive work, the media is always behind. In South Africa during the pandemic, the media supported the government to broadcast important Covid-19 information to the citizens, supported corporations to run their businesses, and ensured that the economy did not slow down or stop, and so on. Acknowledging the important role of the media, which in most countries as with South Africa remained an essential service through the lockdown, the South African president, Cyril Ramaphosa remarked in an online news article that:

I must say that right at the beginning when we made the lockdown provisions announcement, the media, for a while, had not been identified as essential and you immediately raised the issue and it was an oversight on our part, which was quickly corrected because of your own interventions. Which we thank you for because the continued interventions between the media and government are quite helpful in societies during the pandemic (SABC News, 2020).

By bringing Covid-19 health and education information to the citizens, especially in remote villages, the media contributed to development in society. South Africans could communicate with one another using social media sites like Facebook and Twitter. The media kept a check on public policies and exposed government corruption. Moreover, the media provided educational opportunities regarding Covid prevention. For instance, institutions of higher learning were able to deliver education during the pandemic. Numerous ICT platforms, which are forms of media,

were adopted in intuitions of higher learning for ERT&L, and effective communication with stakeholders. Therefore, one can deduce that the media operated as a catalyst for social development during the pandemic in all spheres of activities. This further illustrates the extent to which society depended on the media as articulated by the Media System Dependency Theory.

3.3 Media System Dependency Theory

DeFleur and Ball-Rokeach's (1976) Media System Dependency Theory assumes that societies in states of crisis or instabilities are more likely to be reliant on mass media for information and be vulnerable to its effects (Zhanf & Zhong, 2020). According to Loveness (2008), the theory of media dependency posits that as turmoil and periods of political transitions exist, citizens are quick to turn to media as a source of reassurance and information. In its conceptualization, they (De Fleur & Ball-Rokeach, 1976) explained that the relationship between audience members and the media they consume should be understood in "the context of larger social systems" (Meiling Luo, 2018). The Media System Dependency Theory is further explained by Ball-Rokeach and DeFleur (1976) in the following manner:

- a. A person depends on having needs gratified through inherent media use.
- b. A symbiotic relationship is established between the individual and that particular news media or news medium; and
- c. As the individual becomes attached to that medium, it gratifies their desires and hence the medium becomes important to them.

The Media System Dependency Theory is focused on how people depend on the media for information when they are in a state of crisis. In essence, this implies that when people are in crisis their learning and exposure to information are limited, so they use the media to get more information about what is happening around them. Focusing on this study, society was reliant on the media during the pandemic. The world was basically in lockdown, corporations could not operate, and as a result, the media was adopted as a platform that citizens could rely on for information and communication. In addition, universities relied on the media as well. Due to the pandemic, universities could not operate, therefore, the media or ICT platforms were adopted for T&L, dissemination of information, and for communicating with the stakeholders.

Moreover, the Media System Dependency Theory rests upon three (3) paradigms that are useful for this study. De Fleur and Ball-Rokeach derived the following paradigms when coining the theory (1989):

- a. The Cognitive Paradigm: the premise of this paradigm lies in explaining when and why individuals expose themselves to the media and the effects of that exposure upon their beliefs and behaviour are to account for how people employ media to attain their personal agendas; and
- b. The Symbolic Interactionist Paradigm: this paradigm is interested in how the world created by the media, affects the ways in which individuals and groups interpret their interpersonal and social worlds.

They further posit that as individuals, we are increasingly “dependent upon the information resources of the media systems to tell us about a great variety of events, places, and people that we never encounter directly” (De Fleur & Ball-Rokeach, 1989). This description is a classic example and the primary focus of this study which is about the adoption of media or ICT platforms in society or higher education to serve as catalysts of development. As the theory argues, audience members depend on different kinds of media for different kinds of needs. For this thesis, institutions of higher learning engaged in the cognitive paradigm as they exposed themselves to the use of various media platforms to aid with T&L during times of crisis in society.

As set out earlier in this and the previous chapter, the shifting of T&L from physical to virtual classrooms where new tools (in both of novel technologies) were utilised required new competencies and dispositions from both lecturers and students to deliver effective T&L. Conceivably, this transition affected T&L, and the above theory lacks in its explanation on this aspect. In this dissertation it is argued that an explication of the way T&L was affected demands an understanding of how T&L in residential universities should look. Next is an outline of the Transactional Model of Communication (Barnlund, 1970; Narula, 2006) that explains the nature of interpersonal communication in academic contexts involving online written and verbal interaction amongst students as well as between students and lecturers. The ultimate objective is to gain analytical insights that would enable a communication analysis of students’ perceptions of ICTs used for T&L in higher education during Covid-19. The idea is to illustrate the thesis suggested in this study that T&L during Covid-19 was an issue primarily of communication.

3.4 Transactional Model of Communication

Dean Barnlund created the Transactional Model of Communication in 1970 to help interpret interpersonal communication as a simultaneous process of sharing meaning between two people. At the heart of the model is a multi-layered and constant feedback system between interlocutors based on a premise that people do not simply pass meaning from one to the other and back, but they must create a shared message purpose (Barnlund, 1970; Narula, 2006). Effective communication is thus possible through managing of the noise replete environments within which communication occurs. Thus, according to the model, sending and receiving messages are mutually exclusive communicative acts that explain human communication. As Narula (2006: 19) puts it, “concepts of interaction, self-generation, mutual exchange and information sharing, and mutual understanding explain human communication”. This prescript is applied in this study to explain student-to-lecturer communication where interlocutors exchange communicative roles to achieve learning, in an environment (Figure 3.1) susceptible to interference.

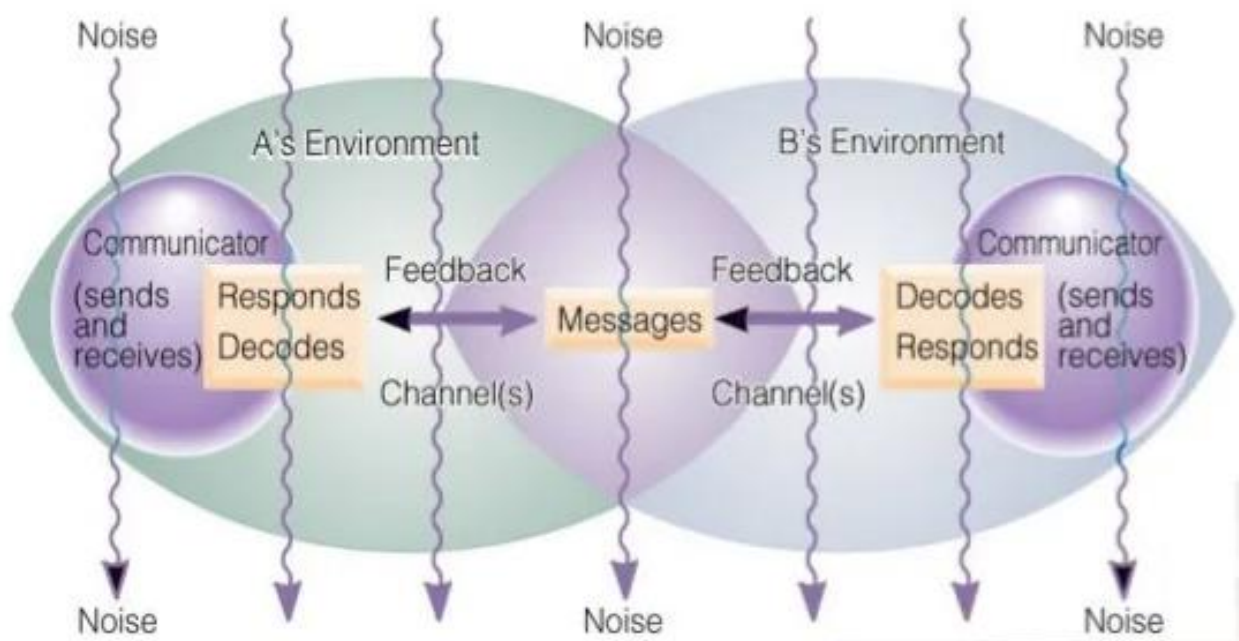


Figure 3.1: Communication environment

As shown in Figure 3.1, the communication process between two interlocutors (A and B) takes place within environments affected by noise. As seen in the figure, there is possible interference at all elements of communication along process due behavioural cues (verbal and non-verbal), private cues (verbal or non-verbal) and public cues which are associated with the communicator's physical environment. Noise is thus divided into three (3) factors namely physical barriers, physiological barriers, and psychological barriers, each has different connotations (Barnlund, 1970). Physical noise refers to those communication barriers external to both sender and receiver of the message. These vary at the sender level, channel level and receiver level. Physiological noise relates to barriers associated with the sender or receiver such as articulation; hearing, pronunciation among others, as with psychological noise which results from mental interference either on the speaker or receiver's side. These may be due to lack of concentration and wandering thoughts among others. For Narula (2006), noise can be semantic, channel and feedback. In mediated communication, determinants of channel noise include state of technology, operation of technology, social access to these channels and people's actual exposure to the technologies (Narula, 2006). Semantic and feedback noise arise from both physiological and psychological noise articulated above.

According to the model, each communicator reacts differently to the cues depending on their background, prior experience, attitudes, cultural beliefs, self-esteem among others. Thus, the effect and effectiveness of communication are the responsibility of both communicators and can be seen through the patterns of communication behaviour and relationships formed (Narula, 2006). Effective feedback, according to the model, creates convergence where interlocutors converge to reach mutual understanding while ineffective feedback creates divergence (Narula, 2006).

Crucially the model includes six assumptions about communication, two of which state that communication is complex and circular, especially in online written interaction such as that which marked ERT&L. The model is thus instrumental to show how both the channel (ICTs) and various noises conspired to affect T&L (the communication process) and how these were perceived by students during ERT&L. received and the response.

3.5 Conclusion

This chapter has discussed the theoretical underpinnings that inform this study, which surmises T&L during Covid-19 as a communication issue. Two theories, The Media System Dependency Theory and the Transactional Model of Communication constitute this framework. The Media System Dependency Theory is used to explain the reliance placed on new media technologies to deliver online T&L during Covid-19. The limitation by this theory to explain the nature of T&L as a communication process, and how this can be affected by ICTs is explained through the Transactional Model of Communication. The two-way communication process depicted in the model indubitably parallels the complexities that marked the online asynchronous T&L in institutions of higher learning delivered during ERT&L during Covid-19. That the model is meaning-centred and that both the sender and receiver (lecturer and students) must converge on a shared meaning conjures effective T&L session delivered online akin to the emergency remote learning during Covid-19. But how was it experienced by the students? The next chapter describes the methodology used in the execution of the study.

CHAPTER FOUR

RESEARCH METHODOLOGY

4.1 Introduction

The preceding chapters introduced the study and reviewed literature and theory related to T&L in the Covid-19 environment. In this chapter, the qualitative research methodology applied in the execution of this study is outlined. The methodology is described under five main topics adapted from Saunders, Lewis, and Thornhill's (2019) research onion. These are research philosophy, research approach, research strategy, techniques, and procedures as well as ethical considerations.

4.2 Research Philosophy

Research is generally understood as an intentional and systematic process aimed at searching or finding information about a research problem (Berger, 2016). Other scholars, for example Saunders *et al.* (2019:5) define research as "a process that is undertaken in a systematic way with a clear purpose, to find things out". Their definition emphasises two key aspects, that is 'systematic way' and 'to find out things'. By 'Systematic way' they mean that research is logical which requires researchers to explain the methods used to collect data, and a justification for why the results obtained are meaningful. The second aspect, that is to 'find out things' implies a multiplicity of possible purposes for research, which means that research has a clear purpose or set of 'things' to be discovered such as answers to a research question (Saunders *et al.*, 2019:5). What these two aspects suggests is a system or process involved in knowledge creation. For Saunders *et al.* (2019) this system is not arbitrary but is based on certain beliefs and assumptions guiding knowledge construction in a discipline, otherwise known as research philosophy.

There are three main assumptions that guide knowledge production. These include a) ontological assumptions which concern nature of reality, b) epistemological assumptions which concern human knowledge and c) axiological assumptions which concern the extent and ways researchers' values influence the research process. For Saunders *et al.* (2019) these assumptions influence how researchers frame research questions, the methods they use and how they interpret findings.

Different disciplines subscribe to different philosophies of research as their beliefs about the nature of reality (ontology) differ. Accordingly, the methods they employ in creating knowledge about reality (epistemology) and the levels of researchers' involvement and influence in the research process (axiology) also differ from discipline to discipline. Figure 4.1 below illustrates how different research philosophies influence and are aligned to different methodological choices and research strategies.

