EVALUATION OF STUDENT SUPPORT SERVICES AT AN OPEN DISTANCE AND E-LEARNING UNIVERSITY: TOWARDS A FRAMEWORK FOR STUDENTS WHO ARE DEAF AND HARD OF HEARING

by

TONNY NELSON MATJILA

submitted in accordance with the requirements

for the degree of

DOCTOR OF PHILOSOPHY

in the subject

PSYCHOLOGY

at the

UNIVERSITY OF SOUTH AFRICA

SUPERVISOR: Prof Petro van der Merwe

January 2023

TABLE OF CONTENTS

DECLARATION

Student Number: 4223-809-9

I, Tonny Nelson Matjila, registered for Doctor of Philosophy in Psychology, hereby declare that the study *Evaluation of Student Support Services in an Open Distance and e-Learning University: Towards a Framework for Students who are Deaf and Hard of Hearing* is my original work, and that all the sources that I have cited have been indicated and acknowledged in the text as well as in the list of references.

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

<u>_____</u>   **<u>31 January 2023</u>**

Tonny Nelson Matjila   Date

TURNITIN REPORT

DEDICATION

This thesis is dedicated to all the students who are Deaf and Hard of Hearing, who continue to struggle with reasonable accommodations in institutions of higher education. May they find the strength to continue despite the barriers and stigma they face daily in accessing education to better their lives. Additionally, may the sign language interpreters and staff members who unceasingly assist the students daily, have the strength to continue with the good work you are doing.

ACKNOWLEDGEMENTS

I wish to express my sincere gratitude and appreciation to the following individuals because without them this work would not have been accomplished:

- I am most grateful to the all-powerful God for bestowing upon me the desire to learn as well as the wisdom, patience, and insight.

- I thank my supervisor, Prof Petro van der Merwe, for her enlightening and very beneficial comments. I had the confidence to finish this thesis because of her inspiring presence, her relaxing demeanour, and the time she spent guiding and helping me. I appreciate that you remained my supervisor after retiring. Thanks again for believing in me and co-publishing a philosophical article on research paradigms. I never thought my mind could stretch to that higher level and will forever be grateful to you.

- Prof Zungu and Prof Ngulube (Former CGS Executive Deans), Prof Mgutshini (Acting Executive Dean), and Prof K Mbatha (Acting School Director – SIRGS), thank you for your continuous encouragement and support, for all the forms that you signed and recommended for me to get the bursary, research and development leave, and related resources.

- My colleagues in the Research Support Department: Ms Zaayman, Ms Benode, and Mr Tsatsi: Thank you for guiding me on the MDSP applications and framework as well as timeously approving all my claims. Without the bursary, I would not be able to finish in time.

- Women in Research Group (College of Education-UNISA), led by the late Dr Sma Mkhwanazi, thank you for the mentorship and continuous support. I learned a lot about research support interferences. Special thanks to group members, Prof Ngubane, Prof Nyoni, Prof Madikizela-Madia, Prof Ntombela (UKZN), Dr Wells, Dr Johannes, Dr Moll, and Dr Mavuso.

- To Dr Wells, Dr Molotsi, and Ms Kola, thank you for your continuous mentorship and support. The time you set aside to bounce my ideas is appreciated.

- Dr Pitsoane, thank you for research publication guidance and co-publishing an article in an accredited journal.

- Ms Masondo, CGS statistician, thank you for your assistance with the data analysis plan for the two phases of the study, especially the quantitative part.

ABSTRACT

This explanatory sequential study aims to evaluate the student support services (SSS) provided to Deaf and Hard of Hearing students (SDHH) at an Open Distance and eLearning (ODeL) institution. The objective was to identify 1) whether SDHH were aware of the SSS offered, 2) accessibility, 3) efficacy, 4) level of inclusiveness, and 5) whether the existing student support offering is in line with and contributes to the Sustainable Development Goals (SDG) of the Republic of South Africa. The study is theoretically undergirded by the critical disability theory, transactional distance theory, and theory of change, which offer recommendations for how to support SDHH in ODeL spaces. The literature reviewed not only reveal areas of population, methodological, theoretical, and practical research gaps, but also offer the theoretical foundation for associated studies. To adopt the transformative research paradigm as a conceptual foundation for the study, transformative mixed method research (TMMR) is applied. Census is used as a data collection tool for 105 SDHH and 118 staff members from various departments, applying a stratified simple random sampling technique. Descriptive and inferential statistics are used to analyse quantitative data. Furthermore, correlation analysis and Chi-square are testing the strengths of associations. Results reveal that participants (staff and SDHH) were unaware of the SSS offered at an ODeL university. Where they were aware of it, they discovered that the services were inaccessible, ineffective, and exclusive. The mixing of data occurs after the quantitative data analysis where an interview protocol is developed to understand quantitative results through the semi-structured interview with five SDHH and eight staff members. The qualitative findings offer explanations for the lack of accessibility, efficacy, and inclusion, as well as suggestions for reasonable accommodations. The study meets all of its aims, while theoretical, empirical, and research design, as well as practical contributions are made to fill the research gap, identified in the literature review. Future research, useful interventions, and a framework for inclusive student support for SDHH in ODeL universities are also recommended. Practical interventions, future research, and an inclusive student support framework for SDHH in ODeL institutions are recommended. Lastly, an inclusive student support framework for SDHH in ODeL is developed and is transferable to different contexts based on the identified assumptions, inputs, strategies, outputs, outcomes, and external factors. The study and framework are important for creating a scientific foundation for SDHH in higher education (HE) settings, particularly now that sign language is getting much attention on becoming an official language.

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS/ACRONYMS

4IR	Fourth Industrial Revolution
AI	Artificial Intelligence
ANOVA	Analysis of Variance
APA	American Psychological Association
ARCSWID	Advocacy and Resource Centre for Students with Disabilities
ASL	American Sign Language
AU	African Union
CDT	Critical Disability Theory
DCCD	Department of Counselling and Career Development
DE	Distance Education
DHH	Deaf or Hard of Hearing
DHET	Department of Higher Education and Training
DRU	Disability Rights Unit
HE	Higher Education
HOH	Hard of Hearing
ICT	Information and Communications Technology
IHE	Institution of Higher Education
IoT	Internet of Things
IPR Framework	Interview Protocol Refinement Framework
LMS	Learning Management System
MMR	Mixed Methods Research
MS	Microsoft
NCSNET	National Commission on Special Needs in Education and Training
NDP	National Development Plan
ODeL	Open Distance and e-Learning
ODL	Open (and) Distance Learning
OER	Open Education Resource
OU	The United Kingdom's Open University
POPI(A)	Protection of Personal Information (Act)
PSET	Post-School Education and Training
RTA	Reflexive Thematic Analysis
SA	South Africa/n

SADC	South African Development Communities
SASL	South African Sign Language
SDG	Sustainable Development Goal
SDHH	Students who are Deaf and Hard of Hearing
SLCTR	Sign Language Community Terms of Reference
SRU	Student Retention Unit
SSS	Student Support Service(s)
TDT	Transactional Distance Theory
TEL	Technology Enhanced Learning
TMMR	Transformative Mixed Methods Research
ToC	Theory of Change
UDL	Universal Design for Learning
UN	United Nations
UNESCO	United Nations Educational, Scientific, and Cultural Organisation
UNISA	(The) University of South Africa
USA	United States of America
VNR	Voluntary National Review
WHO	World Health Organisation

Certificate of the Editor

SA**WRITERS'** COLLEGE
ONLINE COURSES FOR A CAREER IN WRITING

THIS CERTIFIES THAT

WILLEM OLIVER

HAS SUCCESSFULLY COMPLETED

THE PROOFREADING AND COPY-EDITING COURSE

COURSE TUTOR:
DI SMITH

COLLEGE DIRECTOR:
NICHOLA MEYER

CERTIFICATE
SAWC 6240

DATE: 26/07/2016

CHAPTER 1
LOGIN AND INTRODUCTION

1.1   INTRODUCTION TO THE CHAPTER

This introductory chapter provides the background to the topic, providing an overview of the background and the identified research problem. The purpose of the study as well as the aims and objectives are addressed. The chapter concludes with a discussion of its significance and adopted emancipatory and transformative viewpoint which informed the applied research design and philosophical foundations and assumptions.

1.2   THEORETICAL BACKGROUND OF THE STUDY

A study by the World Health Organisation (WHO, 2021, p.54) claims that more than one billion individuals worldwide have some degree of hearing loss, which has a big influence on their lives, their families, societies, and entire nations. The World Bank measures this increasing prevalence at 15 percent of the world's population which has reached 7.7 billion in 2020 (World Bank, 2020). The rising prevalence is attributed, *inter alia*, to the ageing population and the resulting increase in chronic health conditions.

Current data indicate that more than 466 million people experience hearing difficulties worldwide, and it is estimated that up to 100 million people will be deaf and/or have hearing challenges by 2050 (WHO, 2021). Likewise, Statistics South Africa indicates that 7.5 percent of South Africa's population has one or more impairment form, of which 5.6 percent are listed as deaf and with communication difficulties (Ngyende, 2011). This is corroborated by Abiatal and Howard (2019), showing that 34 million are children and nine million of them are in Sub-Saharan Africa.

Taking a cue from the socio-critical model of Subotzky and Prinsloo (2011), students approach higher education (HE) with a variety of perspectives, arrangements, wealth, self-efficacy, agency, and diverse socio-economic circumstances. They select courses for which they may (not) be trained, and encounter curricula and pedagogies that may (not) cater to their previous learning and/or interests. This is also the case in the context of students who are deaf and hard of hearing (SDHH), approaching a distance learning institution of higher education (IHE).

The past decade has seen the rapid development of disability studies and their importance. Mogane (2010) illustrates how inclusive education has extended to South African (SA) IHEs and how several students who register at IHEs are associated with various types of

disabilities. In the same breath, Jacklin, Robinson, O'Meara, and Harris (2007) analyse the experiences of students with disabilities and recommend measures that will impart knowledge, interaction, accessibility, and curriculum flexibility, and monitor their profiles. Such advancements have many facets which come to the fore regarding access to education for individuals with disabilities. This recommendation seems to echo the idea of supporting SDHH since it responds to a widening access to IHEs.

Magongwa (2008) narrates the history of both the rise in the number of SDHH accessing HE to become part of a range of learning needs by addressing barriers to learning and measures to be attended by the government to provide educational support services to students. The SA government and IHEs are attempting to provide support services to SDHH, like the South African Sign Language (SASL) interpreters and inclusive academic support services. Despite these attempts, SDHH still encounter difficulties and challenges at university level (Liversidge, 2003; Matjila, 2018).

From an academic management viewpoint, Saunders, Nolan, and Provost (2009) note some significant considerations regarding reasonable accommodations for HE students with disabilities. Their hypothesis refers to the existence of human differences which play a part in shielding students during the orientation from the effects of negative experiences. This point regards the presence of obstacles to teaching and learning and the consequences of these obstacles for rethinking student support at ODeL institutions for SDHH.

The overall availability of student support may generally affect the successful access and performance of SDHH. Consequently, the progress of SDHH may depend not only on their efforts, but also on the reasonable accommodation provided by an IHE. Academic institutions should provide them with a fair and equal opportunity to actively participate in learning programmes. Intensive and robust support services and projects are needed to help them cope with the challenges of normal growth and development, faced by young adults around the world, as well as the arduous demands of post-matric studies.

Admission to IHEs is gradually becoming more accessible for SDHH. Therefore, there seems to be a progressive shift towards supporting students with special needs in IHEs in SA (Mutanga, 2017). The overall availability of student support generally affects the successful access and performance of the students. Consequently, the progress of SDHH could depend not only on their efforts but also on the reasonable accommodation provided by the IHEs, which are responsible to provide the students with a fair and equal opportunity to actively participate in learning programmes.

Therefore, policies that support SDHH are necessary for IHEs to adopt and implement (Mutanga, 2017a). This is corroborated by Matjila (2018) who explored the experiences of students with physical impairments at an ODeL university. His findings revealed that out of the three categories of physical impairments, which were mobility, visual, and hearing, much is needed to accommodate SDHH at an ODeL institution.

Although substantial progress has been made and continues in SA's mainstreaming of disability since 1994, there seems to be a need to ensure and control the inclusion of disability in the HE sector (Mutanga, 2017b). The national government of SA has joined the call to accelerate this progress in responding to the United Nations Sustainable Development Goals (UN SDG), specifically goal number 4 and all its targets, which are central to this study. SDG 4 is aimed at ensuring that inclusive, equitable, and quality education is realised as well as the promotion of lifelong learning opportunities for all people in the world.

So far, the Department of Higher Education and Training (DHET) has developed a Strategic Disability Policy Framework on Disability for the Post-School Education and Training System (DHET, 2018) which will help monitor the development of structured educational models and programmes for students with disabilities. This Strategic Disability Policy Framework aims to address and respond to SDG 4 and feeds into the National Development Plan (NDP) 2030 (UNESCO, 2019; National Planning Commission, 2010).

1.3   PROBLEM STATEMENT

A research problem is explained as a problem or issue that leads to the need for a study to be conducted (Creswell, 2014). A gap in the literature was established, judging by the lack of, or inadequate provision of student support services (SSS) in IHEs for SDHH, particularly in the context of ODeL.

Deafness and hearing loss are often overlooked or even underestimated, bringing forth several challenges (Skrebneva, 2015). Among the SDHH, the greater part of the literature on access and support programmes is focused on lower primary to high school, since the vast majority do not achieve matriculation, while only a few enter IHEs. Magongwa (2008) has deliberated on the findings of the SA Deaf Federation (DeafSA, 2009) and states that the limited access and exclusion of SDHH to quality education has resulted in one out of three deaf people being literate to acquire a grade 12 qualification. One may deduce that as a result of the disempowering educational experiences, deaf adults may not easily be integrated into the mainstream society.

DeafSA (2009) further notes that while a limited number of SDHH enter IHEs in SA, there seems to be lesser opportunities and reasonable accommodation to retain those who are already registered, which results in a 90 percent unemployment rate for people who are deaf in South Africa. Besides, due to poor reading skills, SDHH may have limited opportunities to study further – beyond basic qualifications. Most SDHH are inadequately prepared for further education and a desired profession after leaving high school, while they experience communication and socio-emotional adjustment difficulties in the "hearing world."