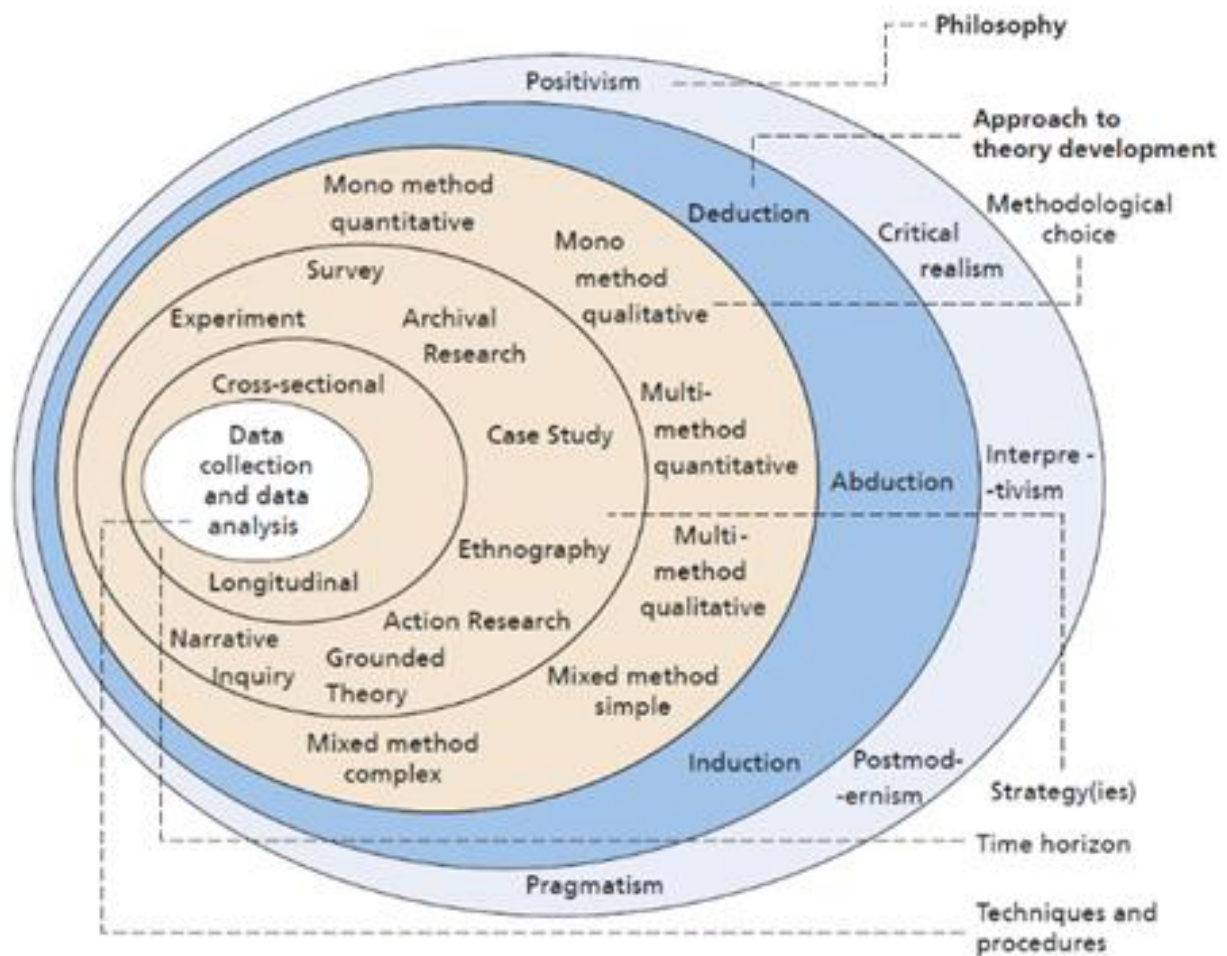


Figure 4.1: Research Onion. Source: Saunders, Lewis, and Thornhill (2019:130)

This study is located in the discipline of Communication Studies which adheres to a variety of philosophies from positivism to pragmatism, therefore, communication research can be either

quantitative or qualitative (Berger, 2016). This study is informed by an interpretivist philosophy which believes that knowledge is relative to experiences of different communities. According to this philosophy, “different people of different cultural backgrounds, under different circumstances and at different times make different meanings, and so create and experience different social realities” (Saunders *et al.*, 2019:149). What these demands for researchers who seek to understand phenomena is engagement in dialogue with people who experience the phenomenon. This is possible through a qualitative research approach that, as employed in this study, is described below.

4.3 Qualitative Research Approach

In accordance with the interpretivist philosophy, this study employed a qualitative approach, which involved a dialogue (Focus Group Discussions) with students at a university campus to explore their perceptions towards ICTs used for ERT&L in higher education during Covid-19. According to Berger (2016), the term ‘quality’ derives from the Latin word ‘qualitas’, which means “Of what kind?”. Berger (2016) adds that there is an element of evaluation and judgment and taste connected to the term quality, hence the objective to explore the quality of students’ perceptions towards ICTs used for ERT&L. Qualitative researchers study things in their natural settings, attempting to make sense of, or interpret, phenomena in terms of the meanings people bring to them. It is not concerned with quantifying phenomena, that is the quantities of information gathered, an approach that is common with positivists researchers. This distinction is shown in Table 4.1 used by Berger (2016:55) to illustrate typical questions that qualitative versus quantitative researchers ask.

Table 4.1: Distinction between qualitative and quantitative

Qualitative research	Quantitative Research
Evaluates	Counts, measures
Uses concepts to explicate	Process data collected
Theoretical	Statistical
Interprets	Describes, explains, and predicts
Leads to an evaluation	Leads to a hypothesis or theory
Interpretation can be attacked	Methodology can be attacked

As with the interpretivist philosophy, “qualitative researchers stress the socially constructed nature of reality, the intimate relationship between the study and what is studied, and the situational constraints that shape inquiry” (Denzin and Lincoln, 2005:10). The motive behind qualitative research is to find out how people feel or what they think about a particular subject. Denzin and Lincoln (2005:2) note that “qualitative research is multimethod in focus, involving an interpretative, and naturalistic approach to its subject matter”.

Considering the foregoing, qualitative approach was appropriate for this study because of its focus on the exploration and interpretation of, from a communication theoretical perspective using the Transactional Model of Communication, students’ perceptions towards ICTs used for ERT&L in higher education during Covid-19. A detailed explanation of this model was provided in the previous chapter, and its application in the analysis of findings is outlined further below.

4.4 Research Strategy / Design

Durrheim (2006) defines research design as a strategic framework for action that serves as a bridge between research questions and the execution or the implementation of the research. For Saunders *et al.* (2019) this framework for action is known as a research strategy, designed either as mono method qualitative study or multi-method qualitative study. In this study research strategy and design are used interchangeably to denote the general plan of how the research was executed to provide answers to the research question. Thus, according to Durrheim (2006), designing a study involves numerous decisions about how data is collected and analysed to ensure that the final report answers the initial research question. Pandey and Pandey (2015) define a research design as the setting of a research project, including how data is collected and managed to achieve set objectives. For Kumar (2011), a research design must demonstrate an operational plan that informs the various procedures required to complete an investigation; and ensure that procedures can obtain objective and accurate research findings.

A variety of research designs are aligned with the qualitative research approach in accordance with the assumptions of the interpretivist philosophy. Qualitative research can be designed as action research, case study research, ethnography, grounded theory, and narrative inquiry among others (Saunders *et al.*, 2019). This study employed an exploratory case study research design. Piekkari and Welch (2018) defines case study as an in-depth inquiry into a topic or phenomenon within its real-life setting. According to this definition, a case may be a person, a group, an

organisation, an association, a change process, an event, or any other phenomenon the case might be. This design was chosen not least because of its focus on context. According to Saunders *et al.* (2019:197), “a case study strategy has the capacity to generate insights from intensive and in-depth research into the study of a phenomenon in its real-life context, leading to rich, empirical descriptions and the development of theory”.

It is important to note that a case study design can also be deployed in a quantitative study (Saunders *et al.*, 2019). This is illustrated by Perri 6 and Bellamy (2012:103) who define a case study as a unit of analysis “that is defined and bounded by the study to answer a research question about a particular phenomenon, either empirically and inductively, or theoretically and deductively”. As already indicated, the case study was applied in this research from a qualitative perspective with an exploratory aim. Exploratory research is also at times referred to as qualitative research. In the social sciences, the goal of exploratory research is to learn what is happening in each situation and to investigate a social phenomenon without explicit expectations. Goundar (2012) defines exploratory research as “research conducted for a problem that has not been clearly defined”.

According to Goundar (2012) exploratory research relies on both secondary and empirical research and includes qualitative approaches such as informal discussions and more formal approaches through in-depth interviews, Focus Groups, projective methods, or case studies. For this study, the literature review or analysis was applied to understand different modes of T&L from a communication perspective or as a communication process. Focus Group Discussions were held with selected students at NWU Mafikeng campus, the participants who constituted the target population to generate empirical evidence for the study.

4.5 Techniques and Procedures

In this section the methodological techniques and procedures used during the execution of the study are described. These include identification of the target population and a description of the sampling techniques. Other procedures include those used for data collection and analysis.

4.5.1 Study Population and Case Selection

Population refers to a full set of cases or elements from which a study sample is drawn. According to Pandey and Pandey (2015), population refers to the total number of people in a specific group

from which a sample is drawn for research purposes. Griffie (2012) defines population as people (or things) that have characteristics or features that resemble what a study is looking into. In this study, the target population are students studying at the NWU. Various reasons contributed to the selection of NWU as a research site. Firstly, the students at NWU, as with any other university, were subjected to an abrupt transition to ERT&L during Covid-19. This qualifies them as an appropriate study population to generate data on students' perceptions towards ICTs used for T&L in higher education during Covid-19. Secondly, NWU has some characteristics of those institutions who might have struggled to access and use different ICTs deployed for T&L during Covid-19.

The case selected for the study, Mafikeng Campus, emerged from a historically disadvantaged university located near rural areas. It is one of the underdeveloped campuses that was historically designed to serve the educational needs of black South African students and continues to be dominated by many black students coming from rural disadvantaged backgrounds. As a result, most of them depend on financial funding support such as NSFAS to further their studies. It is conceivable that some of the students cannot afford ICT devices and internet connectivity, that for Hedding *et al.* (2020) were a luxury to them. It was therefore deemed interesting to generate perceptions of such students regarding ICTs used for T&L in higher education during Covid-19.

Not every student at Mafikeng campus participated in the study. However, a purposeful attempt was made to select a typical case that resembles different levels of study namely undergraduate and postgraduate students. For many reasons, it is not always possible in research to collect data from the entire population such as the whole NWU student population. Some of the reasons for this include budget implications involved in studying larger populations, time constraints, impracticality of studying a bigger population. Crucially the research question and nature of the study are also important determinants of sample size. Generally, quantitative studies seek representativeness and therefore tend to focus on larger populations while qualitative studies tend to focus on context and generally limit sample size (Creswell & Creswell, 2018; Saunders *et al.*, 2019; Perri 6 & Bellamy, 2012). The above case was intentionally selected with the hope that it will yield data that would allow holistic perspectives that are drawn from different students' experiences.

4.5.2 Sampling Procedure and Sample Size

According to Pandey and Pandey (2015:43), “sampling is the process of selecting a sample from the population”, using either probability or random sampling technique or non-probability sampling technique. Leedy and Ormrod (2010) averred that sampling is a process of selecting units from the total population of interest so that by analysing or studying the sample a picture of the total phenomenon can be determined. The primary purpose of sampling is that by selecting some elements of a population, the study can make conclusions about the entire population (Zindiye, 2011). Sampling and sample selection are made to save time and energy while also making a study less stressful and more manageable.

All participants in this study were purposely selected targeting students with the above-mentioned characteristics. According to Creswell and Poth (2018), the purpose of this sampling procedure is not to draw statistical conclusions, but rather to sample a group of people who will best inform the study(s) about the research problem under investigation. In purposive sampling, the study uses discretion and knowledge of the population to select samples that match features that are deemed crucial for a study (Pandey & Pandey, 2015). Both undergraduates and postgraduate students at the NWU Mahikeng campus constituted the sample of this study.

A total of thirty-six ($N = 36$) students comprising of twelve ($n = 12$) first-year, twelve ($n = 12$) second year, and twelve ($n = 12$) postgraduate students were purposely selected to participate in the study. The smaller sample size was arrived at in accordance with the tradition of qualitative research. According to Creswell and Creswell (2018), there is no prescribed number to how many participants or cases qualitative research should have sufficed to say that it is characterised by smaller number of participants. They note that depending on the qualitative design used, participants or cases may range between 3 and 30, while in some cases data collection stops upon reaching saturation. The number of participants in this study ($N = 36$) clearly falls within this range.

Undergraduate students (first and second years) were chosen by the study for a variety of reasons. Undergraduates are more likely to be unfamiliar with the university environment and processes when compared to postgraduates who are more familiar with the same. As a result, the study was interested in understanding how the undergraduate students managed to learn remotely considering their lack of university experience. The study generated data from first year

and second-year students to understand in-depth their perspectives on the use of various ICTs used by the NWU during the pandemic for remote T&L. Essentially the study established an in-depth understanding of how communication worked between the undergraduate students, lecturers, and the institution during the pandemic.

Postgraduate students were chosen on the basis that they had been exposed to both modes of learning. Therefore, data was generated from postgraduate students to understand their perspectives on the execution of various technologies in higher education used for the technologically mediated remote T&L. Fundamentally, the data was generated from the postgraduate students to understand in-depth how the communication was between them and their supervisors during the pandemic while using different ICTs.

4.5.3 Data Collection

The axiological assumption of this philosophy allows for researchers to be deeply involved together with their participants in the co-creation of knowledge. Accordingly, qualitative research generates information through different strategies such as semi structured observations and interviews documents, and visual materials, as well as other things. Data for this study was generated through focus group interviews (see Annexure One) with the selected participants. Three face-to-face Focus Group Discussions with 12 participants each were conducted in the School of Communication boardroom. Focus Group Discussion participants were recruited via a chain referral system.

Focus Group Discussions are qualitative interviews which involve unstructured and generally open-ended questions that are intended to elicit views and opinions from the participants. According to Lictman (2014), the main advantage of Focus Group Discussions is that they not only allow researcher control over the line of questioning but also sharing of ideas among participants. Lictman (2014) notes that many participants are not required for Focus Groups because generalization is not the goal, and that at least six (6) but no more than twelve (12) participants are sufficient. Escalada and Heong (2014) believe that participants in Focus Groups should be no fewer than eight (8) but no more than ten (10) in number.

In all the discussions, the goal was to learn about students' perceptions towards ICTs used for ERT&L at NWU during the pandemic to accomplish the study aim. Fundamentally, the study was able to generate data from the students, and the study got to understand in-depth the experiences

of students using various ICTs during the pandemic for remote T&L. The strategy allowed for a permissive environment in which participants were able to share their perceptions and points of view. The three discussions with similar but different participants allowed for the determination of trends and patterns in students' perceptions. All Focus Group Discussions were moderated by the researcher. Data was recorded through an audio recorder on the researcher's mobile phone which was later transcribed into text.

4.5.4 Data Analysis

After completion of the field work, all recordings were transcribed by the researcher. A deductive objective and theoretical driven thematic analysis were employed to analyse the findings. Deductive thematic analysis refers to a top-down approach to data coding and analysis "where the researcher brings to the data a series of concepts, ideas, or topics that they use to code and interpret the data. What this means is that the codes and themes derive more from concepts and ideas the researcher brings to the data" (Braun & Clarke, 2012:58). Accordingly, all the themes that emerged and presented in this study were deductively derived from the three main objectives of the study and analysed through the lenses of the Transactional Model of Communication as well as the Media System Dependency Theory underpinning this study.

The theoretical underpinning, together with the axiological assumptions of the interpretive philosophy that allows for researcher's values to be present in the study, allowed the researcher to draw on theoretical constructs to render visible issues that go beyond the semantic articulations of the participants (Braun & Clarke, 2012).

According to Alhojailan (2012), thematic analysis is best suited for all kinds of investigations that seek to discover and understand interpretations of data sourced from naturalistic settings and it enables the determination and relationship between various themes. Bazeley's (2013) states that thematic analysis is done by reading transcripts, then assigning labels or codes that represent an idea and later compared with other codes to generate broad themes. The thematic analysis process adapted for this study was such that Focus Group questions and responses were first grouped into themes. This process could resemble coding and thematization in the traditional thematic analysis process outlined by Braun and Clarke (2022).

In this study, the study used thematic analysis to study patterns of meaning from the collected data. Braun and Clarke's (2013) six-step process of coding guided the analysis. This includes

data familiarization, coding, searching for themes, reviewing themes, defining, and naming themes, and finally writing a report. The study analysed the data set to identify meanings in a process driven by the research questions and objectives. The transactional model was concurrently applied to interpret students' experiences of T&L during Covid-19 from a communication perspective. This is in accordance with the study thesis that T&L during Covid-19 is a communication issue.

4.5.5 Ethical Considerations

Maree (2016) states that all participants taking part in any study must be protected, kept clear of any harm, and may only take part in any research if they voluntarily agree to take part. This study was conducted in accordance with the ethical guidelines of the NWU Basic and Social Sciences Research Ethics Committee (BaSSREC) (see Annexure Two). First and foremost, a detailed approved application form was submitted to BaSSREC for approval to conduct the research. The application included the letter to the NWU gatekeepers requesting permission to conduct research.

To ensure voluntary participation, a consent letter was distributed to participants for their approval. The letter informed participants about the study's purpose and nature, as well as why the research is being conducted. They were reassured that their participation in the research is voluntary. Participants were also informed about their rights during the study. They were informed that they are free to withdraw from the research at any point and for any reason without any consequences.

Even after consent to participate in the study was secured from individual participants, the objectives of the investigation were also explained to the participants before the actual focus group interviews. All participants were assured that the study will be used for academic purposes only. Permission was also sought from the participants to audio record the sessions.

Confidentiality is another important ethical consideration in research. The researcher assured the participants that the interviews and Focus Group Discussions for this study we are going to be kept strictly confidential, and that data and information collected from them, as well as their identities, will not be disclosed to anyone and will be treated with strict confidentiality. To further ensure confidentiality, no names of individual participants are revealed in this report.

4.6 Delimitations and Validity of the Study

As with any research, this study was conducted within specific boundaries determined by the researcher. These imposed boundaries define the scope within which the study must be read. It is therefore important that a note on these be provided to guide the reading of the study. Firstly, the study focused on only one of the three NWU sites of delivery. There is no doubt that it would have been interesting to gain perspectives from the other two campuses namely Potchefstroom and Vaal Triangle. However, because of time constraints, limited funds, and perhaps the study focus, it was difficult and not necessary to expand the sampling to the other two campuses. For that reason, the findings of this study may not be generalized beyond this context.

Methodologically, this study employed qualitative research to discover participants' experiences, perceptions, and knowledge of the topic under discussion. While a qualitative approach is appropriate in this study because of its concern not with the quantities of information gathered but rather with the perceptions and experiences of the participants, a quantitative survey could possibly generate more insights on how widespread the perceptions reported in the study are among the NWU student population.

The above raises questions on the validity and reliability for the findings reported in the study. While the concept of validation of findings is generally straight forward in quantitative research, there are different criteria to measure qualitative validity. Different authors provide different criteria, for example Creswell and Creswell's (2018) "Qualitative validity", Polit and Beck's (2008) "Strategies to enhance quality in qualitative enquiry", and Lincoln and Guba's (1994), "Trustworthiness" among others. Different elements from the above criteria were employed to ensure the validity in this study.

Firstly, the idea of "neutrality" of Lincoln and Guba (1994) guided the researcher throughout the research process, as the researcher ensured no biases crept into the research process and results' description. Their second standard of "authenticity" was also helpful as the findings fairly and faithfully depict a range of different realities emerging from direct participants accounts which reveal their feelings and lived experiences. The participants accounts presented through direct quotes in the next chapter invites readers into what Lincoln and Guba (1994) call a "vicarious experience of the participants authentic lived experiences".

The study also relied on Polit and Beck's (2008) and Creswell and Creswell's (2018) "thick and contextualised description" as a strategy to ensure qualitative validity. In accordance with this strategy a rich, dense, thorough, and vivid description of the context participants, methodology, analysis, and interpretations are provided in relevant sections of the study.

While limiting the context, the delimitations described above have in no way impacted the validity of this investigation, especially considering the various strategies employed to ensure qualitative validity during the entire research process.

4.7 Conclusion

This chapter described the methodology employed for this study. The research philosophy approach, design and strategies applied in the study were outlined, relying mainly on Saunders *et al's.* (2018) formulation of research methodology. The chapter highlighted the interpretive paradigm and how it influenced the qualitative research approach adopted for the study. The research strategies for sampling data collection and analysis were also described. The chapter ended by highlighting some ethical considerations and qualitative validation strategies which were observed during the conduction and within the physical and conceptual boundaries (scope) of the research. In the next chapter, the findings generated through the research methodology outlined above are presented and discussed.

CHAPTER FIVE

PRESENTATION AND DISCUSSION OF FINDINGS

5.1. Introduction

The purpose of this study was to explore students' perceptions towards ICTs used for ERT&L in higher education during Covid-19. Selected undergraduate and postgraduate students at the NWU Mahikeng Campus participated in the study. Data was collected through Focus Group Discussions and are presented and analysed thematically in the following pages of this chapter. A Transactional Model of Communication and Media System Dependency Theory, being the theoretical underpinnings of the study, are applied in the analysis of the findings. T&L during Covid-19 orientated more towards media dependency as it was delivered through various media channels and ICTs. It is from this perspective that the thesis 'T&L during Covid-19 is a communication issue' can be understood. The importance of the theoretical ruminations of the Media System Dependency Theory in this analysis is therefore evident. But, since higher educational institutions including traditionally residential universities shifted towards a T&L delivery system that is dependent on the media, how did this affect communication during a T&L process transpose from face-to-face interactions to virtual space? How is communication between students and lecturers supposed to work in the first place? What are the key qualities it needs to have? Here, the analytical insights from the Transactional Model of Communication will be instrumental in unpacking the nature of T&L as communication.

5.2. Re-Stating the Study Aim

The aim that this study set out to accomplish was to understand what students' perceptions of ICTs used in higher education during Covid-19 reflect on the deployment of ICTs for T&L in traditionally residential universities through electronic communications media. To accomplish this aim, the study pursued the following four specific objectives:

- a. To establish which ICT strategies the NWU adopted in response to the Covid-19 outbreak.
- b. To explore students' experiences of ICTs used for T&L during Covid-19.
- c. To discuss students' views towards ICTs used for ERT&L during Covid-19.
- d. To apply communication theories in the analysis of T&L during Covid-19.

As highlighted in previous chapters, the study involved a sample of thirty-six ($N = 36$) undergraduate and postgraduate students drawn from the NWU Mahikeng campus. The participants' demographics (including areas and levels of study) are outlined next, then followed by a comprehensive presentation of the general findings from the units of investigation.

5.3 Participants' Demographic Information

Before proceeding to the analysis of findings, it is necessary to provide a description of participants who took part in the Focus Group Discussions. The demographic information includes the gender of the participants, followed by their age, the department or faculty they are registered with, and their level of studies. The gender of the participants varied, with more females than males. The researcher, who is female, purposefully selected more females than males to have a more open discussion. Among the thirty-six participants, there were about 67% females and 33%.

Participants were grouped according to different age brackets (<19; 20-29; 30-39; 40-49; 50 and above). Most of the participants were between the ages of 20 and 29 years ($n = 25$) which translates to 69%. Five (14%) of the participants were between ages 30-39 years, while three (8%) were 19 years, two (6%) 50 and above, and only one (3%) was between 40-49 years. This suggests that participants were relatively young adults who might have less experience to influence self-directed learning.

To accommodate the different levels of study both undergraduate and postgraduate students were represented in this study. The undergraduates consisted of first- and second-year students ($n = 24$), and they constituted Focus Group 1 (first year) and Focus Group 2 (second year). Postgraduates consisted of Honours, Masters, and Ph.D. ($n = 12$) and they constituted Focus Group 3. All participants were drawn from various schools constituting different faculties across NWU. While different faculties were represented, it is important to note that the study does not seek representation from each faculty across the NWU. the students' experiences reported in this study are also not discussed according to nuances of each faculty.