There appears to be a lack of consideration by the IHEs regarding the provision of student support to SDHH despite the implementation of the disability rights units (DRUs) to support SDHH in all IHEs (Howell & Wilcken, 2011; Howell, Chalklen, & Alberts, 2006). The aforementioned roles seem to operate independently from the academic support that teaching and tutoring are providing. The lack of appropriate support facilities for SDHH also presents challenges; hence the need to establish inclusive support systems for SDHH in ODeL institutions. There were certain benefits to moving from a paper-based and in-person delivery model (ODL) to exclusively online services (ODeL), where SDHH connect with staff and fellow students via email and learning management systems. However, the lack of suitable accommodations, such as subtitles, and the absence of real-time technical help during online meetings and workshops seem to make them more discriminated against.

While facilities and assistive devices play a significant role in assisting SDHH and have earned substantial funding from post-school education and training (PSET) institutions, little attention was given to the degree of general provision by SSS, which in turn assists the student to excel in their teaching and learning process. Recent research suggests that there seems to be a lack of flexibility in curricula. Furthermore, inclusive methodologies seem to remain the major barriers that should be further interrogated (Clouder, Cawston, Wimpenny, Khalifa, Mehanna, Hdouch, Raissouni, & Selmaoui, 2019).

This makes the teaching and learning currently provided at SA PSET institutions questionable. The ignorance of not bridging this gap between the DRU and academic departments during the conceptualisation and implementation of the DRU, specifically in the several pedagogical fields raised in the early phases of establishment and implementation of the DRU, seems to be persisting (Howell, 2005; Matshedisho, 2007; Saunders, Nolan, & Provost, 2009). This may lead to the inability to achieve the goal of promoting and organising a functional inclusiveness of disability through academic support systems.

Magongwa (2008) gives guidance on how to offer support services to deaf students through the provision of sign language interpretation, audio recorders, and inclusive academic

support. Moreover, there is a continuous need to determine the quality of these provisions in line with an equitable epistemological access, as well as social and academic perspectives of support services consumers who in this context are SDHH. Although studies like those of Mertens (2012), Tait (2000), and Taylor (2001) highlight general student support in HE, they are often not in line with the ODeL pedagogies and modes of providing student support for SDHH, unlike Moore (1993) who's theory on transactional distance is incorporated into this study's theoretical framework, being unpacked in chapter 3 of this thesis.

IHEs in SA, notably the University of South Africa (UNISA), have policies of diversity, disability, and transformation that aim to provide open access to education and accommodate all students. Nonetheless, there is little evidence of the effective adoption of disability programmes to better support SDHH. The presumption that the incorporation of these policies, centred in inclusive education, ensures equal rights, resources, and access to education, reveals an unfamiliarity in an inclusive educational setting with the experiences of SDHH.

Prospective deaf university students continue to encounter problems when trying to be admitted to universities (DeafSA, 2016). SDHH tend to experience negative learning practices after positive admission because of the obstacles they encounter through the teaching and learning process, before graduation and beyond (Matjila, 2018).

First, for a very long time, SASL was not recognised as a common language equal to the eleven official languages. This is despite the universal support for SASL through protective legislation, namely the SA Constitution of 1996, the SA School Act of 1997, and policies such as the Integrated National Disability Plan, Education White Paper 6, and the Revised National Curriculum. SDHH seem to be disadvantaged in education due to a lack of access to SASL. Kadenge and Musengi (2018) note the progression in the Southern African Development Community (SADC) where, Zimbabwe, unlike SA, has already legally recognised sign language, as it is endorsed as one of its official languages.

Second, as per admission requirements, university applicants must have passed two of the 11 SA official languages on school level (Department of Education, 2005). One must be their home or first language and the other has to be their first supplementary language. This seems to be a barrier for most who use SASL as their first and home language, which is not recognised as one of the subjects for the matric certificate. This barrier persists despite SASL being included as one of the subjects for matriculation (Nowicki, 2019).

The Constitutional Review Committee of Parliament had since made recommendations for SASL to be recognised as an official language in SA (Bell, 2021). Following these developments, the department of basic education recognised SASL as a home language, offering it

as one of the school subjects from pre-school until grade 12. In 2018, the first cohort of grade 12 deaf learners from 17 schools, graduated in SA sign language. In May 2022, the cabinet approved comments on the Constitutional Eighteenth Amendment Bill for public comment, paving the way for SASL to become the country's 12th official language (PanSALB, 2022). This is a call to fast-track inclusive student support in HE spaces to allow an easier transition of SDHH.

The provision of inclusive support services, therefore, will have a positive impact on SDHH in terms of fair access and success in IHEs. The next section indicates that the purpose of the study is to address the aforementioned problem.

1.4   PURPOSE STATEMENT

Guided by Creswell (2009), the purpose of this thesis is to evaluate the provision of SSS in an ODeL university for SDHH. The SSS include admission (application) and registrations, student counselling and career guidance, library services, tutorials (face-to-face and online), the disability rights unit, the academic literacy programme, computer laboratories, telecentres, student funding, student development, information services, as well as the student retention unit (SRU). The evaluation will establish the level of inclusion in line with the legislature, intended to implement a reasonable accommodation for SDHH.

The theoretical framework based on the three theories, critical disability theory, transactional distance theory, and theory of change gave guidance to respond to the problem statement, aims, and objectives, as well as conducting a systemic literature review on the current cycle, responding to the topic of this study. First, a quantitative phase of this explanatory sequential study used two surveys to collect data from SDHH as users of the services, as well as staff, being providers of the services at the ODeL university. Second, the qualitative phase was conducted as a follow-up to explain the quantitative results.

1.5   AIMS OF THE STUDY

The study aims to provide an evaluation of the SSS rendered to SDHH at an ODeL university. The review of the literature identified the knowledge gaps which led to the refinement and further specifications of the objectives. The next section moves on to outline the objectives that the study wants to accomplish as asserted by Saunders, Lewis, and Thornhill (2016).

1.6   OBJECTIVES OF THE STUDY

The objectives of this study are

- to determine if SDHH are aware of the SSS;
- to determine the level of accessibility of the SSS by the SDHH;
- to determine the effectiveness of SSS;
- to determine the level of inclusion of SSS; and
- to establish if the current SSS are in line and contribute to the legislature as well as the SDG.

The next section shows how the hypothesis and the research question are central concerns, expressed as explicit questions about variables of interest, including the objectives of the study (Wrench, Thomas-Maddox, Richmond, & McCroskey, 2016).

1.7   HYPOTHESIS AND RESEARCH QUESTION

As noted by Quinlan, Zikmund, Babin, Carr, and Griffin (2015), a hypothesis predicts an answer through a formal statement while a proposition only explains the logical linkages among the concepts. The hypothesis and the research question in table 1.1 influence not only the scope of an investigation, but also how the research will be conducted.

Hypothesis	Null Hypothesis	Research Question
SDHH will experience lower inclusion rates throughout SSS programmes in an ODeL university.	There is no relation between the degree of inclusion and SSS programmes for SDHH in an ODeL university.	How does the provision of SSS contribute to the inclusion of SDHH in an ODeL university?

Table 1.1: Hypothesis and Research Question

Sub-questions
- How are the SSS in an ODeL university rendered to SDHH?
- To what degree are the student support programmes contributing to the inclusion of SDHH in an ODeL university?

1.8   SIGNIFICANCE OF THE STUDY

The DHET has tasked the universities to make inputs and respond to the Strategic Policy Framework on Disability for Post-School Education and Training System (DHET, 2018). This action will assist the government to establish a uniform and enabling environment at all IHEs.

The research is significant in that it informs policies and mostly practices in providing reasonable accommodations for SDHH at an ODeL university. Where policies are in place and respond to the country's legislation, the implementations will thereof be evaluated and recommended to ensure that the policies are practical and executed proficiently.

The other dimension is to advocate the purpose and brings about an awareness to the broader community on the issues affecting SDHH and to prepare the community for the advent of SASL, which may soon be recognised as an official language.

Additionally, it makes provision for accessible teaching, learning, leisure, and service environments. The study is also promoting coordination and collaboration across the PSET framework. This study will provide a baseline for an ODeL university to benchmark and apply transferability to include other impairments or disabilities. Moreover, the study is significant, since it is a building block of multi-inter-disciplinary scientific knowledge on Social Psychology, disability studies, and ODeL research.

1.9   THE TRANSFORMATIVE AND EMANCIPATORY PERSPECTIVE OF THE STUDY

This thesis has applied the transformative and emancipatory viewpoint in addressing the alluded problem and achieving the set objectives. A transformative paradigm is a research viewpoint in which knowledge can be produced, benefiting the disadvantaged population, in this context, SDHH at an ODeL university. It is a viewpoint that is guided and encompasses critical theory-based research such as feminism, race, and gender, as well as disability as portrayed in this study. This viewpoint responds to the emancipation as well as the transformation of the SSS for SDHH.

The basic methodological assumptions of TMMR are pragmatic, in that they combine the paradigms of both positivist and constructivist approaches. Nsamba (2016) agrees that researchers need to identify the most appropriate paradigm to tackle a research problem and questions. Furthermore, the researcher's choice is informed by their philosophical positions (beliefs), and the demands and needs of the sample. This approach has been applied in this study, since it addresses both the research being problem outlined and the questions. The research problem would not have been solved by a singular approach.

TMMR, through a sequential explanatory design allows for a connection to understand reality in one study containing two different approaches to determine where philosophical orientations differ. It incorporates both positivist and constructivist-interpretive perspectives to understand the epistemologies and ontologies of SDHH. This means a transformative research paradigm provides a philosophical framework for research into transformative mixed methods to researchers (Creswell & Clark, 2018; Teddlie & Tashakkori, 2009). It further allows for a combination of qualitative and quantitative methods of data collection and analysis in one study, thus clarifying the research question that would not be achieved by just a single approach.

The quantitative measure was tailored to suit the ODeL background and deafhood while the reliability and validity of the study, as addressed by Möwes (2005), were further tested for this study. Descriptive statistics formed part of the quantitative data analysis plan where raw quantitative data were analysed, using quantitative data analysis software (SPSS) to generate the frequencies and descriptive stats. Qualitative data from the interviews were analysed thematically, using qualitative data analysis software (ATLAS.ti).

The logic model provides project management capabilities for managing the activity quality, including the outputs. It communicates the barriers through visual representation and allowed SDHH to be accommodated throughout the data collection phases. For both qualitative and quantitative phases, rigour and trustworthiness were maintained by conducting a pre-test and pilot study. As Laher, Fynn, and Kramer (2019) point out, a study's strength lies in the techniques used by the researcher to ensure that the data are handled truthfully. Finally, in the qualitative phase, credibility, transferability, dependability, and conformability are discussed. Ethical clearance was obtained before the data collection process started (cf. Annexure E).

1.10   CLARIFICATION OF CONCEPTS

Deaf

This term is spelled in two ways: "Deaf" (with a capital D) and "deaf" (with a lowercase "d"). "Deaf" refers to an individual with a severe or profound hearing loss who identifies with the Deaf culture and SASL, whereas "deaf" represents an individual with a severe or profound hearing impairment, without cultural identity, and promotes the use of amplification and residual hearing (Taylor, 2016).

Inclusion

Inclusion suggests a transition from an individual model of change to a "system reform model," stressing that culture needs to change to accommodate diversity.

Open Distance and e-Learning

Open distance and e-learning is the mode of providing education by focusing on removing barriers to learning access, learning accessibility, student-centredness, supporting students, and designing learning programmes with the expectation of success for students through a wide variety of digital technologies and resources (UNISA, 2018).

Reasonable Accommodation

"Reasonable accommodation" refers to changes and improvements that are required and acceptable, as well as assistive devices and technologies. People with disabilities should not be removed from a situation where recreation or exercise is available on an equal footing with others.

Sign Language

Sign language is a manual form of communication with a focus on facial expressions and body language (Tye-Murray, Spry, & Mauzé, 2009). In the context of this research report, the term "sign language" refers to "official" manual languages such as SASL.

Student

Someone who is enrolled in an IHE, such as a university, whereas the term "learner" is commonly used in primary and secondary education. Since this research applies to those who seek a university or HE, these people will be called "students."

Student Support

The Open Distance eLearning Policy defines and refers to student support as a variety of resources, provided by UNISA to assist students in achieving their learning goals and in acquiring the information and skills required for successful study (UNISA, 2018).

Universal Design

Universal design is the design of products, systems, programmes, and facilities that can be used by everybody without the need for modification or advanced design to be as best as possible.

Uniform design is embedded in the accessibility concept within the context of the Strategic Disability Policy Framework and is the most significant tool for achieving universal access.

1.11   STRUCTURE OF THE STUDY

The structure of this thesis is as follows:

Chapter 1: Login and Introduction

This chapter introduces the reader to the study by providing a theoretical background, followed by the problem statement, the purpose of the study, aim, and objectives, and provides a brief overview of the transformative nature of the study.

Chapter 2: Theoretical Framework

The second chapter highlights the selected theories which form the theoretical framework of the study. The Transactional Distance Theory, Critical Disability Theory, and Theory of Change are discussed concerning the aims and objectives of the study.

Chapter 3: Literature Review

The literature provides the background on understanding deafness and reasonable accommodations in IHEs through similar studies, highlighting the context and methodologies applied. Communication considerations in ODeL are discussed and progress towards SDG 4 through legislation and policies in place. The impact of the Fourth Industrial Revolution (4IR) and the impact of Covid-19 and lockdowns are both highlighted. The chapter concludes by identifying the gaps in the literature which are addressed in the problem statement in section 1.3 above.

Chapter 4: Research Design

Chapter 4 introduces the research paradigm underpinning the study as well as the applied philosophical foundations and assumptions on ontology, epistemology, and axiology about the central phenomenon of the study. Sampling techniques and the inclusion/exclusion of criteria are listed. The TMMR methodology is discussed, demonstrating its relevancy and how it is applied. A data analysis execution for the two phases of the study is discussed as well as the evaluation quality inclusive of research rigour encompassing reliability, validity, and pretesting of the measure for the first phase, while the trustworthiness of data (credibility, conformability, transferability, and dependability) addresses the rigour for the qualitative phase.

Chapter 5: Presentation, Analysis, and Interpretation of the Results – Quantitative Study

The results from the quantitative study are presented and analysed in this chapter, which inform the next phase of qualitative data collection and analysis.

Chapter 6: Presentation, Analysis, and Interpretation of the Findings – Qualitative Study

The findings from the qualitative study are discussed and analysed in this chapter, forming further integration of both qualitative and quantitative results.

Chapter 7: Log Out and Conclusion

A summary of the study and its findings, including the recommendations are presented in this last chapter.

1.12   CONCLUSION

Chapter 1 gives a theoretical background to the study by highlighting the prevalence of deafness and hearing loss among students in the HE sector, specifically in open distance and e-learning. The justification and purpose to conduct the study are discussed through the problem statement where the gaps in the literature are addressed. Additionally, the aims, objectives, and hypothesis to be tested, as well as the research questions emanating from these, are addressed. Lastly, the significance of the study is emphasised, and the structure of the thesis is tabled. The theoretical framework that grounds the study is discussed in the next chapter with the three theories that inform it thereof.

CHAPTER 2
THEORETICAL FRAMEWORK

2.1   INTRODUCTION

Chapter 2 gives an overview of the theories underpinning the study. The selection and justification of the three theories that frame the study are discussed in the subsequent sections.

2.2   FOUNDATIONS OF THEORETICAL FRAMEWORK

Theories are one of the major pillars of research that influence, advance, and transform epistemological positions in various disciplines (Ukwoma & Ngulube, 2021). A theoretical framework through the identified and applied theories therefore gives a reflection on the undertaken evaluation of this interdisciplinary study, integrating and developing epistemologies across the disciplines of Psychology, distance education (DE), disability studies, as well as inclusive education. The theoretical framework connects the reader to existing knowledge, enabling the hypothesis and research question to act as a link between existing knowledge and the problem that the researcher wishes to solve (Heale & Noble, 2019; Imenda, 2014).

A theoretical framework becomes a logically developed, connected set of concepts and premises from one or more theories that a researcher creates to scaffold a study. In developing a theoretical framework for this study, concepts and selected theories are defined and justified, providing the grounding of the study by uniting the selected theories through logical connections and relations. This logical connections and relations of theories form the purpose of a theoretical framework to describe a more complicated phenomenon, being addressed in the problem statement in the previous chapter (Heale & Noble, 2019).

Varpio, Paradis, Uijtdehaage, and Young (2020), as well as Grant and Osanloo (2014) refer to the theoretical framework as a blueprint for an imperial study. This blueprint provides the structure for defining how philosophically, epistemologically, methodologically, and analytically the study has been approached. These are the sentiments shared by Moore (1993), stating that it is not possible to achieve research that is not grounded in a theoretical framework. Every researcher should therefore recognise that a theoretical framework is important in research.

Omrin and Falola (2011) argue that, depending on an existing formal theory, a theoretical framework guides a research project. This means that a research framework can be required

to elevate different values and beliefs, held by other scholars in a specific model (Aydemir, Özkeskin, & Akkurt, 2015).

Theoretical frameworks are therefore essential in the sense that they provide a foundation for the knowledge we possess and are guiding us throughout the research process. Besides, the theoretical frameworks inform future studies and enable discipline, professional practice, and public policy to be further advanced by responding to the problem statement and research questions. The following section justifies the selected theories for this study.

2.3 SELECTION AND JUSTIFICATION OF SELECTED THEORIES

Alavi, Archibald, McMaster, Lopez, and Cleary (2018) provide further lucidity on how the theoretical framework and research methods may be linked together and how ignorance or failure to link these may result in a faulty study where the research issue could be inconsistent with the research design. From these highlights, one can infer that it is important to identify the theoretical orientation that will not only promote comprehension, but should also direct the design of research in which dynamic phenomena such as deafness and hearing loss are at the core of the investigation.

In the scope of the alluded dynamic phenomena, the selection of the applied theories has to provide a coherent explanation in line with the focus on the provision of SSS in an ODeL environment for SDHH. Furthermore, the selected theories provide a conceptual basis for understanding, evaluating, and constructing ways of exploring the research problem (section 1.3) and seeking answers to the hypothesis and research questions (section 1.7). The Transactional Distance Theory (TDT), Critical Disability Theory (CDT), as well as the Theory of Change (ToC), were selected to answer the questions on the type of student support provision to SDHH.
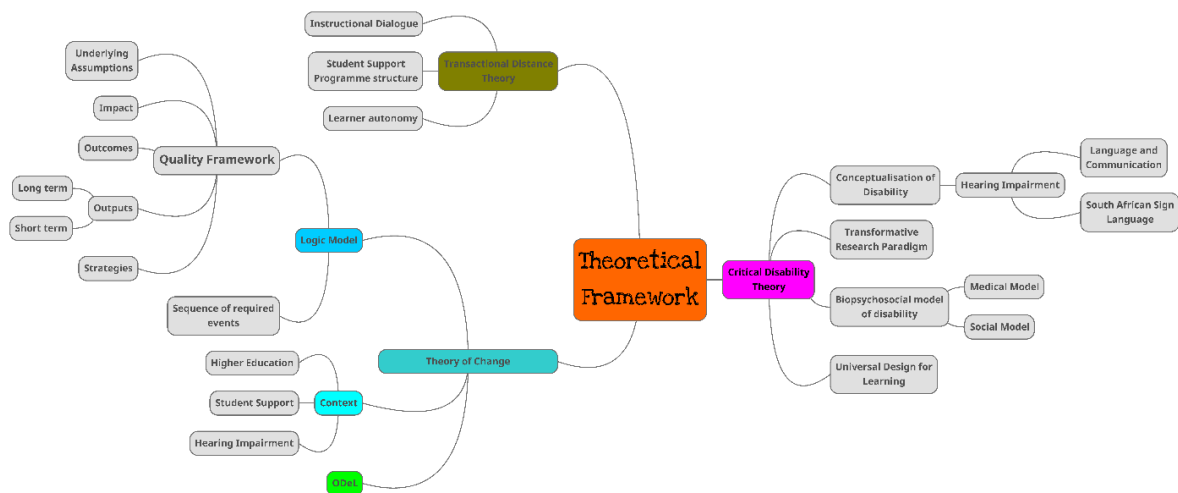
Figure 2.1: Theoretical Framework of the Study (Personal Archieve)

The TDT addresses the context of the provision of SSS in an ODeL context, which forms a central phenomenon of this study. There was consideration for other theories like Connectivism which has been positioned as a new philosophy of education for the digital age, making Vygotsky's concept of a zone of proximal development more flexible and extending it to include non-learner learning, social networks, and technological tools (Mattar, 2018). Though Connectivism is a theory of learning that emphasises the role of the social and cultural context in how and where learning takes place, TDT provides a contextualised and affirmed dialogue and communication medium to deliver the curriculum (Kop & Hill, 2008; Siemens, 2017). While TDT is the older theory of the two, it does provide a solid framework in ODeL that can be updated to be in line with the 4IR, related to new technologies and relevant in the current *status quo* of DE in the era of Covid-19 and lockdowns.

The second selected theory is the CDT, which was selected because it responds to the transformative paradigm as guided by Chilisa and Mertens (2021), as well as Humphries, Mertens, and Truman (2020) where the participants play a bigger role, as epistemological agents lead the research process to liberation and emancipation. This supplies the guidelines on how to address the philosophical assumptions on 1) ontology – the multiple realities on the ground regarding deafness and hearing loss, 2) epistemology – the knowledge and how participants should be co-creators of new knowledge, and 3) axiology – ethical principles to adhere to, as well as dilemmas to be avoided. A coherent explanation of deafness, deafhood, and hearing loss is achieved through the use of the disability models and the Universal Design for Learning (UDL) framework, informed by the CDT (Kivunja & Kuyini, 2017).

The third selected theory is the ToC which addresses the integration of the conceptual impact of the study that brings forth the context of the research problem and the outcomes of the study. This integration needed clear guidelines through logical models on managing the researcher's project concerning the chronological order of events and outcomes (Bonell, Melendez-Torres, Viner, Rogers, Whitworth, Rutter, Rubin, and Patton, 2020).

It is important not to overlook these aspects considering the scale of the employed TMMR where explanatory sequential design is employed. A chronological structure and sequence of events have led to the study being completed in the desired time while not diverting from the delimitations of the study. It also assisted in developing an inclusive student support framework which is the core output of this study.

2.4   TRANSACTIONAL DISTANCE THEORY

Moore (1991) describes "transactional distance" not only as a geographical definition of space between the students and educators. This description is pedagogical and coins the relation that exists amid the division of space and time between the student and the educator. With this gap between the student and the educator, comes the roadblocks in Psychology and communication that must be crossed (Dewey & Bentley, 1949; Simpson, 2008). From the perspective of Psychology and communication, Moore (1993) centres the theory of transactional distance on a cluster of three variables, namely dialogue, structure, and learner autonomy.
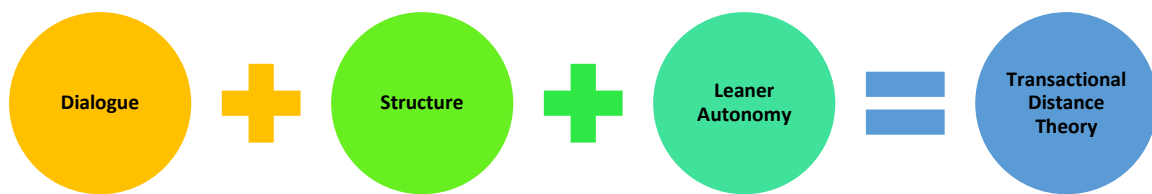
Figure 2.2: Transactional Distance Theory (Personal Archieve)

Though Ngubane-Mokiwa (2013) has focused on students with visual impairments in ODL, the application of the TDT was applied appropriately because it was used to analyse ways and means to enhance the learning process within the ODeL context. Moreover, it creates grounds for ensuring that both the student and the educator realise the value of bridging the transactional distance and gaps created by the difference between geography and pedagogy. This also brings forward the importance of ensuring that the learning content is appropriately planned, allowing the student an opportunity to participate and become a critical thinker.

TDT, therefore, encompasses the recommendations of Maxwell (2013) that theories should guide future research through the integration of literature review and field data. This should, therefore, deliver an approach that is sensitive to research design, sampling, data collection, and analysis.

2.4.1   Instructional Dialogue

Moore (1993) defines "dialogue" as the interaction between the educator and the student, and the reaction triggered by this communication process. In cases where one of the two takes time to respond, there will be a strain on the said process. The figure below depicts the directly proportional relations between the two variables.
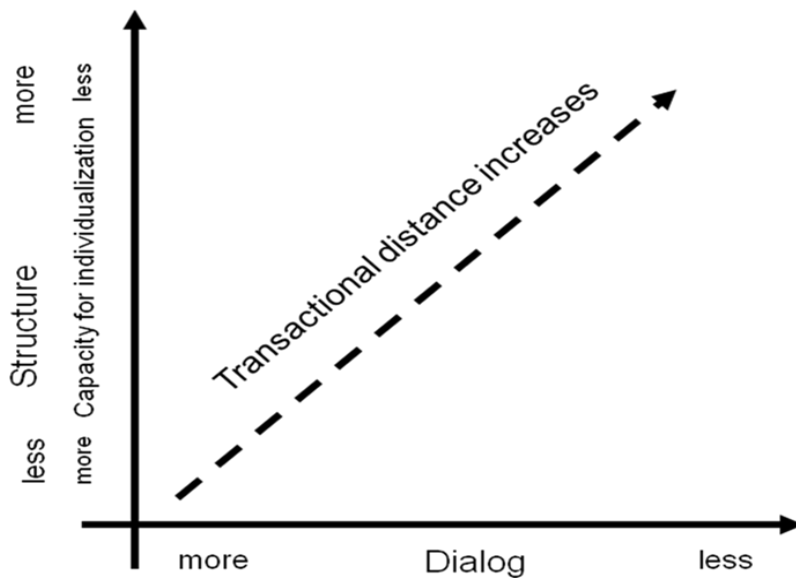
Figure 2.3: Autonomy and Transactional Distance – Dialogue and Structure (Moore, 2006)

The direct proportional increase in dialogue and structure contributes to the increasing transactional distance as depicted in the figure above. The more the student and the educator communicate, the bigger the increase in dialogue. Moore uses television as a one-way and intrusive contact mechanism that eliminates interaction between the two parties. Taylor (2001) demonstrates this by developing a model which shows the evolution of DE by demonstrating it through five generations.

Dialogue may be further affected by the personality of the educator, the personality of the student, and the study material. It cannot be argued with confidence that any tool, no matter how interactive its ability, will provide a highly dialogic system, since it is regulated by educators who may decide, for good or bad reasons, not to take advantage of its interactivity, and it is used by students who may not be able or willing to engage in dialogue with their educators (Parker, 2020).

2.4.2 Programme Structure

This is a response to course design and how various technologies or communication media can be used to deliver the courses. The structure reflects the rigidity or versatility of the educational goals, teaching techniques, and methods of assessment of the curriculum. It explains to what degree an educational programme should accommodate or respond to the individual needs of each student. The nature of the ODeL programme requires programmes to be structured in a way that students may interact with the material on their own (Tait 2014; 2000) which brings us to the next concept of student autonomy.

2.4.3   Learner Autonomy

Ngubane-Mokiwa (2013) suggests that the transactional gap decreases as the student becomes autonomous, when they start learning without much reliance on the educator, which is demonstrated in the figure below:
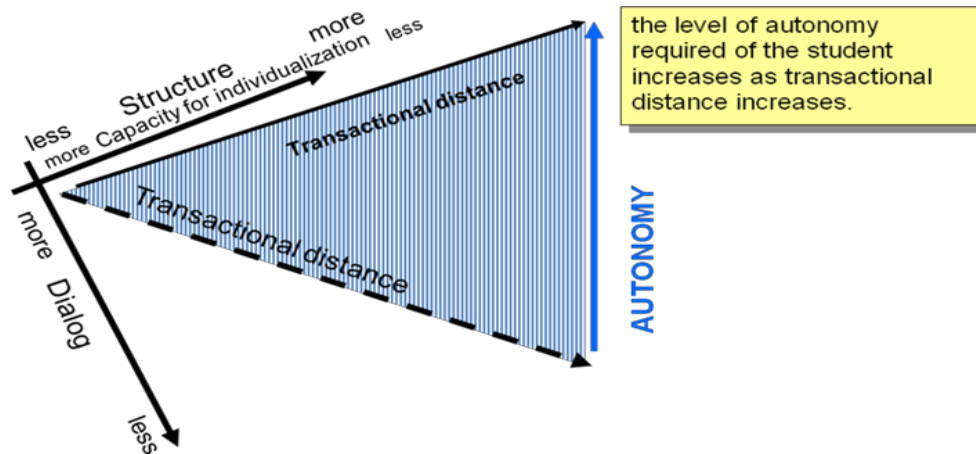
Figure 2.4: Autonomy and Transactional Distance (Moore, 2006)

Therefore, students must take responsibility for making judgements and taking decisions about research approaches in extremely distant programmes. Even where a course is designed to give maximum direction and guidance, students who are not engaged in dialogue, will have to determine for themselves whether the lessons will be used, and if so, when, how, and to what degree (Moore, 2006).