It is important to note that not every participant account is included in the findings reported in this chapter. The selection of quotes was discretionary, mainly to illustrate the three themes that emerged from the analysis. Accordingly, it was not possible to include everything that every participant said. To enable the reader to make sense of the patterns of the findings, and to avoid repetition of mentioning demographic data against each of the quotes, the demographic

information of only those participants from whom the included quotes constituting the findings presented in the following pages are listed in Table 5.1.

Table 5.1: Demographic Information of Participants

<i>FGD 1</i>	Participant	Age-group	Faculty
	P1	20-29	Humanities
	P2	20-29	Humanities
	P3	30-39	Health Sciences
	P5	20-29	Law
	P6	20-29	Education
	P8	<19	Theology
	P11	20-29	Economics and Management Sciences
<i>FGD 2</i>	Participant	Age-group	Faculty
	P1	20-29	Education
	P2	30-39	Natural and Agricultural Sciences
	P3	20-29	Tourism
	P4	30-39	Education
	P5	20-29	Natural and Agricultural Sciences
	P6	20-29	Health Sciences
	P7	<19	Law
	P8	20-29	Humanities
	P9	30-39	Economics and Management Sciences
	P10	<19	Theology
<i>FGD 3</i>	Participant	Age-group	Faculty
	P1	20-29	Theology
	P3	20-29	Health Sciences
	P4	50 and above	Education
	P5	20-29	Natural and Agricultural Sciences
	P7	30-39	Humanities
	P8	20-29	Education.
	P10	40-49	Economics and Management Sciences
	P12	50 and above	Health Sciences

5.4 Themes Emerging from the Analysis

The study findings are structured and discussed according to three objective driven themes arrived at through a deductive, objective and theoretically driven thematic analysis. Figure 5.1 is an illustration of the emergent themes coded from the study aim (light orange), research objectives (mustard) and key questions (blue).

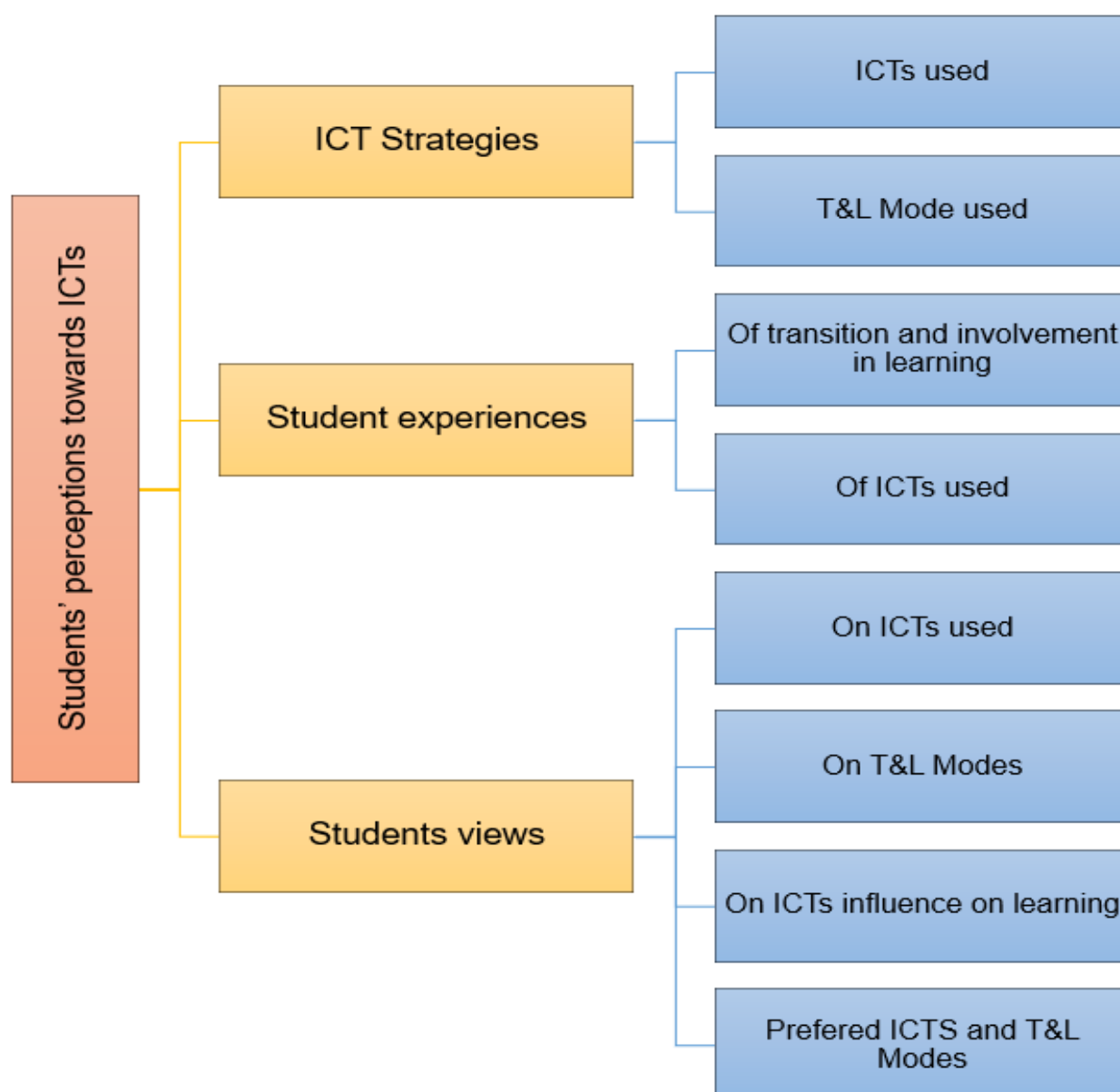


Figure 5.1 A Deductive Thematic Analysis of The Findings

The themes are analysed through the ruminations of the Transactional Model of Communication and the Media System Dependency Theory used as a theoretical grounding for the study. This, together with the axiological assumptions of the interpretive philosophy that allows for researcher's values to be present in the study, allowed the researcher to draw on theoretical constructs to render visible issues that go beyond the semantic articulations of the participants

(Braun & Clarke, 2012; Fereday & Muir-Cochrane, 2006). The semantic word content reflecting participants accounts on these strategies are highlighted through the Word Cloud figures in relevant subsections.

While semantic articulations do not take a central focus of the analysis, semantic data content is presented through word clouds derived from participants accounts presented through direct quotes under main themes in relevant sections of this chapter. As Figure 5.1 illustrates, the three themes discussed are a) ICT strategies used, b) student experiences of ICTs, and c) students views about the ICTs. Under each theme are various sub-themes illustrated below.

5.4.1 ICT Strategies Adopted by NWU During Covid-19

The NWU prides itself as a leader in digital transformation in higher education, which involves adoption of digital technologies for T&L (NWU T&L Strategy 2021-2025). Even before the emergence and declaration of Covid-19 as a global pandemic in 2020, NWU had already adopted an online management system known as eFundi, one of the ICTs deployed for T&L at NWU in the Covid-19 environment.

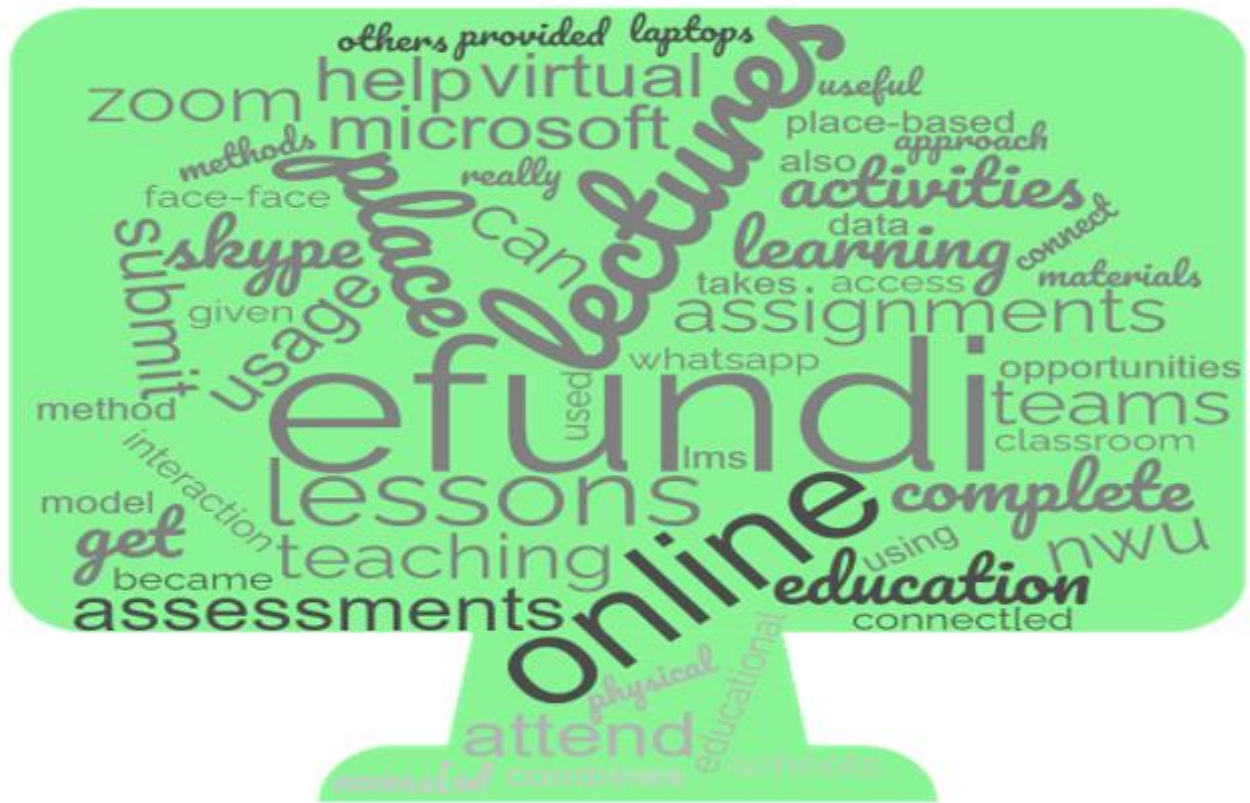


Figure 5.2 illustrates the semantic articulations of the participants drawn from direct quotes on ICT strategies used. The figure demonstrates how Covid-19 accelerated T&L's orientation more towards media dependency as it was almost exclusively delivered through various media channels and ICTs. As shown by the word cloud, the dominant technologies include eFundi, zoom, Microsoft Teams among others.

5.4.1.1 ICTs used

As already alluded to in the previous chapters, Covid-19 compelled institutions of higher learning to replace contact face to face teaching with emergence remote learning that was delivered online through different ICTs. All participants revealed that at NWU T&L during Covid-19 was managed through various online systems using ICTs such as eFundi, Microsoft Teams, WhatsApp, and

Zoom which were deployed in a remote and blended teaching also known as hybrid learning mode:

Students ... connect[ed] with lectures through usage of Zoom, Skype, and Microsoft Teams to get lessons from Lectures. And, with the help of NWU eFundi app, students' access[ed] activities, assessments, and assignments online, complete and submit them through the app (P4, FGD3).

eFundi learning management system was reported as the main technology used by students to engage with both lecturers and learning materials. Together, the above technologies enabled technologically mediated ERT&L, a strategy adopted after all face-to-face contact sessions, tutoring, supplemental instruction, and assessments (except for certain practical work in lecture venues, laboratories, and other teaching-learning spaces) had been suspended in accordance with Covid-19 protocols. This was illustrated by another participant who said, “*eFundi LMS became a place where T&L really takes place*” (P8, FGD2).

To facilitate the remote learning strategy, in the 2020 academic year, the university sourced laptops for final year students who had access to electricity and secure internet connectivity to enable them to complete their qualifications. Further to that, the university provided free Wi-Fi bundles to every student and lecturers as indicated by one postgraduate participant who said “*the schools provided data. Some students were given laptops*” (P10, FGD3). According to the then Vice Chancellor, Prof Dan Kgwadi as quoted in the Potchefstroom Herald (May 19, 2020), by May 2020 “at least 3 500 laptops [had] been sourced for students” (Motswenyane, 2020). Provision of gadgets to needy students was a common practice among many South African Universities (Mpungose, 2020).

The above technologies were instrumental in effecting ERT&L that was delivered through different modes of T&L. Here the Media System Dependency Theory shows us how T&L during Covid-19 heavily relied on new media technologies which became channels for the transmission of T&L. As explained in Chapter Two, the Media System Dependency Theory illustrates how in times of crises people depend on the media for information. In the context of this study, the Covid-19 crisis compelled higher learning institutions to use the media both to share information about the pandemic and to deliver T&L to their students. Chen, Tisseverasinghe, Yang, Li, and A But (2021) reported that during Covid-19 the media became a crucially important communication platform for

governments, organisations, and universities to disseminate essential information to the public. The above technologies were deployed in different ways and T&L modes at different institutions of higher learning for different disciplines.