2.5   CRITICAL DISABILITY THEORY

The CDT is an emerging theoretical framework for studying and examining disability problems. In his review, Hosking (2008) argues that CDT supports people with disabilities right to autonomy and to participate fully in society's daily activities, since much of the available CDT literature addresses the problem of the societal perception of disability and inequalities (Romm, 2018).

The theory was first proposed in 1937 by Max Horkheimer, who has come up with a set of concise and normative social inquiry frameworks, aimed at ending the dominance of some communities by others, identified by gender, race, or social structures such as disability (Bolaños, 2013; Horkheimer, 1937). As a member of the critical theory family, CDT is a theoretical approach to the disability concept that is at the same time explanatory, practical, and normative, considering language and communication which is relevant to this study.

The issue of the marginalisation of minorities in societies, including people who are deaf and hard of hearing, is receiving considerable critical attention. The transformative paradigm emerged, as a result, to address the shortcomings of the two dominant paradigms – positivism and constructivism (Harris, Holmes, & Mertens, 2008).

This view is corroborated by Hall (2019), who argues that CDT applies to a theoretical approach involving diversity and interdisciplinarity. She also aligns CDT with the transformative research paradigm that works towards activism that confines insights, not only to academia, but to the overall communities. There appears to be a consensus among the researchers on the purposes and goals of CDT, but some researchers like Schalk (2017) place CDT as a methodology rather than a research framework, while applying similar purposes and principles.

2.5.1   Language and Communication

Language is used to label or describe impartially afflicted individuals or groups. While it is assumed to be transparent and a communications tool, CDT understands that it is inherently political. To date, little agreement has been reached on what constitutes disability *versus* impairment. Recent evidence indicates that labelling is an ongoing evolving process (Rembis, 2019; Saxton, 2018; Shakespeare, Watson, & Alghaib, 2017).

This evidence suggests that any label with negative attributes will be replaced. Terms used to refer to the said group in the sense of disability, are "cripples," "disabled people," "people living with disabilities," and now "people with disabilities." Considering all that has been stated so far, one may presume that with each change and transformation, the negative stigma associated with certain labels will be reduced or eliminated.

When this study was conceptualised and proposed, the label "students with hearing impairment" was used and applied throughout to students who are deaf and hard of hearing. It was after engaging with the CDT, literature reviews, and guidelines of the transformative research paradigm, that the label was amended from *students with hearing impairments* to *students who are deaf and hard of hearing*. The former is considered a derogatory term and label by some members and not an acceptable term to be used by some journals, like the *Journal of Deaf Studies and Deaf Education* which is relevant to this discipline. By adopting acceptable terms, it was easier to form a rapport with respondents and participants.

2.5.2   South African Sign Language

A report by the deaf federation in SA argues how SA's past 24 years of deaf education have been marred by weak academic results, with one such alarming statistic being a grade 12 pass

rate of 28.67 percent in the previous years (DeafSA, 2016). SASL is a complete language, with grammar, vocabulary, and syntax of its own which, like any other language is capable of expressing a theoretically unlimited number of ideas. From this notion, one may infer that SA needs more citizens who should be fluent in SASL, and who understand the community of those who are deaf and hard of hearing. Furthermore, some challenges outlined by DeafSA, are related to the absence of oversight and support for educators, a lack of funding for student-educator support materials, and the underdeveloped and makeshift curriculum.

Marschark and Spencer (2006) discuss the value attached to the SASL which is a first language not only for the deaf community, but for those with deaf children, friends, relatives, and people who communicate by sign language. Figure 2.5 below shows the SA alphabet which is different from the conventional English alphabet.
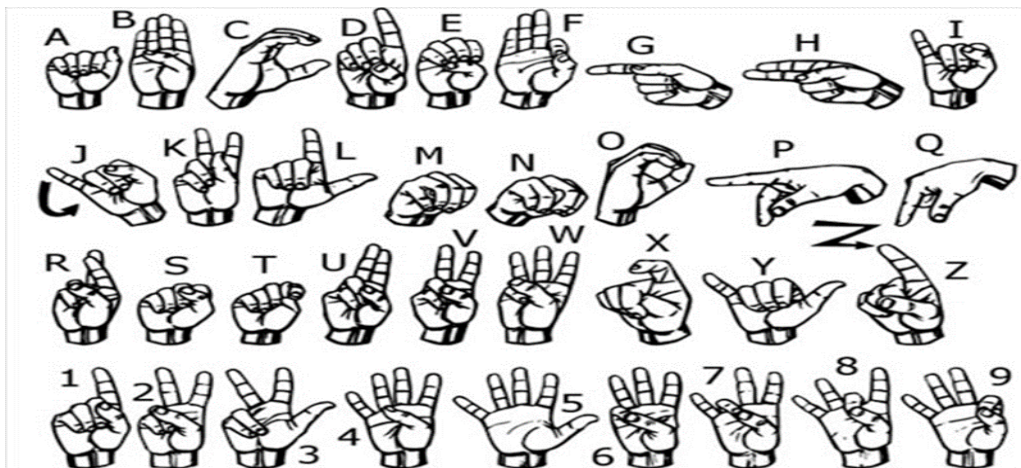
Figure 2.5: Alphabets and Numbers as per South African Sign Language

2.5.3 Situating the Models of Disability within the Critical Disability Theory

The CDT shows the conundrum between the socio-cultural which is the "social model" and the clinical-pathological which is referred to as the "medical model" in literature. These two are the dominant models of disability that challenge ideas of freedom *versus* interdependence and impairment as a socially constructed definition (Watson & Vehmas, 2019). The debate has gained fresh prominence with many arguing that the biopsychosocial model balances impairment contributions, personal responses to impairment, and the barriers imposed by the social environment to the concept of disability.

Though the biopsychosocial model seems to be progressive, critics like Benning (2015) argue that the model lacks philosophical coherence, based on the experiences of health professionals, specifically psychiatrists. The argument is that this model is unfaithful to the general theory of systems in which Engel (2012) claims to be rooted and that it gives rise to an

undisciplined eclecticism that does not provide any protection against the dominance or under-representation of any of the three domains of bio, psycho, and/or social.

Having criticised the model, Benning indirectly acknowledges his biases by making a disclaimer that contemporary psychiatry is more imbalanced than ever before and confirms that this medical profession is presently attracting much criticism for its positivist commitments and its bias in favour of biomedical/neuroscientific explanatory paradigms. It is interactive and individual-centred, thus creating a framework that considers both individual, biological issues and social contextual influences (Shakespeare, Watson, & Alghaib, 2017).

2.5.3.1 *The Clinical-Pathological Model of Disability*

The clinical-pathological model is also known as the medical model or the deficiency model. From a clinical-pathological perspective, deafness and hard of hearing are regarded as disabilities due to the inability to hear, whereas the community is characterised as a minority community who is treated by the majority of people who can hear in some derogatory ways (Peel, 2004).

People who associate with this model, are usually the hearing population who view hearing as being the "normal norm" and who feel that those that vary from this norm, have a disability that needs to be addressed. From the clinical-pathological perspective, the inability of SDHH to hear is regarded in a negative light and interpreted as a disadvantage.

This model assumes SDHH are responsible for adapting and integrating into the environment where they live, in this context, the ODeL university. It further regards deafness or hearing loss as a "personal tragedy" which restricts the SDHH's inability to participate in universities and broader societal activities.

A study done by UNESCO in 2002 (Patru & Khvilon, 2002) indicates how the focus on this model is on the disabling factors and the deficiencies of SDHH, and explains the challenges they face on a daily basis. Thus, from a clinical-pathological perspective, it is apparent that decisions affecting "disabled" individuals are made by "non-disabled" people who place themselves in a position of control, resulting in the "non-disabled" individuals eventually claiming authority over those who are "disabled," thereby further disempowering the "disabled." When SDHH are perceived as disabled and dependent on hearing people, therefore unable to achieve the same outcomes as hearing students, negative attitudes and stereotyping disparity continue to take place, resulting in the creation of obstacles to learning (Possi, 1996).

2.5.3.2   *The Sociocultural Model of Disability*

The sociocultural model of disability, also known as the social model, is at the other end of the continuum. In this model, the emphasis on deafness or hearing loss changes from that of "the individual's misfortune" to how the social system in which the SDHH must function, prevents them from full academic and social participation. Deafness seen through the lens of this model can be described as a group of people sharing a common means of communication (signs) which forms the basis of group cohesion and identity. Many people who assume this definition claim that the deaf community should be recognised as a distinct cultural group with their own beliefs and language – sign language (Possi, 1996).

The model is a response to the traditional medical disability model "which in itself is a practical analysis of the body as a mechanism to be modified to adhere to normative values" (Peel, 2004). This model suggests that "hearing impairment" is instigated not by a person's condition or inconsistency, but by societal structures. This identifies structural barriers, negative behaviours, and social isolation (intentionally or inadvertently) which means that culture is the key contributing factor in disabling individuals. An integral element of the social model relates to equality and equity; the model explores ways to eliminate barriers that limit life choices for SDHH where, once barriers are lifted, they become autonomous and equal, with the flexibility and power of their own lives.

It is only when SDHH in ODeL are regarded as a linguistic and cultural minority community that is capable of achieving the same results as other students and not as students with disabilities, that the reduction of obstacles created by negative attitudes to and stereotyping of difference can be realised (Humphries, Mertens, & Truman, 2020).

Thus, the sociocultural model of disability reflects the changes required in society. This may be in terms of attitudes towards SDHH and the importance of future quality of life, and social support including access to services, knowledge, tools, aids, and affirmative action to address barriers and knowledge in suitable formats and language of their choice. The correct application and implementation of this model will be relevant to achieving the objectives of this study and further achievements of SDG goal 4 which will be unpacked in the literature review chapter.

2.5.3.3   *Situating the Universal Design for Learning within the Critical Disability Theory*

UDL traces its origin to the Movement of Universal Design (UD) in the 1990s, where "universal design" is a term first used by Mace (1985) in the United States of America (USA), although forms of it have been quite prevalent in Europe long before. While the origins of UD catered

for specific groups of people, i.e., people with challenges like physical disabilities, advanced age, pregnancy, etc., the current trend accounts for the needs of the majority.

The term "universal" is conventionally synonymous to "general" and refers to a set of principles that are stable, timeless, and free of value. Story (2012) shows several instances where the universals are changing, time-bound, and value-laden. From this, it becomes clear that UDL follows a paradigm of critical theory from its conception and generation of knowledge. Though it is a contested space, there seems to be an agreement among scholars on what constitutes UDL frameworks, specifically with the past two decades in mind (Edyburn, 2021).

The Center for Applied Special Technology (2011) defines UDL as a set of principles that guide the design of inclusive instruction in the classroom and accessible courses. The three principles of UDL are the following:

- Multiple representation methods give students a variety of ways to gain information and build knowledge.
- Multiple means of student actions and expressions that provide alternatives for them to demonstrate what they have learned.
- Multiple ways of engaging students to tap into their interests, challenge them appropriately, and motivate them to learn.

These principles are more debated than ever before, as institutions are struggling to design an inclusive environment during and post Covid-19 (Basham, Blackorby, & Marino, 2020).

2.6   THEORY OF CHANGE

The theory of change gives guidelines on the chronological order of activities in a research project. For an intervention similar to that of this study, a theory of change can be applied where goals and activities can be identified and tightly planned. In this concern, Dhillon and Vaca (2018) define the theory of change as a theory of the improvements that will arise when an organisation uses its policies and practices to accomplish its tasks. This is essentially the logic behind an intervention. This causes the theory of change to become a guide, offering paths of results, leading to the organisational task.

Likewise, Vogel (2012) emphasises the contextual analysis of the context and issues when defining the theory of change. While it is often used to map the sequences of change that are supposed to be essential for stakeholders, it also supports the desired long-term change in

the contextual conditions that are set. There seems to be a consensus in the literature that the theory can also be used and adapted for effective monitoring and evaluation of a desired framework or plan (Clappison, 2014).
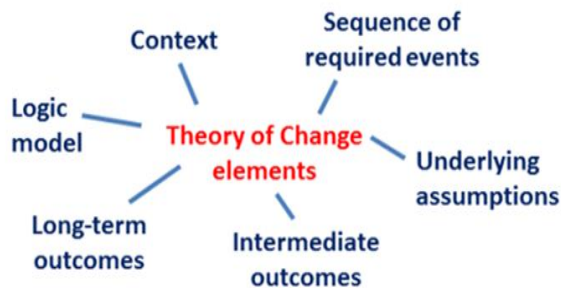
Figure 2.6: Theory of Change Elements

2.6.1 Purposes and Stages

Since evaluation is a continuous learning cycle, it is necessary to have guidelines on a process that will often start with preparations, leading to data collection, review and reflection, and then to action and improvement. Dhillon and Vaca (2018) argue that the purpose of ToC is to allow the stakeholders involved in a project, to have a better understanding of the purpose of an intervention and how it is achieving its objectives. This is achieved through a graphical representation, using logic models.

This theory provides quality frameworks by adhering to the guidelines indicated in the table, and the application of quality control by adhering to the framework outlined in table 2.1 below. The indicated elements thus provide a foundational base that allow the evaluation to go beyond the evaluation based on the outputs put forward to align the desired changes with the strategies of the ODeL institution.

For more depth and addressing, and for complexities that may arise, Brown (2016) recommends the addition of foreseeable risks, indicators and means of verification to elements in figure 2.5 while interacting with the stakeholders. Brown (2016) also acclaims that the evaluator together with the stakeholders should include further elements besides those in table 2.1 below.

Ele-ments	Description	Also Mentioned in the Study as	Specifics
Impact	The fundamental change which the action is trying to achieve.	Purpose and aims of the study.	Provision of SSS that are inclusive and provide reasonable accommodation, irrespective of disability.
Out-comes	Changes arising from the interventions and being regarded along the road as effects.	Objectives and significance of the study.	Conscientious staff on issues relating to student support for SDHH.
Outputs	Description and scope of the activities.	TMMR through explanatory sequential design.	The scientific process of data collection and data analysis processes.
Strate-gies	The set of actions that cause the change.	Emancipatory/Transformative research paradigm in response to the problem statement.	Recommendations on the transformed environment.
As-sump-tions	Beliefs that are taken as true or for granted.	Philosophical assumptions: Ontology, epistemology, and axiology.	Promoting and embracing the diversity of thoughts.

Table 2.1: Elements to Influence the Logic Model for the Study (Personal Archieve)

It is from this backdrop that the study has adopted ToC to address and make provision for the elements raised by Brown (2016). The visual representation through the logic model that will be inclusive of the said elements was developed, and formed an integrated cycle of generic logic model elements, barriers faced by SDHH, ontology and epistemologies, and the indicators found in the next chapter.

2.7 CONCLUSION

Chapter 2 has introduced the three theories that form the theoretical framework of this study. The foundations of the theoretical framework, selection, and justification of using and application of the TDT, CDT, and ToC were discussed. The literature will be reviewed in an integrated way through a systematic process in the following chapter.

CHAPTER 3
LITERATURE REVIEW

3.1   INTRODUCTION

This literature review is conducted to provide a synthesis of previously published research related to this study. It was conducted as prescribed by Paul and Criado (2020) as well as Cochrane (2000), whose systematic review of literature in the current cycle locate, evaluate, and synthesise empirical evidence that meets pre-specified eligibility criteria to answer the research questions outlined in section 1.7, aiming to answer the established research problem related to a lack or inadequate provision of SSS to SDHH in IHEs, particularly in the context of ODeL.

To objectively report on the current knowledge on a topic based on a summary and synthesis of previously published research, scholarly material is reviewed through UNISA's repositories. Other searches included Google Scholar, EBSCOhost, and ProQuest digital dissertations. Bibliographic and reference lists were obtained from related titles found during the review process.

3.2   ARCHETYPES OF DEAFNESS

It is important to first understand the archetypes of deafness and how they provide a position on identity building and the current ongoing trends and debates on how scholars use terms such as "deafness," "deafhood," and "hearing impairment" interchangeably, as well as the usage of upper and lower cases on the term "deaf" (Cardinale, 2004; Ladd, 2003).

Certain scholars such as Skrebneva (2015) seem to have some concerns and reservations about the use of the term "hearing impairment" over "deafness." This is due to the changes in the early 90s' legislation where it was required to apply the *Batho pele* principle. This principle explicitly interprets "people first" in the SA context, and focuses on what people with disabilities can do, rather than what they cannot do. The shift is from a medical model to a social model, where the primary focus is on the individual.

The term "hearing impairment" may be used in the same way, according to Magongwa (2008), provided that it appears within inverted commas. The reason for pursuing this school of thought is that those who do conduct research on or for people who are deaf and hard of hearing, need to consider the complexities surrounding the usage of terms applied to the

aforementioned community. Magongwa, being a researcher, identifies himself as a Deaf scholar, making the option to be justified.

The research of Magongwa (2008) remains influential, as it offers perspectives and guidelines on conducting similar studies in the SA context. He argues that most work done in SA is mainly based on the medical model, which has some implications on how identity construction is perceived, in particular by "hearing" people researching "non-hearing" communities. The term "hearing impairment," thus, may only be used within inverted commas, while still differentiating between the terms Deaf and deaf. Moreover, according to Magongwa, it is important to apply the aforementioned guidelines because many studies have used the medical model whose drawbacks are to use a blanket approach when dealing with issues concerning the Deaf and Hard of Hearing population. This dimension was evaluated while gathering data in determining whether the community of the participants supports the identity-building issues as mentioned in the literature.

In her argument on the construction of deafness, Lane (1995) demonstrates how Deaf people neither fall into the socially constructed categories of disability nor in the linguistic minority. Cardinale (2004) argues in the same vein regarding the alluded terminologies which are being used at IHEs for categorising and classification purposes. This often leads to the non-disclosure of one's disability status or related challenges, as is the case in the workplace (Jain-Link & Kennedy, 2019).

While categories might be important for an ODeL university to have an idea of how many SDHH they have on their system, the provision of SSS should be inclusive and integrated according to the CDT guidelines on the application of the UDL, which will eliminate parallel SSS for the SDHH and the rest of the student population. The sociocultural model of disability in the previous chapter shows how disability is constructed and may be non-existent in most cases where barriers are removed.

3.3 CONTEMPORARY APPROACHES TO DEAFHOOD

Contemporary approaches to deafhood have tended to follow a more pragmatic definition of disability that accentuates deafness as a type of social deprivation or disadvantage, arising from oppressive social systems and processes, rather than from cultural (social) or biological (medical) differences.

Kusters, De Meulder, and O'Brien (2017) criticise the deafhood theory as being too essentialist. However, Ladd (2015) is more focused on ensuring equal rights as the only strategy available to address the continued needs of deaf people. Ladd (2015) explores a multiplicity

of possible identity constructions, including the intersectional identity framework, e.g., by multiple disabilities, country, race, ethnicity, class, age, and gender.

Essentialism in principle appears to be positivist, since it propagates that time-tested approaches should teach values and skills for a society to be alike. Due to the pragmatic and epistemological approach of this study, the approach was aligned to progressivism, and by promoting progressivism, unlike essentialism, it focuses on the desires and needs of a certain group in society, the deaf community in this case.

Gulliver and Fekete (2017) define "deafhood" as a philosophy deemed to concentrate on a person as a whole and knowing an identity, as a first step towards achieving this. Recently the concepts of "deaf space" and "deaf geography" have arisen, referring to the complex virtual environments collectively created by deaf people. These scholars stress the importance of looking at the notion of "making identity" in terms of embodiment, space, and meaning (Gulliver & Fekete, 2017). Therefore, the term "Deaf" has become the identifying term for a distinct group with its cultural identity and language, thus not referring to hearing as such, but identifying themselves as a member of the Deaf community, regardless of the degree of hearing they encounter.

3.4 IDENTITY CONSTRUCTION ON DEAFHOOD

The deaf culture was first discussed in the 1970s and early 1980s when deaf people in the USA wanted a definition of culture based on values and traditions, in particular the central role of sign language in the daily life of the group. More recently, the deaf cultural community identifies itself as socially and culturally deaf, making a clear distinction between audiological deafness and sociocultural deafness – a disorder sometimes referred to as "attitude deafness." Therefore, the presence of audiological deafness is neither a necessity nor a sufficient disorder for cultural deafness within a sociocultural context of deafness. This stems from the social construct that people with disabilities have been solemnly regarded as objects that require care and support, where discrimination charges against SDHH were followed by derogatory terms to mark them as "deaf-mute" and "deaf-dumb"(Thompson, 2004).

Deaf people do not automatically associate with the hearing community, and actually see the "hearing" community as another language category. They gradually voice and respect their own self-constructed identity, rather than allowing the dominant "hearing" group to define them (Young, Napier, Oram, & Young, 2020).

Such a cultural conceptualisation of deafness poses a significant obstacle to hearing people's more traditional understanding of deafness. The distinction is not simply a theoretical

one, it is fundamental to one's perception of what deafness is, what it means to be deaf, and how individuals and cultures as a whole should handle deafness.

Identity construction connotes sameness, even as it distinguishes others, like immigrants from natives. Morgan (2014) advocates the view that identity is established as much as a process of "becoming" is written, in which the concept of belonging is developed. On an individual level, sameness is linked to the process of becoming and creating oneself, while on a social level it is about group formation and the process of becoming a part of the group, by attaining recognition as equal to certain members in other respects.

Abiatal and Howard (2019) depict deafhood as a "hearing impairment" and further identify it as a degree of "hearing impairment" on a continuum from mild to severe within a clinical-pathological context. Also, in the educational sense, deafhood is laid down as an inability to apply hearing to understand and learn the language, contributing to negative effects on educational success. By building on the definition by Westwood (2011), Deaf people are those who are incapable of perceiving speech as well as sounds and who are disordered by their language development. In comparison, Skrebneva (2015) holds a position on viewing deafness as a paragliding term for all types and levels of "hearing impairments."

While some research has been carried out on building Deaf people's identities, little scholarly knowledge on the contrasting views between the uppercase <u>D</u>eaf and lowercase <u>d</u>eaf appears to be present. Sociocultural and clinical-pathological views are the two contrasting interpretations held by Setai (2014), where the former views deafness as a disability, while the latter views deafness as a sociocultural identity. Essentially, the distinction between the two main ways of knowing deafness in nature is paradigmatic, going far beyond simple contradictory models or hypotheses (Kuhn, 1970).

Taylor (2016) maintains that the term "hard of hearing" (HOH) applies to a person who has mild to moderate hearing, whose primary language communication is spoken language, and who can benefit from amplification devices such as hearing aids. Since people who are HOH have spoken language skills in addition to an understanding of sign language, it can be argued that they should be listed as "<u>d</u>eaf." Nevertheless, DeafSA (2016) has found that within this group classified as HOH, there are individuals who tend to identify themselves with the "<u>D</u>eaf" community.

This illustrates how to approach this analysis pragmatically, not using the blanket approach to identify or categorise everybody according to literature definitions. To back my point, Berndsen and Luckner (2012), Cole and Flexer (2020), as well as Howell and Luckner (2003) argue that it is also possible to use the terms "HOH" and "deaf" where these terms are not

correlated with the degree of occurrence of hearing loss. Individuals who are functionally HOH, may have been born with or subsequently suffered a level of hearing loss, but have learned the language and acquired environmental knowledge, mainly through auditing, with the aid of amplification technology and auditory intervention. Belonging to a culture of deafness, does not mean that someone can hear nothing because it seems to lump someone into a certain category, whereas SDHH has the right to belong to that culture.

Petitto (1994) presents arguments to emphasise how deafness was characterised in the 90s and how it was rooted more in the pathological understanding of people whose status as "deaf" was determined by their incapacity to listen on their own. Setai (2014) corroborates with Magongwa (2008) who commonly uses the uppercase of the term "Deaf," as it applies to a category of self-identification, while the lowercase is for audiological impairment and is distinct from the method of self-identity which is generally accepted (Pudans-Smith, Cue, Wolsey, & Clark, 2019). When differentiating between these distinctions in upper and lowercase letters, sociolinguistic James Woodward first used the published distinction "deaf/Deaf" in 1972 (Wrigley, 1996). Magongwa (2008) further refers to an audiological definition of a lower case "deaf," usually from the pathological point of view of deafness, thus referring to an individual with a non-hearing disability.

Thompson (2004) clarifies how people who are Deaf identify themselves as members of a cultural and linguistic group that communicates through the local sign language and shares common values and beliefs, regardless of their ethnic background. Findings from Magongwa (2008) also reveal that the reference to the uppercase "D" is made to a minority cultural and linguistic group that wants SASL as a means of communication and equal access to learning with hearing peers, and acknowledges sign language as its first and natural language. This paradigmatic distinction lies between those who regard deafness as an audiological issue and thus understand it as an inherently medical condition subject to medical intervention, and those who regard it as a psychological, cultural, and linguistic disability that merely overlaps specific medical problems.

The terms and meanings used in the literature on the conceptualisation of identity formation in deaf studies over the past decade have been changed substantially and explored thoroughly. Morgan and Kaneko (2019) clarify this change and transition, viewing deafness from the audiological sense of the medical model. This is a move away from the essentialist distinction of "deaf" (lowercase) (Humphries *et al*. 2020; Woodward 1973) which implies audiological deafness, and "Deaf" (uppercase) which means the cultural deafness of users of sign languages. The trend of the term "deaf" (lowercase) being used, indicates the fluidity of deaf cul-

tural identities that appear in different places in the "Deaf" and "deaf" continuum (Bauman, 2008; Beth Humphries *et al*., 2020; West, 2012).

From the lens of the pathological view, SDHH are treated as objects that need treatment and assistance. Thomson (2004) builds on this definition, exposing the use of derogatory and degrading terms such as "deaf-mute" and "deaf-dumb." From pathology or medical model lenses, deafness is as negative as it is a "deficit" which results in the "audist network/ Audism" of special educators, teachers, audiologists, medical practitioners, and psychologists, working together to create a clinical-pathological model of deafness (Setai, 2014). In comparison to the pathological view, the cultural-linguistic or social view is commonly held in the Deaf population, where the existential situation is essentially that of a minority of languages, not belonging to a single country (Ladd, 2003).

The clinical-pathological model portrays a distorted perception that has a negative connotation of how deafness is perceived. However, as the model still provides the standard framework for most practitioners, particularly in the health sector, it is the positivist view on deafness that appears to be problematic in this debate. While the distorted perception of the clinical-pathological model has a negative connotation of how deafness is perceived, some SDHH continue to engage with medical practitioners in their settings in the form of physicians, speech therapists, and audiologists who help them with some treatments and assist some to use their hearing and language abilities to the fullest.

It may happen that some SDHH will, during their teaching and learning journey, need hearing aids or transplants from the "positivists" health professionals who will have to assist them by identifying and diagnosing them, before prescribing the correct or suitable hearing aids, depending on their preference and level of hearing. Throughout the literature, medical professionals such as these, are generally portrayed in a negative light. They are known as the supporters of the medical view of deafness, i.e., deafness is something that needs to be corrected as it is "abnormal." Their attempts to implement cochlear implants are especially considered extremely contentious. The following section unpacks the open distance and e-learning environment where many SDHH are studying.

3.5   BACKGROUND ON OPEN DISTANCE AND E-LEARNING

To date, no consensus has been reached on what constitutes DE and ODeL. Edwards (1995) provides an exciting opportunity to advance our awareness and interpretation of DE by giving mass learning to a mass market. In the past, scholars have applied a broad variety of alternative terms for DE, including "open learning," "open teaching," "non-traditional education,"

"distance learning," "online learning," "correspondence education," "independent study," "home study," "extension study," "external learning," "flexible learning," "flexible and life-long learning," "contract learning," "contract learning," "experiential learning," "private learn-ing," "drop-in learning," "independent learning," "individualised learning," "resource-based learning," "self-access learning," "self-learning," "assisted self-learning," and "continuing learning" (Garrison & Shale, 1987; Holmberg, 1977; Moore, 1990; 1973; Titmus, Buttedahl, Ironside, & Lengrand, 1979; Tournier, 1967; Patru & Khvilon, 2002).

Moore and Kearsley (2012) redefined DE as "teaching and planned learning in which teaching usually happens in a different location from the learning, requiring coordination through technology, as well as a specific institutional organisation," while ODeL focuses more on local needs and differences instead of providing a curriculum that has been developed.

The argument is that a correspondence with DE works well to address social injustices and decreases analphabetic rates by providing access to learning for common people and the population. The roots of DE are closely linked to the ideals of critical pedagogy, as this period is responsible for laying the foundations for today's information society, and the combination of DE communication as well as the technology of the 21st century, which became a significant catalyst of globalisation. This argument is placed well under the critical disability theory as well as the research paradigm adopted for this study, which is emancipatory and transforma-tive. SDHH should and must therefore be accommodated in this mode of teaching and learning.