5.4.1.2 Teaching and Learning Modes Used

As already established in previous chapters, ERT&L at NWU comprised of online learning (e-learning), which refers to “the use of educational technologies to enable access to learning and teaching material online” (Mpungose, 2020:2), and hybrid learning, which refers to a combination of both e-learning and face-to-face learning. It was important in this study to also establish students’ understanding and experiences of the learning modalities constituting ERT&L.

Participants were asked about their understanding of these learning modalities. The following comments show their understanding of the T&L modes through which the ICTs were deployed. Generally, students had a fair understanding of hybrid learning. A second-year student understood hybrid learning as *“an approach to education that combines online educational materials and opportunities for interaction online with physical place-based classroom methods”* (P10, FGD2). A more succinct definition was expressed by another student who indicated that hybrid learning *“is an education model where other students attend lessons face-face and others attend virtual”* (P1, FGD3).

The above understanding aligns with definitions of hybrid learning discussed in Chapter Two. The need to establish students understanding of hybrid learning was premised on an assumption that they understood face-to-face learning upon which most South African universities depended (Mpungose, 2020). After a discussion on their understanding, the ensuing discussions were based on a shared understanding of the learning strategies deployed during Covid-19. It was upon this understanding that participants were asked about their experiences with the ICTs deployed for emergency learning.

As most researchers have found, South African traditionally contact universities, as with many others, were compelled by Covid-19 to abruptly transpose T&L from face-to-face to emergency remote online learning which involved lesson delivery through different learning modes (Mpungose, 2020). This again illustrates how new media were the main channels for T&L that institutions of higher learning depended upon. As this T&L experience was new, it was bound to be experienced differently in different contexts by users who, as Kist (2005) suggest, had limited

perspective as a process that entails active or passive participation in communication. Remote learning may also be linked to mediated interpersonal communication through media channels whose impact on the effectiveness of communication may also differ. The analysis in this action draws much from the Transactional Model of Communication that views communication¹ as a simultaneous interactions involving generation of feedback in many ways including non-verbal expressions and not as a mechanistic causation (Narula, 2006).

5.4.2.1 Experiences of transition between modes of learning

Linked to their understanding of the modes, the study was also particularly interested in student's experiences of transitioning to and involvement in the mechanised remote learning. Some participants felt that blended learning was flexible and beneficial to their learning progress whilst others thought the strategy was challenging and disadvantageous towards their learning progress. From the first focus group of first-year students, participants seemed to have experienced the remote aspect of blended learning in both ways.

It affected me both in a positive and negative way. Positive in that it cut travelling costs and negative in that absence of interaction with lecturers slowed my progress to understand the work (P1, FGD1).

It was a bit hard to adjust since I was fresh from high school, but it was so easy to navigate to eFundi since instructions were there. Learning online through MS Teams/Zoom was not so difficult but I feel like we kind of missed a lot of content since some of us experienced technical glitches and others were indolent to attend morning classes (P3, FGD1).

The above sentiments were shared by almost every participant across the three levels. The second-year students who concurred indicated that:

It was difficult when remote learning was introduced to us students for the first time. But as soon as I realized that technology is there to develop our skills, it was easy to adapt. I

¹ Communication here and in the context of this study refers to the two-way interaction between the student and lecturer in the T&L process. The delivery of T&L at NWU, as with other residential institutions, was done through various ICTs during Covid-19 risking mechanistic causation of learning.

could work in my own space, and I could access everything related to my studies online without having any contact session (P4, FGD2).

It was really hard. Personally, I found it hard to adjust to the change. At some point, my marks were not as good as they were like during contact learning (P2, FGD2).

As with the undergraduates, postgraduate students also differed in their experiences of the transition. Some indicated that their transition to remote learning was flexible and instrumental in ensuring independent learning:

Honestly speaking I did not find any difficulty with this transition, and it helped me because I now know the importance of communicating and looking for more information and opinions, I have the skills to do further research and I've been passing well (P8, FGD3).

However, others felt differently as they were used to face-to-face interaction with their supervisors an element that was missing in the mediated interactions:

It had little impact. The main impact was limited interpersonal communication and ability to engage in meaningful discussions (P5, FGD3).

Together the above reflections corroborate previous research which identified both the benefits and drawbacks of remote learning among students although experiences were generally negative, with a few positives (Yousey, 2021; Mpungose, 2020). For Yousey (2021), the flexibility afforded to students and the ability to take learning into their own hands continued to be a benefit for students during Covid-19.

Meanwhile, Mpungose (2020) concluded that mediated T&L is devoid of personal features for students that can act as motivation to use ICTS for remote learning. Thus, negative attributes such as reduced engagement and motivation in emergency remote courses have been found to have influenced students' perceptions of learning through the online strategy. One honours student in Communication Studies did not mince her words when describing her experiences in both remote and in-person learning:

Remote learning lectures tend to have a lot of noise and distractions, and there is a higher percentage of not gaining much information due to the lack of focus. In-person lectures are free of distractions, and you gain a lot (P7, FGD3).

Clearly, learning either in-person or remotely was experienced by students as a communication practice. One of the greatest disadvantages of remote T&L as reflected in the above quote, relates to how effective T&L (communication) was compromised by what Narula (2006:14) called “a one-way mechanistic causation rather than mutual causation, which characterize human information systems that are fundamentally cybernetic”. Cybernetics is a concept coined by Norbert Wiener (1948) whose underpinning principle is ‘circular causality’ or feedback where interlocutors influence each other’s actions. In the process of T&L, this concept can be related to Paulo Freire (1973) praxis, that is reflective dialogue and action in education.

Accordingly, participants felt that *“the absence of interaction with lecturers slowed my progress to understand the work”* (P1, FGD1), and *“I feel like we kind of missed a lot of content since some of us experienced technical glitches”* (P3, FGD1), and *“the main impact was limited interpersonal communication and ability to engage in meaningful discussions”* (P5, FGD3). The Transactional Model of Communication identifies these challenges as some of the ‘noises’ that affect communication. Technical glitches and lack of understanding of the content depict what the model describe as channel noise and semantic noise respectively (Narula, 2006).

The above sentiments also reveal the communicative value that the technologically mediated remote learning strategy provided. The statement that *“honestly speaking I did not find any difficulty with this transition and also it helped me because I now know the importance of communicating and looking for more information and opinions”* is quite revealing in this regard. There can be no doubt therefore that communication emerged as a central aspect in students experiences of T&L during Covid-19 that was mainly dependent on the media as surmised by the Media System Dependency Theory. Without effective communication, the T&L process can hardly take place (Dutaa, Panisoaraa & Panisoaraa, 2015). Conversely, effective communication has potential to “create a more successful T&L ambience for the students” (Dutaa, Panisoaraa and Panisoaraa, 2015: 1008).

That students complained about the absence of interactions (P1, FGD1), and limited interpersonal communication (P5, FGD3) confirms the importance of verbal teacher–student interactions for meaningful student learning and motivation (Jurik, Gröschner & Seidel, 2014) whilst highlighting the importance of communication in T&L.

5.4.2.2 Experiences of ICTs used for the transition

The transition to remote learning was variously perceived due to different experiences with ICTs used. Some participants felt that ICTs used for remote learning were convenient and helpful as they allowed them to study at their own pace and improve engagement with lecturers.

They allowed me to have learning discipline, accountability, improve my presentation skills, technology use skills, and perform exceptionally good in my studies because I was able to study at my own pace and time (P2, FGD2).

They are very helpful; they keep us in contact with the Lecturers. In case one does not understand the content, they are quick, and they improve engagement and knowledge (P3, FGD3)

Discipline and accountability that accompany studying at one's own pace are important lifelong learning skills that students developed through use of ICTs in ERT&L. The ability to be self-driven through studying independently of the lecturer and initiative to contact lecturers are some of the goals universities seek to achieve by producing graduates who are independent thinkers.

Similar sentiments were echoed by a first-year participant who indicated that the use of ICTs was helpful to them.

Helped us a lot. We were able to engage with our Lectures. We could even go through uploaded slides during our spare time. They also increased our level of education in such a way that there's a lot we had to learn about the digital version. And that they have made it easy for our educators to reach us during the outbreak (P5, FGD1)

They made studying more enjoyable as amongst others one knew that they could always go back to the records and confirm information. This is unlike contact classes where maybe the lecturer will not even remember what they had said in class (P8, FGD1)

According to Dutaa, Panisoaraa and Panisoaraa (2015) new ICTs in T&L present new opportunities for communicating. The above sentiments confirm such previous studies that concluded that educational ICTs, as with those deployed for T&L during Covid-19, allow for an integration of students into the learning process via flexible access to learning materials (Barker and Gossman, 2013). The ability to engage (communicate) with lectures at any time suggests

one of the many communicative impacts that educational ICTs have on learning (Dutaa *et al.*, 2015).

Whilst some participants felt that ICTs used for remote learning were convenient, others, however, could not fully adjust to using e-learning platforms due to lack of skills. For example, a second-year student had a bad experience with the learning management systems as *“MsTeams and eFundi were difficult to operate and understand”* (P5, FGD2). This sentiment conjures commonly reported challenges in technological skills to operate the various ICTs by both staff and students. Previous studies identified challenges such as connectivity issues, access to technologies as well as power outages (Mpungose, 2020). The technological challenges identified by the students align with the Barnlund's Transactional Model of Communication's different connotations of channel noises articulated by Narula (2006). Key connotations of channel noises identified by Narula (2006) include the state of technology, operation of technology, people's exposure as well as physical and social access to these technologies.

These noises are further revealed by other participants most of whom lamented their effect so much so that they reminisced contact classes.

Sometimes you'd find that you're struggling to connect and that means you won't be able to attend the class nor participate ... In-person is better because power cuts don't interrupt the session (P10, FGD3).

I was able to access information simply. But they are not reliable, technical problems such as computer freezing, or eFundi malfunction make it a bad experience” (P6, FGD1).

Together, the above experiences further emphasise the channel noises that affect mediated T&L. Discussing communication barriers caused by ICTs in T&L context, Klimova and Semradov (2012) argue that insufficient training in ICTs by both educators and learners are a barrier to communication. This aspect is emphasised by Rahiem (2020) and Kist (2005) who found out that lecturers had to design and implement remote learning programs without any preparation or training of ICTs. Technological competencies and willingness to learn using ICTs, which may both be linked to one's exposure to these technologies (Narula, 2006) contribute to effective communication and efficiency of T&L (Klimova and Semradov, 2012). During Covid-19, Serhan (2020) note that some universities provided professional training sessions on how to use ICTs to their university stakeholders to ease the transition from face-to-face to remote instruction and to

achieve effective communication and efficiency of T&L. Other universities also provided internet access and different ICT platforms such as computers and laptops to their students to facilitate this quick transition to remote learning.

Regardless of the above challenges, some participants indicated willingness and agency to learn using ICTs. According to Dutaa *et al.* (2015), student's motivation and competency to learn is influenced self-efficacy which underpins independent learning. Through ICTs students had opportunities to undertake learning activities on their own and, as Dutaa *et al.* (2015) note, proved to themselves that they can achieve.

I resulted in high pass rate because of these platforms...I have been participating very well regardless of where I am. All places suit me to attend class only if my gadgets are with me (P4, FGD2).

I was able to study at my own pace and time (P2, FGD2).

The above suggest that through technologies, students became more engaged and self-directed as one participant indicated that they found themselves being able to ask more clarity seeking questions. One of the key underpinnings of the Media System Dependency Theory is that as an individual becomes attached to a medium, it gratifies their desires and hence the medium becomes important to them.

Together, the foregoing experiences influenced the overall views students had regarding ICTs used for ERT&L during Covid-19.

5.4.3 Students' Views about ICTs Used

Due to different experiences, students' views about the various ICTs used for T&L during Covid-19 are varied. The following word cloud, Figure 5.4, illustrates the semantic articulations of the participants drawn from direct quotes student used referring to students' views about ICT strategies used.

5.4.3.1 Views about ICTs used for T&L

Regarding ICTs used, participants had mixed feelings. Some viewed them as beneficial whilst others considered them as a hindrance. As one undergraduate participant revealed, ICTs used for ERT&L were very helpful. *“They keep us in constant contact with the lecturers. In case one does not understand the content, they are quick, and they improve engagement and knowledge. And lastly, they are cheaper”* (P5, FGD2).