DE,ODL and ODeL are interdisciplinary areas that have arisen not too long ago. Tech-nology has played an instrumental role in both fields, and it is evident that these areas are growing in line with the changes as technology progresses by creating new opportunities for learners to gain. Therefore, to get a more detailed understanding of DE and ODeL, it is im-portant to look at them from various perspectives.

An analysis by Bozkurt (2019) explores DE and ODeL from various perspectives to distinguish their future directions. The results conclude that the two are constantly developing interdisciplinary fields in which technology has become a significant catalyst, and these fields are part of mainstream education. Mainstreaming should, therefore, be viewed with caution since there is a need to re-examine core values and principles where critical pedagogy can play a key role. The image below shows the influence of technology as per the analysis above.

Models of Distance Education and Delivery Technologies	Characteristics of Delivery Technologies			Highly Refined Materials	Advanced Interactive Delivery	Institutional Variable Costs Approaching Zero
	Flexibility					
	Time	Place	Pace			
FIRST GENERATION						
The Correspondence Model						
• Print	Yes	Yes	Yes	Yes	No	No
SECOND GENERATION						
The Multimedia Model						
• Print	Yes	Yes	Yes	Yes	No	No
• Audiotape	Yes	Yes	Yes	Yes	No	No
• Videotape	Yes	Yes	Yes	Yes	No	No
• Computer-based Learning	Yes	Yes	Yes	Yes	Yes	No
• (e.g. CML/CAL/IMM)						
• Interactive video (disk and tape)	Yes	Yes	Yes	Yes	Yes	No
THIRD GENERATION						
The Telelearning Model						
• Audio tele-conferencing	No	No	No	No	Yes	No
• Video-conferencing	No	No	No	No	Yes	No
• Audiographic communication	No	No	No	Yes	Yes	No
• Broadcast TV/Radio and audio-teleconferencing	No	No	No	Yes	Yes	No
FOURTH GENERATION						
The Flexible Learning Model						
• Interactive multimedia (IMM) online	Yes	Yes	Yes	Yes	Yes	Yes
• Internet-based access to WWW resources	Yes	Yes	Yes	Yes	Yes	Yes
• Computer-mediated communication	Yes	Yes	Yes	Yes	Yes	No
FIFTH GENERATION						
The Intelligent Flexible Learning Model						
• Interactive multimedia (IMM) online	Yes	Yes	Yes	Yes	Yes	Yes
• Internet-based access to WWW resources	Yes	Yes	Yes	Yes	Yes	Yes
• Computer-mediated communication, using automated response systems	Yes	Yes	Yes	Yes	Yes	Yes
• Campus portal access to institutional processes and resources	Yes	Yes	Yes	Yes	Yes	Yes

Table 3.1: Fifth Generation of Distance Education (Taylor, 2001)

The history of DE started with courses whose learning material was distributed by mail and were thus called "correspondence study." By emphasising various characteristics, correspondence study was also called "home study" by the early for-profit schools, while the universities or colleges called it "independent study." Owing to the railway networks, which at the beginning of the 1880s were the cheapest, quickest, and most efficient form of transportation, individuals started to obtain their education at home or work (Moore & Kearsley, 2012). This concept is in line with the model of Taylor (2001) in which he represents each generation from the viewpoint of a rapidly evolving and diverse environment, while Heydenrych and Prinsloo (2010) endorse and reflect on how technology has influenced teaching, learning, and student support opportunities.

Print technology was the dominant technology in the first era of DE, and thus, due to the existence of written/printed materials and their method of distribution, this macro-age of DE was characterised by a didactic style of teaching and an integrated model of education. Though numerous forms of print media existed, the combination of the printing press and postal services paved the way for DE correspondence.

The second era of DE was visual-auditory and characterised by live educational radio programmes, which reduced many of the limitations of correspondence education, particularly delivery time, and increased the learning processes' immediacy. When live educational radio programmes emerged, the distribution of learning material *via* postal services was no longer necessary. Radio and television technology enhanced and improved contact and interaction

rates. During this period, the contact between students and educators was at first minimal. However, with each successive generation, there was an increase in the educator's level of interaction and social presence, and in terms of immediacy, this period was innovative. Masses of people were reached, which caused a rise in educational design studies.

Given this ease of reaching the masses, it did not take long for ODL universities to emerge, many of which began to be referred to as mega universities in the 90s, on account of their more than a hundred thousand student count. While the instruction was educator-centred during this period, students slowly started to gain independence and autonomy through the advantages offered by new communication technologies. Therefore, education started to make more use of communication technologies and the effectiveness of new methods of delivery.
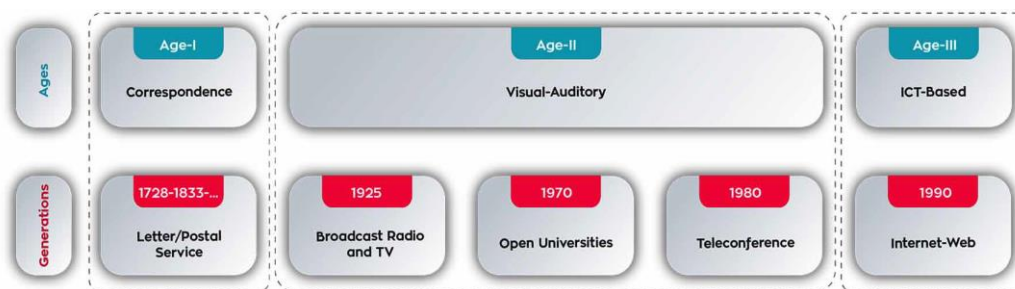
Figure 3.1: Ages and Generations of Distance Education (Bozkurt, 2019)

The third era, being computer-based, also marks the beginning of the age of digital information and the social network. The definition of the term "distance" had to be changed, as distance in time and space had lost its meaning. Rather than reaching the masses, a more personal approach to reaching individuals became possible. The prominence of educator-centred education diminished and was replaced with student-centred education. Compared to modern, higher-quality computer-based multimedia, the multimedia used in the preceding era had become obsolete, while synchronous and asynchronous instruction evolved to be as successful as face-to-face instruction. New learning models emerged with highly rich and interactive content, such as e-learning, mobile learning, and pervasive learning. The emphasis was more on training than on teaching, and the notion of lifelong learning gained great significance.

Holmberg (1985) and Keegan (1986) have conducted preliminary work on DE concerning the application of theories in this field. Although acknowledging the mainstream theories of learning, i.e., behaviourism, cognitivism, and constructivism that have influenced the learning research to date, much focus has been put on theories and strategies that relate to autonomy, industrialisation, and communication. The two scholars argue that there are three different educational strategies, namely pedagogy, andragogy, and heutagogy – where pedagogy is educa-

tor-centred, andragogy is represented by student leadership, and heutagogy is self-directed learning.

Pedagogy, Andragogy, Heutagogy compared - Heutagogy: The management of self-managed learners			
	Pedagogy Children's Learning	**Andragogy** Adults' Learning	**Heutagogy** Self-Directed Learning
Dependence	The learner is a dependent personality. Teacher determines what, how, and when anything is learned.	Adults are independent. They strive for autonomy and self-direction in learning.	Learners are independent. They identify the potential to learn from novel experiences as a matter of course. They are able to manage their own learning.
Resource for learning	The learner has few resources – the teacher devises transmission techniques to store knowledge in the learner's head.	Adults use their own and other's experience.	Teacher provides some resources, but the learner decides the path by negotiating the learning.
Reasons for learning	Learn in order to advance to the next stage.	Adults learn when they experience a need to know or to perform more effectively.	Learning is not necessarily planned or linear. Learning is not necessarily based on need but on the identification of the potential to learn in novel situations.
Focus of learning	Learning is subject centred, focused on a prescribed curriculum and planned sequences according to the logic of the subject matter.	Adult learning is task or problem centred.	Learners can go beyond problem solving by enabling pro-activity. Learners use their own and others' experiences and internal processes such as reflection, environmental scanning, experience, interaction with others, and pro-active as well as problem solving behaviours.
Motivation	Motivation comes from external sources – usually parents, teachers and a sense of competition.	Motivation stems from internal sources – the increased self-esteem, confidence and recognition that come from successful performance.	Self-efficacy, knowing how to learn, creativity, ability to use these qualities in novel as well as familiar situations and working with others.
Role of the teacher	Designs the learning process, imposes material, is assumed to know the best.	Enabler or facilitator, climate of collaboration, respect and openness.	Develop the learner's capability. Capable people: • know how to learn • are creative • have a high degree of self-efficacy • apply competences in novel as well as familiar situations • can work well with others

Table 3.2: The Comparison of Pedagogy, Andragogy, and Heutagogy (Heick, 2018)

3.5.1   The Openness in Open Distance e-Learning

"Openness" in education is an evolving term as indicated by Heydenrych and Prinsloo (2010) and there is no precise definition of ODeL, hence the interchangeable use of DE and ODeL. On the other hand, Msweli (2012) adds a different aspect to "distance" and describes it as a geographical location that is non-existent when it comes to putting technology into action because students can access the university anywhere in the world.

Similarly, both Bozkurt (2019) as well as Bozkurt, Koseoglu, and Singh (2019) support the view of UNESCO (2002) that accessible and distance learning reflects the fact that all or

most of the teaching is carried out by someone distant from the student in time and space, and that the project aims to provide greater dimensions of accessibility and versatility, whether in terms of access, curriculum, or other structural elements.

In contrast, Gaskell (2017) argues that the terms "open distance learning," or "open distance and e-learning" are challenged and combine two distinct concepts that are often related in both theory and practice. Her argument is supported and based on the advent of e-learning and its incorporation into the 21st-century term ODeL, concerning developments in open education resources (OERs) and massive open online courses. Her works also show how the OER movement signals that text, media, and other digital assets which are useful for teaching, studying, and evaluating as well as for research purposes, should be freely available, and openly licensed.

Peters and Jandrić (2019) demonstrate how open education is bringing opportunities for innovation and exploration of new learning models and practices. Conversely, universities need to understand the threats of the monopolisation of knowledge and the privatisation of HE. By contrast, they are investigating the prospects and promises of new forms of openness (open source, open access, open education, open science, and open management) that promote "creative labour" and the democratisation of knowledge. Policymakers need to embrace openness and make education affordable, accessible, and also profitable for institutions in an open HE ecosystem.

UNESCO (2019) supports the development, use, and adaptation of inclusive and quality OERs and promotes international cooperation in this sector because of more than a decade of multi-stakeholder OER efforts. The guideline outlines five action areas, namely:

- Strengthen stakeholder capacity to develop, access, reuse, adapt, and redistribute OERs.
- Building a supporting OER policy.
- Promoting OER quality which is inclusive and equitable.
- Promoting the creation of sustainable OER models.
- Fostering and enhancing international OER cooperation.

The implementation of the report on international level, represents a decisive step toward creating more transparent and inclusive information systems towards achieving the UN 2030 Agenda (UNESCO, 2019). The adoption of the recommendations will address at least six SDGs, namely SDG 4 (Quality Education), SDG 5 (Gender Equality), SDG 9 (Industry, Innovation, and Infrastructure), SDG 10 (Reduced Inequalities in and across Countries), SDG 16

(Peace, Justice, and Strong Institutions), and SDG 17 (Objective Partnerships). The next section reviews the literature on developing student support systems in ODL.

3.6 DEVELOPING STUDENT SUPPORT IN OPEN DISTANCE AND E-LEARNING: ALAN TAIT'S PERSPECTIVE

With the theoretical framework in mind, and grounding this study as well as giving guidance on planning student support for ODL, assistance should and must be provided to SDHH, which is an element of the student identities cited among the 11 identified guidelines. This will be highlighted in this chapter when discussing the provision of student support in ODL (Tait, 2000; 2014).

Understanding students' profiles and characteristics are at the core of evaluating support programmes for students, not only in ODeL, but also in face-to-face universities. Möwes (2005) has analysed student support programmes at an ODL university in Namibia and concludes that in most studies, student identity was often overlooked, particularly for minority communities or groups. Although her focus was on "adult learners in ODL," transferability with a specific sample frame can apply and extend to this analysis.

Mpofu, Chimhenga, and Mafa (2013) suggest that attention be given to identity issues in a related study in which they have looked at the development of learning materials for students with hearing shortcomings at a Zimbabwe ODL university. The main feature of ODeL is the availability of support resources for students, and this is evident throughout the literature (Tait, 2000). Tait's structure sets out the design criteria for the creation and management of SSS in ODeL by showing how the three elements – cognition, systems, and affect – play a role in ODeL student support.
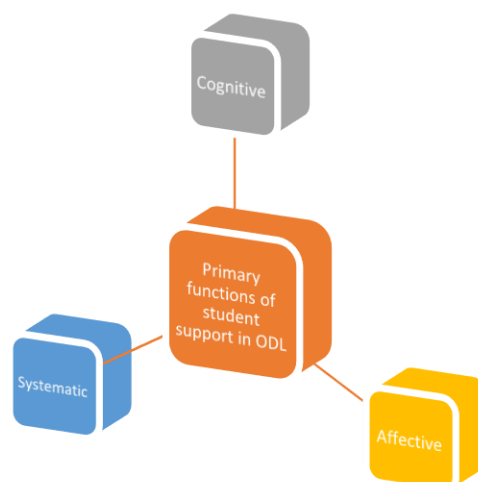
Figure 3.2: Primary Functions of Student Support in Open and Distance Learning

Letseka (2015) approves the functions and aims of student support as proposed by Tait. The reviewed three-fold functions on the above are unpacked as follows:

1. Cognitive: Supporting and developing learning through the mediation of the standard and uniform elements of course materials and learning resources for individual students.

2. Affective: Providing an environment that supports students, creates commitment, and enhances self-esteem.

3. Systems: Establishing administrative processes and information management systems that are effective, transparent, and overall student-friendly.

There is an awareness of differences in educational and organisational cultures, geography, technology, study programmes and student characteristics, generating such a variety of variables that the design of SSS must be customised to a considerable extent for institutions and sectors. UD for the learning dimension should be at the forefront of the emerging structures to accommodate everyone, in line with the CDT. Therefore, SSS should be pragmatically differentiated within the scope of an ODeL programme's operations, which may, of course, be said to have student support as its primary objective.

Additionally, student characteristics, management systems, and technology should be considered. Also to be considered are e.g., sex, age, employment status, disposable income, history in education, geographical position, and special needs. Furthermore, sign language, as well as ethnic and cultural characteristics should be considered.