The above sentiments were shared by other students, but not for all the ICTs used. One participant indicated satisfaction with most technologies except for Teams. According to this participant, most ICTs *“were user-friendly except for MsTeams. It was giving me a challenge most of the times”* (P6, FGD2). Other participants were happy with other ICTs except for the somewhat cumbersome eFundi. *“They were easily accessible and were user friendly except for eFundi that required a longer time for one to learn how to go about navigating information”* (P11, FGD1).

While participants might have a positive affinity with the ICTs used, bad experiences with power and connectivity influenced their views about these technologies. Such frustrations were expressed by other participants who indicated that

Well, the platforms worked. The problem was the issue of network for students who lived in remote areas and Eskom with load shedding (P8, FGD1).

Network coupled by loadshedding was problematic. Also, the cost of data. If those issues were resolved, I would rate it as highly effective (P1, FGD1).

Regardless of the challenges, some participants were optimistic that much could be done to improve these ICTs for future learning.

There were also great, however, if we ever encounter another pandemic in future, I think there is a lot that could be done to improve ICT efficiency. I mean we are now more aware and have a lot of information at hand on how to deal with pandemics (P3, FGD2).

One way of improving the user experiences is prior training, an aspect which lacked due to the abrupt speed with which ERT&L was introduced. This was revealed by one participant who appreciated the ICTs as *“very efficient although there was no time for induction to functionality of these platforms beforehand”* (P12, FGD3).

The Media System Dependency Theory (De Fleur & Ball-Rokeach, 1976) suggest that user experience and views about technological innovations have a bearing on both adoption and continued use of the innovation. Its theoretical supposition that a symbiotic relationship is established between the individual and media is evident in the above sentiments. This relationship between individuals and the media should be understood in the context of use (Meiling Luo, 2018) hence user motivation, and by extension communication effectiveness can be affected by user views, which are dependent on experiences of use.

Despite the acknowledged challenges, the foregoing indicate that the ICTs used for the ERT&L during Covid-19 were convenient and pedagogically appropriate technologies that, through training, students could enjoy using going forward. The views about these ICTs resonate with the following views on learning modalities where these technologies were deployed.

5.4.3.2 Views about T&L modes

As with views on ICTs, participants view on the T&L modalities within which these technologies were deployed were also varied. Some participants had favourable views towards virtual remote learning while others felt a combination of both contact and remote was better. Some students felt that while the ERT&L *“made teaching easy... there was no or little engagement between students and lecturers”* (P4, FGD2). This was perceived to have an impact of interpersonal relationships between lecturers and students. One postgraduate student who is a trained teacher indicated that

The difference mentioned previously is the interpersonal relations amongst people. Remote learning does not allow for interpersonal relations to be maintained and built whereas contact learning allows for it (P8, FGD 3).

Contact classes have order and structure, enabling fast learning and understanding as well as sharing ideas with classmates and the lecturers (P5, FGD 3).

However, other students felt differently. They felt that virtual learning was enjoyable as it facilitated flexible student to lecturer communication.

Sometimes we are struggling with content, and you must consult when other students are in class because you might find that we have similar questions. So, imagine going 1 by 1 to the lecturer's office to ask the same thing it would be tiring (P2, FGD2).

Furthermore, those who viewed online learning positively also felt that the physical classroom environment was constraining and intimidating.

In person lectures are very intimidating since you have a lot of people looking at you and you cannot be free to ask or comment in class but with remote lectures it was more comfortable since you are not seen only your voice is heard (P2, FGD1).

Previous studies found that virtual platforms facilitate both student-to-student communication, also known as collaborative learning, which is motivating. Accordingly, e-learning has consistently been acclaimed for its ability to facilitate free communication between students and lecturers as well as collaborative learning among students through functionalities such as forums, chat and email for discussion and feedback (Barker and Gossman, 2013). The ability to allow simultaneous participation and feedback in the communication process is what was referred in Burnlad's Transactional Model of Communication as circular or mutual causality which characterize cybernetic human interactions. For Freire (1973) dialogue where teacher and student influence each other's learning is ideal in T&L.

As is usually the case, for some students, contact classes allowed for more dialogue and engagement.

Contact gives me the sense of being a student by working up every day doing class activities and discuss as a class (P7, FGD2).

The university learning environment motivates you to study. With contact learning you have access to facilitators and extra facilities that you don't have at home like libraries, internet, and computer labs. Lastly you get moral support from fellow students and lecturers. Also, I believe this also impact the quality of the work you produce (P1, FGD3).

The above reflections on students' preference of contact lessons over remote lessons corroborate previous findings by Alawamleh, Al-Twait, and Al-Saht (2020) whose findings suggest that students preferred classroom classes over online classes due to among other things many

problems deriving from the decrease in communication levels between students and their lecturers. The importance of communication in T&L is also emphasised by Wulff and Wulff (2004) who demonstrate the value of communication in aligning content, students, and lecturers throughout the course. This suggests that communication plays an important role in learning.

The divided student opinions about different learning modalities are explained by different backgrounds and levels of study marking the profiles of the study participants (see Table 5.1). Senior students experienced learning modalities differently from junior students, as with those who owned devices prior to ERT&L.

5.4.3.3 Views about ICTs influence on learning

As already observed in the previous chapters, virtual platforms are not only storage or communication facilities but are also used to enhance learning. Participants were thus asked about how they experienced learning offered through different ICTs constituting ERT&L. Learning was impacted differently as students revealed sentiments that border around the ICTs' capability to, among other things, transfer learning, facilitate and constrain communication and collaborative learning, and enable self-directed learning.

For those students who lacked necessary skills to operate the technologies used to receive learning and provide feedback, ICTs made learning difficult. Here, learning was especially difficult because they had never been introduced to, or even prepared to use the new technologies. As a result, their learning progress was challenging and ineffective. The Transaction Model of Communication categorise these challenges as channel noises that are associated with exposure to technology and technology operations.

As already indicated, learning was affected because some platforms appeared unreliable as students frequently experienced technical issues during classes. Participation and attention in classes were also affected by frequent internet connection issues and a lack of resources and devices such as data and laptop computers.

During in-person learning- we would get to class, sit down learn and class would be dismissed. During remote learning- We would log on the platforms. Without network distractions, learning would continue. Classes were more interactive. It was as no longer one way communication (P4, FGD2).

Contact classes have structure and more organised, as students we have classes at a specific time and for specific days. Remote lectures are the opposite, there's no structure and classes happen haphazardly, as well poor audio problems make learning difficult (P3, FGD3)

The above challenges that affect understanding of content are described in the Transactional Model of Communication as semantic noises (Narula, 2006). Previous studies have confirmed that the use of ICTs in education has an impact on student achievement. They encourage independent learning and increases students' motivation to learn (Barker and Gossman, 2013). The following students' sentiments give credence to the above assertions:

It made me want to learn more, especially when it comes to technology, and the ability to apply information in the real world (P9, FGD2)

It's great so far and I got used to it. To getting information and enhancing my knowledge with the help of ICT platforms. It made learning easier. Being a first year and not knowing much about how things operate at university ICTs really helped me a lot (P2, FGD1)

On the other hand, the disruptions caused by connectivity and power outages in low resource settings such as South Africa disrupted learning.

In-person, we can engage fully in class without any problems, whereas with remote learning you miss important information because you experienced connectivity issues (P8, FGD3).

From a communication perspective, effective communication can be interrupted by noises surrounding the whole process of communication such as connectivity. Good educational content (the communication message) alone is not enough to achieve effective communication. Accordingly, technologically mediated remote learning affected the integrity of learning as reflected by one participant.

With remote learning, you could just connect to the lesson and go back to sleep until the class is over. But with in-person you have no choice but to take part (P2, FGD2).

Indeed, many scholars, for example, Chen, Azad, Fowler, West, and Zilles (2020) have lamented how un-proctored assessment have resulted in increased cheating therefore affecting the quality

of education. Increased concern has been raised on the extent to which remote learning has prompted laziness and removed the interpersonal flair that in person teaching and lecturing brings.

The last sub-theme emerging from the findings relates to the preferences students had about both the ICTs and T&L modes they were exposed to during Covid-19. It is only logical to discuss these preferences not least because their views on the same are divided. While it is not the intention of this study to generalize, an analysis of these preferences will incorporate a quantitative flair just to indicate what could possibly be described as NWU students' preferences towards ICT strategies used for ERT&L during Covid-19.

5.4.3.4 Preferences of ICTS and T&L Modes

Due to their experiences of online learning during Covid-19, students expressed opinions on the ICTs and mode of learning they would prefer. ICT platforms that majority of the students preferred include Zoom and WhatsApp.

Zoom was preferred for classes while WhatsApp was the choice platform for information dissemination.

I prefer zoom, it is easy to use. The application can be used in all most all smart phones (P6, FGD1).

I like WhatsApp it sends information faster and create a platform for effective communication between students and lecturers (P1, FGD1).

The instant messaging application WhatsApp was preferred by most students for communication because it is common among them and is easily accessible for engagements.

Students also expressed contrasting preferences between modes of learning. As shown in the word cloud, Figure, 5.5 further below, there was a fair distribution of opinion between contact classes and remote classes. Although sentiments were varied between postgraduates and undergraduates, most students especially undergraduate, who constituted most participants in this study preferred contact to remote lesson delivery mode. An undergraduate participant revealed that they preferred contact classes because they allow them to understand content

management systems as platforms to dump learning materials caused students to prefer contact class which allows student lecturer interaction. One second year student indicated that:

You can get to ask a lecturer where you don't understand without being disturbed by technical glitches It's where I fully understand the lecture and can be able to combine what I've read and what the lecture said. The most special thing is that even at the time of sit-down activities you can easily write because what has the lecture said will be reflecting (P3, FGD 2).

In contrast, postgraduate participants felt that they would choose remote learning over contact learning because it is time efficient, and students can learn at their own pace. This was echoed by an honours student who revealed that *"I would choose online learning because it's flexible and I can work at my own pace. It also helps me to balance my work and time as well"* (P4, FGD2).

For some students, online learning was a buffer against the pressure that accompany a face-to-face class where they are expected to participate even when they do not understand.

In person lectures require a lot, for example to show understanding even when you don't understand whereas with remote lectures you don't even switch on your camera. Even when you don't understand, you won't be embarrassed, and you'd still do things at your own time and pace (P8, FGD3).

The above reflects that web-based remote learning was preferred by postgraduate students due to the independence they bring to learning. This is not surprising because postgraduate students are matured persons who are accustomed to self-directed learning that takes place in institutions of higher learning.

5.5 Conclusion

This chapter has presented and discussed findings that address questions on students' perceptions on the ICTs used for emergency remote learning in higher education during Covid-19. ICT strategies the NWU adopted in response to the Covid-19 outbreak were identified and students' experiences of using these ICTs were discussed. The chapter also discussed students' views towards these ICTs. Throughout the chapter, a Transactional Model of Communication and Media System Dependency Theory were applied to analyse T&L during Covid-19. The findings

suggest that ICTs both promoted and constrained communication and collaborative learning. Indeed, learning during the ERT&L during Covid-19 was a communication endeavour facilitated by pedagogically appropriate ICTs just as much as it was affected by various connotations of channel, semantic, and feedback noises affecting mediated T&L. As with mediated interpersonal communication, learning was prone to different noises around the channel of communication. That students had varied experiences and views about the ICTs and their influence on learning indicates the need to situate learning in appropriate contexts suitable for the learners. Be that as it may, undergraduate students preferred contact classes whilst postgraduate students preferred remote learning.

It is pertinent to end by reminding the reader that the import of establishing students' perceptions on ICTs used for emergency remote learning in higher education during Covid-19 was to get a glimpse, from a student perspective, into how the deployment of these technologies might have affected the teaching and learning process. What then do the findings presented in the foregoing mean? What do the established students' perceptions reflect on the deployment of ICTs for T&L in traditionally residential universities through electronic communications media? The concluding chapter of this dissertation, which is presented next, addresses these questions.

CHAPTER SIX

SUMMARY, CONCLUSION AND RECOMMENDATIONS

6.1 Introduction

The study reported in this dissertation was a qualitative inquiry into students' perceptions towards ICTs used for the deployment of T&L in higher education during Covid-19. Thirty-six (N = 36) students at different levels of their qualification programs at the NWU Mahikeng Campus participated in focus group discussions on the topic. Departing from a premise that T&L during Covid-19 - though studied from an education, digital transformation, and other aspects - is a communication issue, the study applied the Media System Dependency Theory (De Fleur & Ball-Rokeach, 1976) and the Transactional Model of Communication (Barnlund, 1970) to analyse students' perceptions formed from their experiences of the technologically mediated emergency remote learning.