3.7 PROVISION OF STUDENT SUPPORT IN OPEN DISTANCE AND E-LEARNING

Skrebneva (2015) claims that, for the most part, SDHH are entirely capable of achieving the same educational outcomes as any other students, but are, frustratingly, not at present achieving equivalent outcomes in an environment of low standards, as they are viewed by the system as unable to do so. This claim is supported by Wooten (2014), who has examined the readiness for further education by explaining the thoughts of SDHH on their transition from secondary education to HE. While her thesis employs a qualitative approach and uses a smaller scale through snowballing sampling, her pilot study addresses bias and improved scientific rigour. Despite the results not being intended to be generalised, due to a limited sample, they indicate a need to improve transitional preparatory programmes aimed at supporting the academic and

career growth of SDHH and not ignoring the significance of the advancement of academic literacy.

The absence and lack of a formal SASL curriculum that only came into practice in 2013, have led to the participation of several SDHH in career fields about which they were not enthusiastic. Reference is made by Wooten (2014), where most participants were inspired to pursue 1) careers in Catering, Accountancy, Information Technology, Fashion Design, Air Stewarding, and 2) running a SASL training company and a small baking business, teaching Deaf students how to bake, but was unable to follow their aspirations based on the social barriers and a lack of adequate support.

Wooten (2014) further notes that the study options offered at "colleges for the Deaf" are minimal and concentrate mainly on artisan-type work, and that the majority of Deaf adults who are working and have completed further education, are not working in their desired field of work. Many who were able to complete and graduate in courses such as Information Technology and Business Studies were unable to find employment in the desired field of work because they would have to finance their sign language interpreters which most alumni would not be able to afford, particularly when they first entered the world of work. Although it is not clear to what extent how some of her results may be transferable to an ODeL setting, what is clear is that SDHH may benefit from continued support such as SASL interpreters, note-takers, advanced written material/handouts, computer-aided transcription services and access to the institution's writing centres.

Furthermore, there are financial consequences, accessibility and transportation costs that will not apply in an ODeL environment, but only those associated with information and communication technologies. However, far too little attention has been given to financial values and to checking whether the lower inclusion levels are relevant to the said population in SSS programmes at ODeL universities.

Matjila (2018) demonstrates several funding opportunities in South Africa that cater for SDHH in IHEs, namely scholarships, bursaries, and study loans. While the Department of Labour's bursary and the National Student Financial Aid Scheme (NSFAS) are the two main funding sources that are often used in an ODeL environment, the blanket approach seems to be applied when allocating funding to students with special needs without recognising the additional support that SDHH may require.

The adoption and application of the UDL framework may give guidelines on how to provide reasonable accommodation and solutions to the claims put forward by Skrebneva (2015), which may be applicable not only for face-to-face (residential), but also for ODeL

(distance) universities. The recommendation referred to, promotes a holistic approach to the aspects of Change Theory as well as the social component of the Biopsychosocial Disability Model in that, by eliminating the barriers, SDHH can have fair access and positive learning experiences to achieve an academic excellence similar to the rest of the student population in HE.

When addressing access to HE, IHEs need to also focus on alumni services in preparing graduates for the world of work. Lang (2002) cautions the integration and socialisation of SDHH with the labour force, where an emphasis on equality and prejudice is often taken for granted. In doing so, the universities must completely respond to the psychological dimension as per the biopsychosocial model of disability.

Wooten (2014) corroborates the findings of Mpofu *et al*. (2013) that examine the learning experiences of SDHH at an ODL university in Zimbabwe. While the research of Mpofu *et al*. (2013) is prolific in the sense that it is in an ODL context in Africa and in SADC, it fails to highlight the relation between the degree of inclusion and SSS for SDHH.

Zimbabwe is one of the countries in the SADC region that has officially recognised sign language and seems to be progressive in providing sign language as an official language in the SADC region where sign language is only recognised (Kiprop, 2020). These challenges illustrate how difficult it is to move from secondary education to an ODeL university, where sufficient assistance is lacking or limited, in particular with reference to sign language interpreters and unique pedagogies to meet the special needs of the students. This affects both the university, which is the service provider, and the students who are expected to be the beneficiaries of the services provided. Once one enters an IHE, all these elements shift because they now have to adapt to the instruction language which is generally English, while most academic and administrative staff are not signing.

Since this is one of the few studies on the related subject in an African ODL context, the review is aimed at gauging the applied theories and how the UDL plays a role in the development of learning material in ODeL. While the emphasis was on the production of learning materials, the seven participants recruited by convenience sampling, addressed challenges that were routinely faced during the teaching and learning processes, ranging from accessing the university to application and acceptance. This, I argue because the results of the three scholars reveal how scarce access to colleges and universities is, and where SDHH are admitted, no services are available to meet their needs. It is from this point that a recommendation is made to highlight the need to develop learning materials that allow these students to learn through (ODeL) effectively. This disadvantage is unpacked as an obstacle, since SDHH are

experiencing learning and social challenges rather than being accommodated. Second, the purpose of their study was to provide an in-depth analysis of how to develop learning materials for SDHH in ODeL education. A recommendation for this aspect is imperative since it is in line with the aims and objectives of their study.

Third, creating a parallel programme and developing learning material for a specific group, defeats the inclusive mandate and intent of ODeL universities, and this may improve universities' financial standing, as discussed by Wooten (2014). By proposing alternatives when discussing inclusiveness, Skrebneva (2015) also confirms and supports the statement that SDHH are required to achieve equal outcomes in an environment of low standards, based on the resources provided to them.

Nsamba (2016) guards against assessing SSS and overlooking consistency. This study tackled that dimension while not achieving the aforementioned research objective as well as the secondary aim of finding out which access measures and support resources are in place to make ODeL programmes more available and accessible to SDHH, including reasonable accommodation to SASL.

3.7.1 Disability Rights Units in Higher Education: Support Services for Students who are Deaf and Hard of Hearing

A decade after SA became a democracy, the IHEs were mandated to institute disability units to coordinate the provision of student support to SDHH. Though this was a move in the right direction, Howell (2005) and Matshedisho (2007) demonstrate a lack of cohesion in IHEs relating to the student support programmes and the disability units. Those are services that should be considered when preparing student support programmes at an ODL institution, as Tait (2000) has suggested.

Although IHEs were required to create disability units to provide services to students with disabilities, including SDHH, these units were left to operate independently of the academic support provided by educators and tutors. In this context, Saunders, Nolan, and Provost (2009) have observed the obstacles and consequences for teaching and learning for SDHH in IHEs, concluding that these obstacles have significance for rethinking student welfare at ODeL institutions for SDHH.

Howell (2005) argues that the separation of disability units from other support facilities confuses the potential and need for teaching and learning approaches, as well as support systems for students to be questioned and eventually reformed in terms of the criteria for the inclusion of students with diverse needs. Since then, the SA government has established the

Strategic Policy Framework on Disability for the Post-School Education and Training System (DHET, 2018), which has tasked the DHET to create and define minimum standards and requirements for students with disabilities by guiding the preparation, career-pathing, and professional advancement of those rendering the services. This is a step towards professionalising and decentralising the already-defined disability units. The established norms would then respond to the UDL, as discussed in the CDT in the previous chapter.

Wooten (2014) unpacks the concept of contemporary professionalism where multidisciplinary approaches are required to create a positive impact through professionals trained in various fields. Professional networking is therefore essential to the development of new knowledge, as the synergies generate a higher level of power for individual professionals in their speciality area. She argues that this approach is preferred by many organisations to reduce costs in employing individuals with specialised skills in each field. The downside she shared, is that this specialist working in a multidisciplinary sense will have to undergo further training and enrol for ability development programmes to keep up with the current developments in different fields that could disrupt their job-related functions, break the necessary schedule of work, and manage educational requirements before resuming work.

The strategic framework and policy are intended to allow the DHET to perform DRU/SSS studies at different institutions and to prescribe common terms and standards/guidelines for DRU/SSS, serving students with disabilities. A search on the term "disability rights" shows how numerous IHEs in SA have adopted this terminology, including Wits University, Durban University of Technology, and North-West University, among others, while UNISA uses the Advocacy and Resource Centre for Students with Disabilities (ARCSWID).

3.7.1.1   *Review of Websites for Disability Rights Units*

This review did not have set criteria, but looked at the landing pages and if it was easy to access, navigate, and identify the services rendered to prospective or registered SDHH. Cohesion and decentralisation of services, according to the recommendations of Howell (2005) and Matshedisho (2007), were also considered when reviewing the websites. Additionally, it was done to determine how different institutions named their disability departments.

The DHET uses the DRU as a framework for disability units in IHEs and the Strategic Disability Policy Framework for Post-School Education and Training (DHET, 2018), which seeks to standardise the services provided and the DRU's professionalisation. The United Kingdom's Open University presents an overseas viewpoint in an ODeL context, while SA's Wits

University gave a face-to-face perspective in SA. Finally, UNISA was examined and compared with the two, including the expectations that emerged from the aforementioned setting.

3.7.1.2   Open University: United Kingdom – Europe

The United Kingdom's Open University (OU) is one of the mega universities that offer teaching and learning by means of the ODeL model. It has a website dedicated to a DRU that lists all the disabilities and impairments. When enrolling for a course, prospective and first-time students with disabilities can see or hear a list of disability support and adjustment possibilities. When going through the Deaf and Hard of Hearing Link, a booklet titled, *Studying when you are D/deaf* welcomes the reader. The booklet contains eight parts covering studying at the OU, how OU can help you select your course, interact with people, learn, take notes, and write assignments, as well as tips for reading and testing. Much like the material of the website, the booklet is not heavy on text but has fair visuals. To better understand the programme and the scope and level of student assistance, SDHH are advised to communicate with the student support team within the unit to seek guidance before they register.
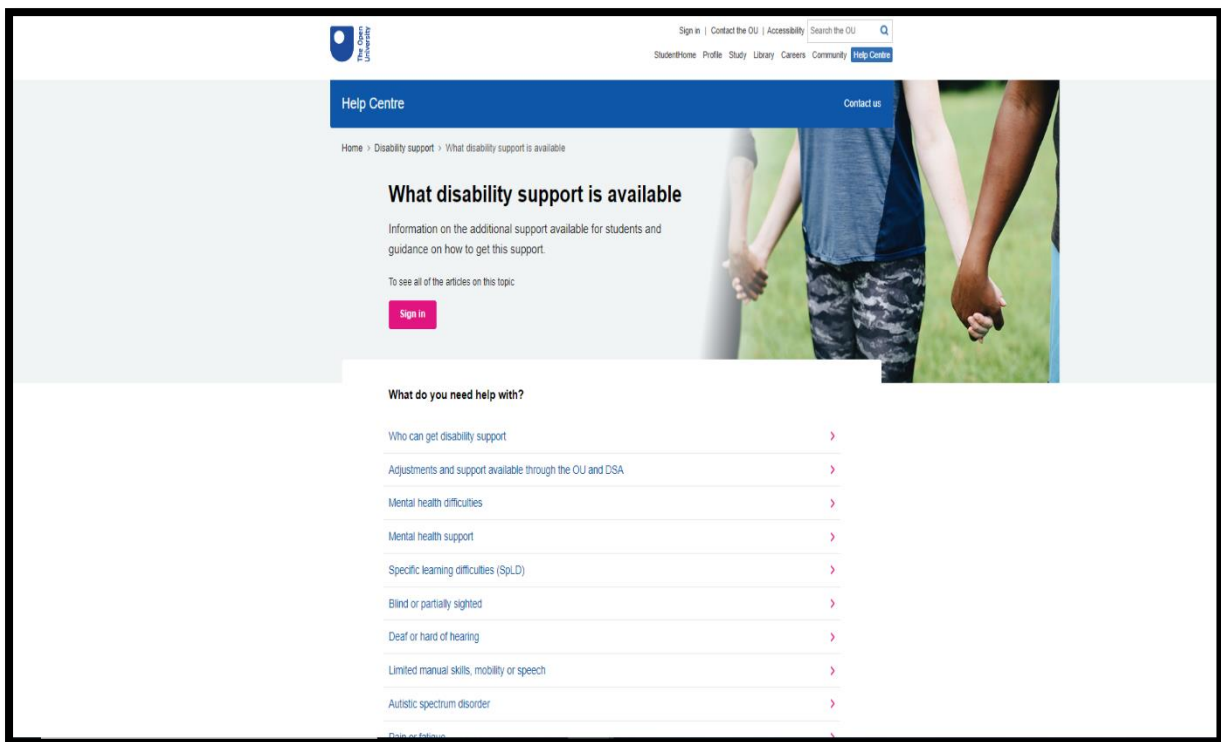
Figure 3.3: Open University Website – Disability Rights Unit (Open University, 2021)

3.7.1.3   Wits University: South Africa

Wits University is one of the residential universities in South Africa. The Wits Disability Rights Unit appears to be decentralised and the Deaf and Hard of Hearing services are located within

the Deaf Studies Centre. This is similar to the OU, but also linked to the library guides and provides more information about Deaf history, sign language, assistive devices, and other associated learning resources, as well as regular reports on how the centre operates.