From the findings presented in the previous chapter whose semantic word content are depicted in Figure 6.1, the following conclusions, which constitute the structure of this chapter, are conceivable:

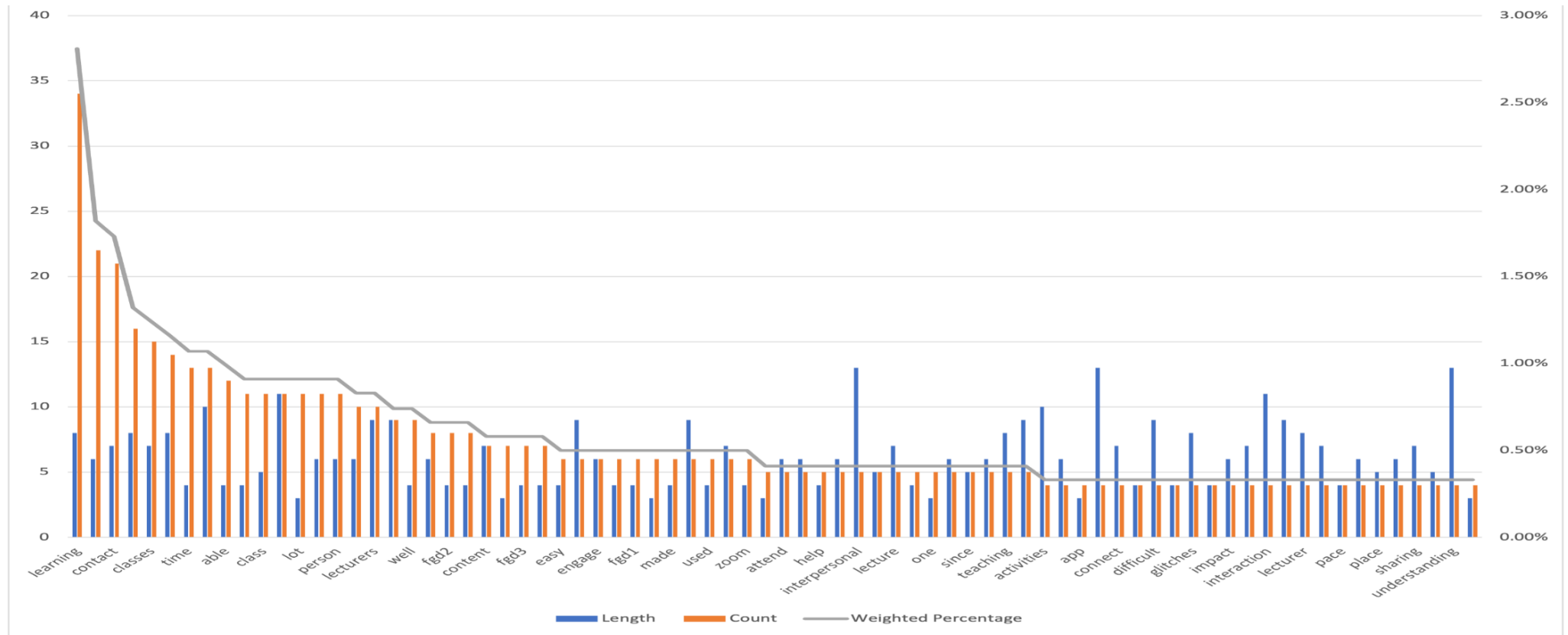
1. T&L was affected by the ICTs deployed to transfer learning
2. Communication plays a vital role in the transfer of knowledge
3. Remote T&L's effectiveness is dependent on the ICTs communicative capabilities
4. T&L during Covid-19 was a communication issue

It is pertinent that before the conclusions are discussed, a summary of the findings is provided after which a presentation of the conclusions and suggestions for further research are proffered.

6.2 Summary of Findings

Teaching and learning during Covid-19 shifted from the classroom to online platforms through new media that required new literacies by students and lecturers some of whom unfortunately were unprepared to fully exploit their potential. Accordingly, T&L was variously experienced due to different perceptions that students held about the ICTs used in the transmission of learning.

Figure 6.1: Summary of Findings



A wide range of ICT platforms with capabilities to enable interactive learning environments were deployed to deliver teaching and learning. Figure 6.1 is a semantic content summary of the technologies used, their challenges and affordances and their bearing on different aspects of learning, which together underpins the experiences and perceptions students had about these technologies.

The most common media technologies used include Zoom, MsTeams, WhatsApp, and eFundi, a learning management system that had been in use at the university prior to Covid-19. These technologies were used, among other things, as platforms to make announcements, set and send tests or assignments to students, and for students to make inquiries. Participants experienced these technologies differently due to both internal and external factors that affected the transmission of learning such as lack of training, understanding, and skills to operate these ICTs, limited access to digital technology devices, connectivity issues due to lack of internet access and reliable power supply (loadshedding) as well as various affordances or potential that digital technologies bring in the enhancement of learning.

Due to these varied experiences, students' views about the various ICTs were also varied. Some participants felt that ICTs used for remote learning were convenient and helpful as they allowed them to study at their own pace and improve student-to-student and lecturer-to-student communication and engagement. However, others felt differently as they were used to face-to-face interaction, an element that was missing in the mediated interactions. Regardless of the varied experiences, there was a general inclination towards willingness to learn using ICTs. Communication (either from student-to-lecturer or student-to-student) was the main issue around which both negative and positive perceptions towards ICTs were cantered. ICTs' communicative capabilities to facilitate collaborative engagement and comprehension was a key concern that influenced students' perceptions. These prompted different students to have different preferences between technologically mediated ERT&L and contact classes. Senior students experienced learning modalities differently from junior students, as with those who owned devices prior to ERT&L. Postgraduates generally preferred remote learning whilst undergraduates were inclined towards contact classes.

The key question that the study set out to answer is what these perceptions reflect on the deployment of ICTs for T&L in traditionally residential universities through electronic

communications media. Presented below are four conclusions as to what the findings conceivably mean.

6.3 Conclusions

The findings of this study echo previous studies that revealed various affordances that digital technologies brought in the enhancement of independent learning skills required in higher education. From a communication perspective, it can be concluded that learning during Covid-19 was affected by various 'noises' around the channels of communication used. As a result, learning progress was generally challenging. Four conclusions detailed further below are conceivable.

The first conclusion that can be drawn is that T&L was variously affected by the complexities characterising the new ICTs deployed to transfer learning. The sudden shift from the classroom to online platforms that used new media technologies required the socially, economically, and geographically differentiated students and lecturers alike to have new literacies to be able to exploit the full potential of the new media technologies. That students had varied experiences and views about the ICTs and their influence on learning indicates the need to situate learning in appropriate contexts suitable for the learners.

That student-to-lecturer communication was the main issue around which both negative and positive perceptions towards the ICTs were centred leads to a third conclusion that communication plays a vital role in the transfer of learning. Here, a further conclusion is that remote T&L's effectiveness is conceivably dependent on the ICTs communicative capabilities to facilitate lecturer-to-student engagement as well as student-to-student collaboration during the learning process.

Taken together, the above three conclusions demonstrate the conclusion and thesis of this study that indeed T&L during Covid-19 was a communication issue. Communication processes between lecturers and students as well as among students took place within a challenging environment influenced by different ICTs deployed for learning. For effective T&L (communication) to occur, the noises surrounding the whole process of communication needed to be moderated. Here, the findings demonstrate that good subject content (message) alone may not be enough to achieve effective learning (communication). It can therefore be argued that the transactional model of communication can provide theoretical bases for understanding T&L as a communication process especially considering how T&L was delivered during Covid-19.

6.3.1 Teaching and Learning was Variousy Affected by the ICTs

The complexities characterising the new ICTs deployed to transfer learning were critical in determining the perceptions students held towards ICTs. The sudden shift from the classroom to online platforms that used new media technologies required the socially, economically, and geographically differentiated students and lecturers alike to develop new literacies to be able to exploit the full potential of these new media technologies. That students had varied experiences and views about the ICTs and their influence on learning indicates the need to situate learning in appropriate contexts suitable for the students. This is especially so considering students' different social backgrounds that have implications on access to the technologies, ability to use them, as well as conducive environments where the technologies can be used without interruption.

That T&L shifted from the classroom to online platforms through new media reveals how new media were the main channels for T&L that institutions of higher learning depended upon. As these technologies were new and introduced to users with limited exposure as well as less experience in self-directed learning, effective learning was bound to be affected. As most researchers have found, South African traditionally residential universities, as with many others that were compelled by Covid-19 to abruptly transpose T&L from face-to-face to remote technologically mediated online learning, were not prepared for this abrupt transition (Mpungose, 2020).

This explains the reported challenges connected to the ICTs. Together the technological challenges identified by the students align with the Barnlund's Transactional Model of Communication's different connotations of channel noises.

6.3.2 Communication Plays a Vital Role in the Transfer of Knowledge

That student-to-lecturer communication was the main issue around which both negative and positive perceptions towards the ICTs were centred leads to another conclusion that communication plays a vital role in the transfer of learning. The students' perceptions reveal the communicative value that the technologically mediated remote learning strategy provided to learning. During Covid-19 communication emerged as a central aspect in students experiences of T&L that was mainly dependent on the media. While the Media System Dependency Theory can be instrumental to explain how universities relied on new media technologies for survival during the Covid-19 crisis, the Transactional Model of Communication proved useful in the

explanation of how these technologies can be susceptible to different interruptions that can affect learning.

As literature suggests, without effective communication, the T&L process can hardly take place (Dutaa, Panisoaraa & Panisoaraa, 2015). Conversely, effective communication has potential to “create a more successful T&L ambience for the students” (Dutaa, Panisoaraa and Panisoaraa, 2015: 1008). That students complained about the absence of interactions and limited interpersonal communication evinces the importance of interactions for meaningful student learning (Jurik *et al.*, 2014) whilst highlighting the importance of communication in T&L. The importance of communication in T&L is also emphasised by Wulff and Wulff (2004) who demonstrate the value of communication in aligning content, students, and lecturers throughout the course. This suggests that communication plays an important role in learning. For Rawat (2016), communication helps in the sharing of the knowledge and creates an amicable environment to facilitate interactions between the teacher and the students hence its vital role in the transfer of knowledge.

6.3.3 Remote T&L Depends on the ICTs Communicative Capabilities

As already indicated, the Media System Dependency Theory can be a helpful tool in showing how T&L during Covid-19 heavily relied on new media technologies which became channels for the transmission of T&L. While Covid-19 accelerated T&L's orientation more towards media dependency as it was almost exclusively delivered through various media channels and ICTs, a further conclusion can be that remote T&L's effectiveness is conceivably dependent on the ICTs communicative capabilities to facilitate lecturer-to-student engagement as well as student-to-student collaboration during the learning process. The ability to engage (communicate) with lecturers at any time suggests one of the many communicative impacts that educational ICTs have on learning (Dutaa *et al.*, 2015).

The ERT&L appears to have had an impact of interpersonal relationships between lecturers and students. This corroborates previous findings that educational ICTs, as with those deployed for T&L during Covid-19, allow for an integration of students into the learning process via flexible access to learning materials (Barker and Gossman, 2013). Despite the acknowledged challenges, the ICTs used for the ERT&L during Covid-19 were convenient and pedagogically appropriate technologies that, through training, students could enjoy using going forward. However,

technological competencies and willingness to learn using ICTs, which may both be linked to one's exposure to these technologies (Narula, 2006) contribute to effective communication and efficiency of T&L (Klimova and Semradov, 2012).

For Yousey (2021), the flexibility afforded to students and the ability to take learning into their own hands can be a benefit for students learning via new media technologies. While negative attributes such as reduced personal engagement and motivation in emergency remote courses remain a major concern, training users on how to use these technologies can facilitate a full optimisation of the interactive capabilities of these media in ways that doesn't interrupt their communicative impact for learning. This leads to the last, but crucial conclusion underpinning thesis advanced in the study.

6.3.4 T&L During Covid-19 was a Communication Issue

Communication skills play a crucial role in the teaching learning process as it facilitates effective transfer of knowledge (Rawat, 2016). It is thus not surprising that one of the greatest undoing of the ERT&L during Covid-19 concerns how effective T&L was compromised by what can be described in Narula's (2006) terms as a one-way mechanistic causation devoid of mutuality which marks the cybernetic human communication. That students lamented decreased interpersonal communication between themselves and the lecturers as well as among themselves reveals that T&L either in-person or remotely was experienced by students as a communication practice.

Communication process between lecturers and students as well as among students took place within environments affected by a lot of challenges manifesting at the different elements of the technologically mediated learning process that are akin to the elements of communication depicted in the Transactional Model of Communication discussed in Chapter Three. The model depicts communication as taking place within environments polluted by noises at the level of the sender, message, channel, and receiver. What this suggests is that good message alone may not be enough to achieve effective communication.

Figure 6.1 below is my attempt to reconfigure the communication process in the context of teaching and learning. The figure is modelled around the transactional Model of Communication presented in Chapter Three.

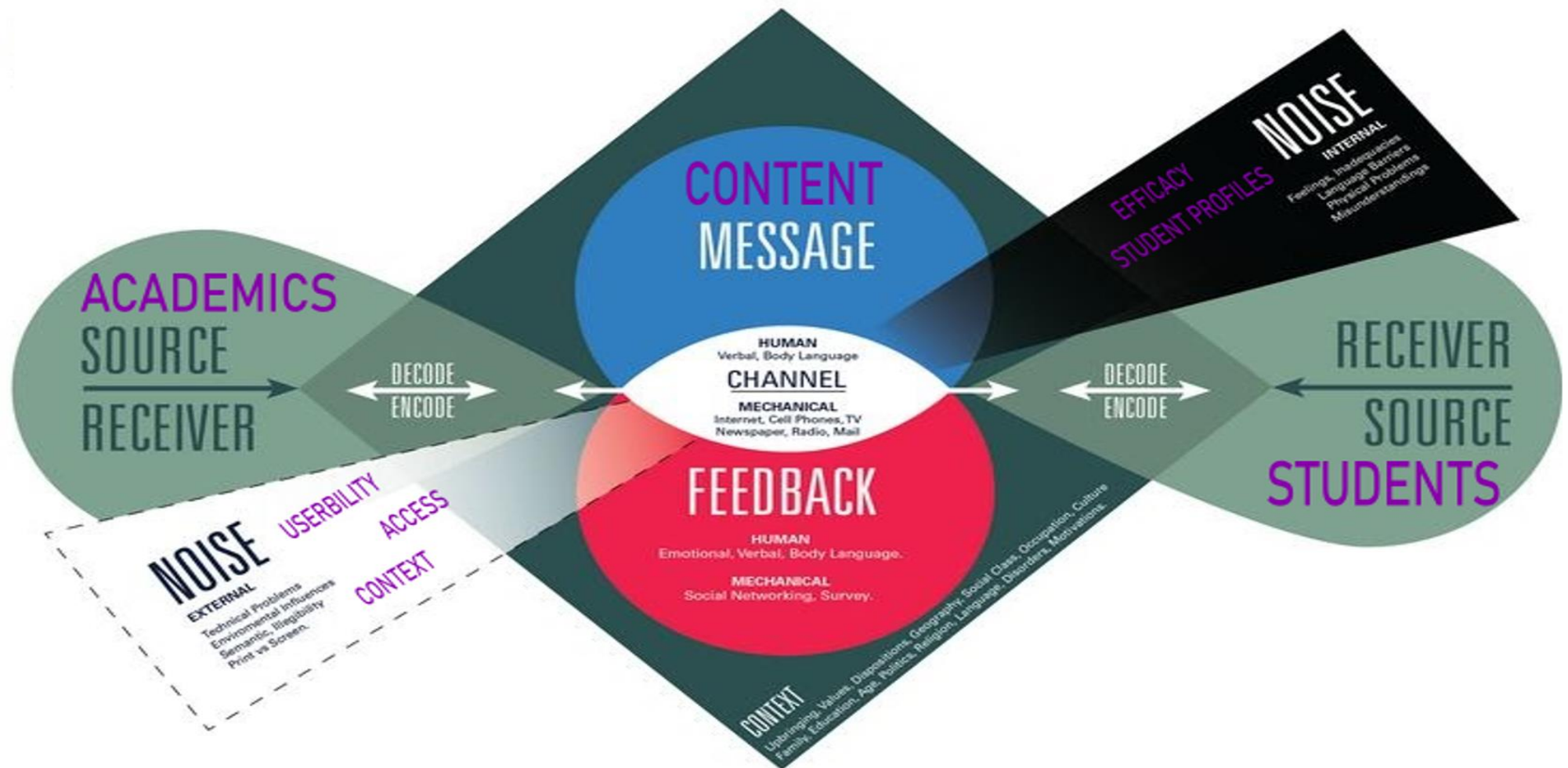


Figure 6.2 T&L as a communication process: Adapted from <http://elibrumbaugh.blogspot.com/2011/10/communication-model.html>

The illustration above depicts the lecturer and student (source/receiver and receiver/source) in a technologically mediated ERT&L during Covid-19 where feedback from one is the message for the other. The figure shows both student and lecturer exchanging roles as sender and receiver, a pedagogically appropriate approach that allows lecturers to send content to students as well as receiving feedback from them. This reflects T&L process in higher education where communication is not about communicating realities but rather an exchange that is fundamental in the co-creation of knowledge. It also shows the channel (which represent various ICTs used for teaching and learning to exchange meaning between the interlocutors). Also shown in the figure are different connotations of noises in the sender / receiver as well as channel environments. These noises, which include channel, semantic, and feedback, were discussed at length in the previous chapter relating to challenges students encountered during learning through various ICTs. As with mediated interpersonal communication, learning was prone to different noises around the channel of communication such as state of technology which affected the users' ability to operate the technology, as well as social access to these channels and people's exposure to the technologies (Narula, 2006).

It is clear from the above figure that the Transactional Model of Communication has potential to depict the technologically mediated learning processes that the NWU deployed to facilitate learning during Covid-19. It can also identify different challenges that technologically mediated teaching and learning may present. Students and lecturers build meaning and understanding through a communicative process described by the model. While the technologies might have presented challenges during ERT&L, their affordances and potential in facilitating T&L and as further resources may be useful to explore beyond the pandemic.

6.4 Recommendations

Based on the foregoing presentation which reveal successes and limitations of the use of ICTs in remote T&L as reflected in students' perceptions, a few suggestions may be worth considering for future research as well as practice.

6.4.1 Suggestions for Future Practice

Considering that perceptions were split regarding which mode of learning was preferred, it may be worth considering to sustain blended T&L as a main approach to instructional delivery in order to cater for different student needs.

6.4.2 Areas for Further Research

There are possible extensions that can be made on this study, most of which fall under the heading of the methodological. The study sample is quite negligible to warrant generalization in ways that may inform policy. This urges for a quantitative study that can be applied to a wider population to generate diverse views. This however is in no way an indication that the findings presented in this study are flawed.

The North-West University faculty of humanities approaches T&L from a constructivist perspective where students are expected to participate in and engage with the learning environment (HUM FITLP, 2021-2025). Previous research indicates that a constructivist approach to knowledge construction and learning can be achieved through affordances of new media technologies (Jonassen, et al., 1995). It may be interesting to further explore student collaboration / participatory communication during ERT&L focusing on how this might have been enhanced or constrained among a particular cohort of students.

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ANNEXURES

Annexure One: Focus Group Schedule

1. How did the transition to remote learning influence your learning outcomes?
2. From your perspective, which methods are in place to assist students with remote learning?
3. What are your views towards ICTs used for teaching and learning during Covid-19 outbreak?
4. How efficient were these ICT platforms?
5. Which ICT platform did you prefer?
6. What have been the effect of remote learning on your motivation?
7. How have you found your involvement with classes using ICT platforms?
8. What has been the most significant difference between remote learning and non-remote learning for you personally?
9. In your own view, can you describe the typical format for in-person vs remote lectures you have attended?
10. If you had to enrol for a course, would you choose online remote learning or contact classes? and why?
11. How do you think your lecturers have responded to the transition to remote learning?
12. What is your understanding of the term “hybrid learning”?
13. Which of the two types of learning do you prefer, hybrid or remote learning?
14. What has been the influence of hybrid teaching and learning on your learning outcomes?
15. Is there anything else I should have asked you to better understand how your academic experiences with remote learning classes differ from your academic experiences with in-person classes?

Annexure Two: Ethics Approval Letter of the study



Private Bag X1290, Potchefstroom
South Africa 2520

Tel: 018 299-1111/2222
Fax: 018 299-4910
Web: <http://www.nwu.ac.za>

Senate Committee for Research Ethics
Tel: 016 103 4446
Email: nkosinathi.machine@nwu.ac.za

06 September 2022

ETHICS APPROVAL LETTER OF STUDY

Based on approval by the Basic and Social Sciences Research Ethics Committee (BaSSREC) on 08/06/2022, the Basic and Social Sciences Research Ethics Committee hereby approves your study as indicated below. This implies that the North-West University Senate Committee for Research Ethics (NWU-SERC) grants its permission that, provided the special conditions specified below are met and pending any other authorisation that may be necessary, the study may be initiated, using the ethics number below.

Study title: Students' perceptions towards ICTs used for emergency remote learning in higher education during Covid-19: A case study of the NWU Mafikeng Campus.																													
Study Leader/Supervisor (Principal Investigator)/Researcher: Dr Mooki Lobelo & Dr Quatro Mgogo																													
Student/Research Team: T Zethi-27666913																													
Ethics number:	<table border="1"><tr><td>N</td><td>W</td><td>U</td><td>-</td><td>0</td><td>0</td><td>9</td><td>8</td><td>3</td><td>-</td><td>2</td><td>2</td><td>-</td><td>A</td><td>7</td></tr><tr><td colspan="3">Institution</td><td colspan="6">Study Number</td><td colspan="2">Year</td><td colspan="2">Status</td></tr></table> Status: S = Submission; R = Re-Submission; P = Provisional Authorisation; A = Authorisation	N	W	U	-	0	0	9	8	3	-	2	2	-	A	7	Institution			Study Number						Year		Status	
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Approval of the study is initially provided for a year, after which continuation of the study is dependent on receipt and review of the annual (or as otherwise stipulated) monitoring report and the concomitant issuing of a letter of continuation.																													

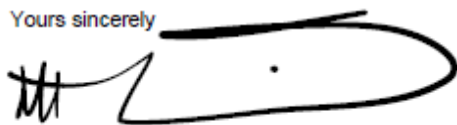
Special in process conditions of the research for approval (if applicable):

General conditions: While this ethics approval is subject to all declarations, undertakings and agreements incorporated and signed in the application form, the following general terms and conditions will apply: • The study leader/supervisor (principal investigator)/researcher must report in the prescribed format to the BaSSREC: - annually (or as otherwise requested) on the monitoring of the study, whereby a letter of continuation will be provided, and upon completion of the study; and - without any delay in case of any adverse event or incident (or any matter that interrupts sound ethical principles) during the course of the study. • The approval applies strictly to the proposal as stipulated in the application form. Should any amendments to the proposal be deemed necessary during the course of the study, the study leader/researcher must apply for approval of these amendments at the BaSSREC, prior to implementation. Should there be any deviations from the study proposal without the necessary approval of such amendments, the ethics approval is immediately and automatically forfeited. • Annually a number of studies may be randomly selected for an external audit. • The date of approval indicates the first date that the study may be started.

- *In the interest of ethical responsibility, the NWU-SCRE and BaSSREC reserves the right to:*
 - *request access to any information or data at any time during the course or after completion of the study;*
 - *to ask further questions, seek additional information, require further modification or monitor the conduct of your research or the informed consent process;*
 - *withdraw or postpone approval if:*
 - *any unethical principles or practices of the study are revealed or suspected;*
 - *it becomes apparent that any relevant information was withheld from the BaSSREC or that information has been false or misrepresented;*
 - *submission of the annual (or otherwise stipulated) monitoring report, the required amendments, or reporting of adverse events or incidents was not done in a timely manner and accurately; and / or*
 - *new institutional rules, national legislation or international conventions deem it necessary.*
- *BaSSREC can be contacted for further information or any report templates via BaSSREC-Admin@nwu.ac.za.*

The BaSSREC would like to remain at your service as scientist and researcher, and wishes you well with your study. Please do not hesitate to contact the BaSSREC or the NWU-SCRE for any further enquiries or requests for assistance.

Yours sincerely



Prof E. Idemudia

Chairperson NWU Basic and Social Sciences Research Ethics Committee

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8 November 2018

File reference: 9.1.5.4.2