The DRU at Wits illustrates best practices in service benchmarking criteria, student sensitisation and empowerment, and in ensuring funding for management and assistive technologies. It also has several community groups such as DeafSA where students have access to more services and fellow students with common experiences. Moreover, the Wits website has material to support friends and family of prospective or registered students with special regard to learning SALS. One of the titles loaded on their resources is, *SASL: A teacher, friend & family resource for beginners – quick and easy reference to learning South African signs with SASL, English, Zulu & Afrikaans.*
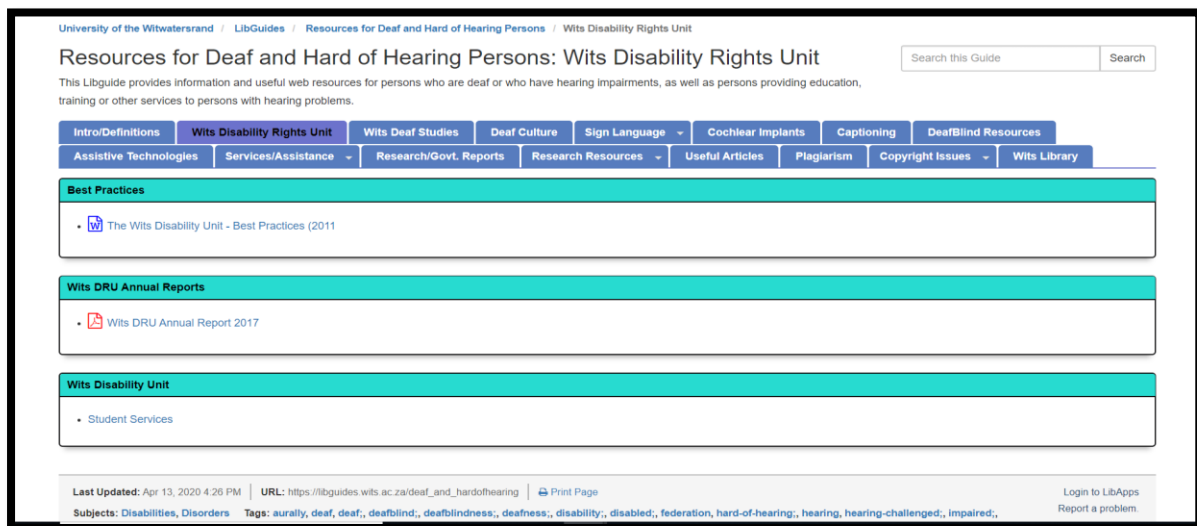
Figure 3.4: Wits Website – Disability Rights Unit (University of the Witwatersrand, 2021)

3.7.1.4   *UNISA: South Africa*

UNISA has a DRU website called ARCSWID. The landing page displays the "September month of awareness" and lists the services the unit offers. Provision of sign language interpretation services to Deaf students is among the list of services. Unlike Wits and the OU, the website of UNISA'S DRU does not mention the disabilities and impairments to which they provide services. However, it has illustrations, but with just two of them showing a brailed image, one can presume that most of the services offered are for the visually impaired.
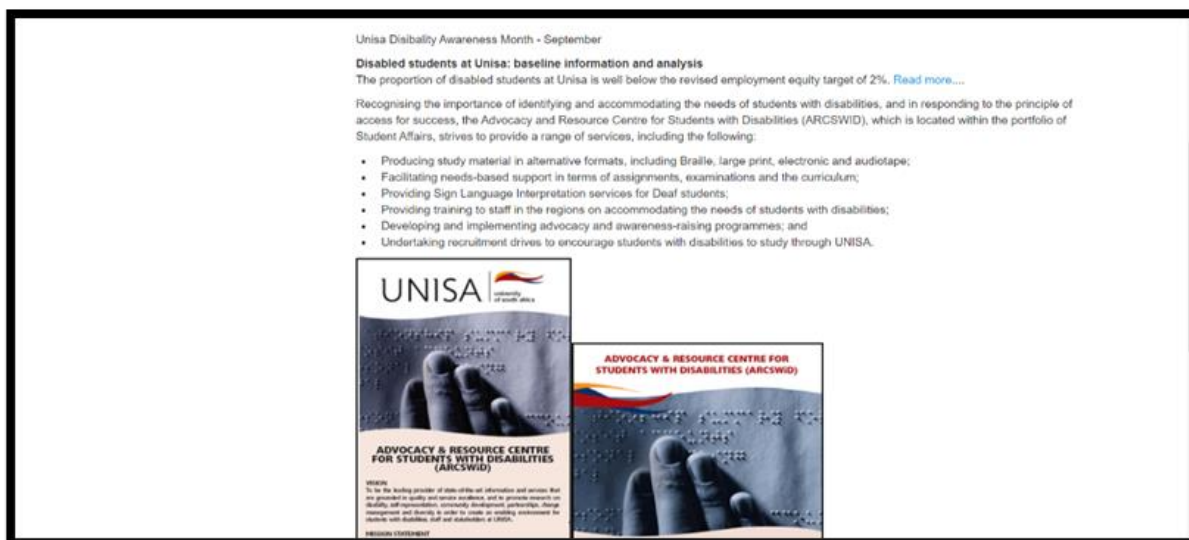
Figure 3.5: UNISA Website – Disability Rights Unit

3.7.2　Towards Inclusive Disability Right Units

While the DRUs contribute to the admission of SDHH and students with disabilities with respect to HE environments, this move comes with some inclusion challenges due to the structures and mandates of the DRUs (Howell, 2005). The current *status quo* seems to be responding to exclusions where SDHH are denied access to study at IHEs. Though the formation of the DRUs responds to address exclusions, and being a one-stop-shop for all SDHH, they seem to promote segregation, providing their SSS in isolation from other SSS departments.

Inclusion should be understood in its full context where the universal design framework is fully implemented and not as segregation or integration, as depicted in the figure below. Thus, inclusive SSS should involve systemic reform changes inclusive of modifications, teaching methods, approaches, and strategies in education, to overcome barriers experienced by SDHH. Admitting SDHH into the mainstream ODeL environment without accompanying structural changes does not constitute inclusion. Furthermore, integration as it has been demonstrated as the function of DRUs, does not guarantee the transition from segregation to inclusion (Juvonen, Lessard, Rastogi, Schacter, & Smith, 2019).
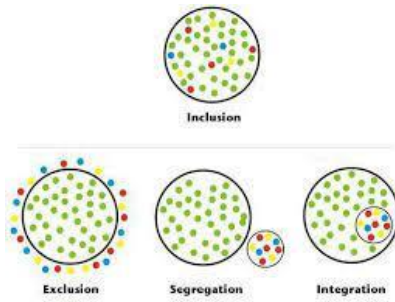
Figure 3.6: Inclusion, Exclusion, Segregation, and Integration

3.8 ONLINE TEACHING AND LEARNING CONSIDERATIONS FOR STUDENTS WHO ARE DEAF AND HARD OF HEARING IN OPEN DISTANCE AND E-LEARNING INSTITUTIONS

The advent of the internet and the development of new technologies for teaching and learning have changed society and teaching practices throughout the world. Education is no exception, as Batanero, De-Marcos, Holvikivi, Hilera, and Oton (2019) demonstrate how this advent has enabled the creation of new learning methods whereby educational tools are delivered through the web. The use of technology widens the scope for learning, but accessibility to technology is still an issue, due to continuous loadshedding resulting from the energy crisis in SA, poor internet connectivity in rural areas, and the cost of Wi-Fi and technological devices (Singh & Mahapatra, 2019). Hence, there is a need to explore potential options to bridge the digital divide and widen access to sign language resources.

Dede (1996) demonstrates how students want and need non-traditional and flexible schedules, as the technological advancements used in online learning have the potential to satisfy their needs in a more cost-effective way and with less time than conventional classroom learning. The same is reiterated by Voorhees (2001) who speculates that significant financial aspects of online education are the change from conventional tuition fees to the new system of student financing, allowing students to avoid spending their money on libraries, parking lots, and research areas. This is also confirmed by Möwes (2005), having done research on the satisfaction of the reactions of her participants with the effect of online education from an economic perspective in the postmodern age of online learning, as well as policy and online assessment implications (Milam, Voorhees, & Bedard-Voorhees, 2004).

Tallman and Fitzgerald (2005) reveal the source of negative attitudes by SDHH, due to a lack of participation by academic staff, contributing to difficulties and the inability to understand online assessments. Pribesh, Dickinson, and Bucher (2006) have established that the barriers to online learning by SDHH from a social model perspective are related infrastructure

problems, student segregation, restricted access to library services, personal engagement constraints, inflexible teachers, indistinct requirements for courses, and educator expectations. The said barriers are objected to by Glass and Sue (2008) who argue and demonstrate that there is a minimal correlation between SDHH satisfaction with online education and web-based learning, and the satisfaction of traditional students with face-to-face studies.

The thesis of Wooten (2014) is one of the groundbreaking research projects in Deaf education, as it explores the perspectives of SDHH who have enrolled for an online course in a postmodernist view of ODL. While it was a phenomenological study, incorporating a qualitative approach with a small sample in the USA, it is significant as it offers insight into the causes and difficulties encountered by SDHH during the online teaching and learning process. This study reaffirms and corroborates Ragaan (1999) in that, regardless of class size, communication with the educator is the central component of effective teaching and learning. Therefore, in the absence of this communication, the process of learning could be fragmented and delayed.

Initially, Ragaan (1999) has claimed that the implementation of new pedagogical approaches, including the use of electronic communication technology, are important to the success of online education, particularly because online education reduces professional and personal contact. This literature shows that there is a relation between the degree of inclusion and academic SSS for SDHH in an ODeL university – an aspect to be tested in this study.

It shows that communication and empowerment that must be used in technological platforms, make it easier for SDHH to excel in online courses. Lessons learned are that there might be technological challenges and less interaction with academic staff which may heighten the negative perceptions of ODeL as a tool for independent learning.

Online learning in ODeL was not viewed as a learning disadvantage for those who completed the courses. It rather led to professional growth and the development of reflexive, logical, and analytical reasoning in academic writing activities. Moreover, as students accomplish their goals independently, it provided a sense of personal achievement. Additionally, some factors contributed to academic excellence:

- The provision of ample time for SDHH to transition from the text of the written sentence under review to the video or chat.
- The presence and availability of online tutors play a critical role in the completion of the assignments.

- Access to reading materials with elements of audio, video and multimedia, allows content to be provided via print, sign, and spoken language in asynchronous and synchronous settings, adding more versatility to the course content, which is tailored for the unique needs of individual students.

Surprisingly, only those who failed the course had a high degree of consensus. The loss was due to external personal circumstances, such as a lack of time and financial problems, as well as the transition period for ODeL. The variation refers to the time during which the students had to adjust to the online world from the conventional classroom system. According to the participants, it took several weeks to adapt, simply because they were not used to studying this way. Other difficulties and problems involved, were technological issues such as the websites being inaccessible. Given these challenges, all the participants who failed, claimed that those difficulties outweighed the advantages of distance learning. Some compared distance education to an empty classroom where there was no educator, no peers, and no classmates, and this influenced their motivation negatively.

The studies done by Ragaan (1999), Tallman and Fitzgerald (2005), as well as Pribesh, Dickinson, and Bucher (2006) suggest that it is important to consider personal contact in ODeL and it also applies to SDHH. Tait's guidance remains important in that the three elements of cognition, affect, and the systems should not be overlooked when designing any ODeL student support network (Tait 2000), and it is clear from the work of Möwes (2005) that she agrees. It further reinforces the application of the transactional distance theory where the participants indicated that the more communication there is with the tutor, the more they feel that they belong and manage the given tasks.

While research on accessibility is in its preliminary stages in HE, over the years, it has been a matter of contention. Batanero *et al*. (2019) discuss how to exploit the evolving virtual existence of learning platforms and learning goals to enhance accessibility. The statement supports the clear proportional relation between developing framework implementations and website usability. In their study, 100 SDHH formed part of a university sampling frame, confirming their findings. While accessibility improved, this was still not enough to ensure complete access to information for students with different capacities.

However, McKeown and McKeown (2019) dispute the above statement, stressing that it is not just technology that is to be blamed because it has been found that there are students, regardless of disability or not, who are not digitally tested and thus struggle with technology in general. Their emphasis and argument also focus on the fundamental challenge of English

being the language of instruction and learning for SDHH. English literacy is vital to online environment success and has an impact on everything, from sending e-mails to following directions. As English is a "foreign language" to some or most SDHH, they struggle with literacy like any other students using a second language. According to their findings, the barriers are threefold, namely the learning management system (LMS), course material, and communication and language.

These two arguments provide insight into the technological challenges, while the argument put forward by McKeown and McKeown (2019) is more applicable to the ODeL environment than that of Batanero *et al.* (2019), in that it goes further than just the internet access, adding LMS accessibility, course material, and language issues, therefore being more detailed and relevant in responding to this study's research problem. Such obstacles are graphically illustrated in the figure below:

LAYER 1:
LMS

LAYER 2:
COURSE
MATERIAL

LAYER 3:
COMMUNICATION
AND LANGUAGE

CONTENT
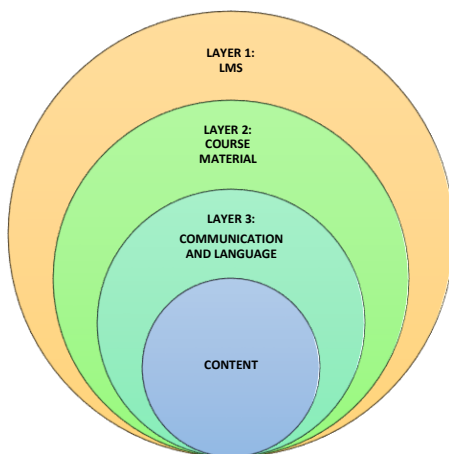
Figure 3.7: The Barriers Faced by the Deaf in Online Courses (cf. McKeown & McKeown, 2019)

There needs to be accessibility to the LMS after navigating through the university website where the course material is loaded, and there should be discussions and conversation between the students and the educators. The first layer of accessibility as illustrated in the figure above is websites and the LMS. These systems serve as the instruction and information access points. The LMS should include elements such as alternate text tags for images, synced captions for timed multimedia, time-out warnings, and screen reader accessibility to address accessibility through UDL.

The second layer refers to the accessibility to course material, and usually includes objects in the form of word documents, video clips, PowerPoint documents, etc. Rose and Meyer (2002) show how digital media can be adapted to multiple formats, especially for SDHH in

their book on UD. This includes the provision of alternate text to audio, completely captioned video clips, PDF or HTML translations, and text labels for all images so that they can be viewed by the screen reader.

The third layer addresses communication and language, constituting a paradigmatic lens of the social model of disability and social justice, while evolving facets of social justice constitute a bigger part of the barrier. Researchers like Mike and Harrington (2013) as well as Roberts, Crittenden, and Crittenden (2011) have reported on the ineffectiveness of design intended to be inclusive and to accommodate SDHH, but did not yield the intended results, having included text alternatives for audio content and captioned videos. Language issues related to assignment guidelines and communication techniques for educators were also not addressed, hence the failure of the design.

Recommendations from McKeown and McKeown (2019) include the provision of captioned videos (self-captioned, auto-captioned, or third-party captioning), lecture/video transcripts, as well as PDF-captioned documents and slides. Such accommodations are often assumed by educators and course creators to be appropriate for SDHH, as the primary delivery tool in an online course is text or visual images. However, such modifications do not overcome the language and communication barriers of the third stage.

From the discussion above, it seems that in the case of SDHH, assumptions are often made about the degree of accessibility required to allow full course participation. Mike and Harrington (2013) are of the view that simplifying task specifications and class e-mails or any communication medium is likely to result in enhanced comprehension and success SDHH.

As guided by Kivunja and Kuyini (2017), adjustments to the UDL framework should be applied on the websites well before formal accommodation requests are made by SDHH, therefore being proactive. It is from this standpoint that certain supporting content strategies were suggested (McKeown & McKeown, 2019), discussed in the five sub-sections below.

3.8.1 Plain Language

Plain language is readable since the reader can make sense of writing with minimal effort. It is also intelligible, since the message is clear, relevant, consistent, and cohesive, and ultimately useful since it is effective and appropriate to convey the message.

3.8.2 Advanced Organisers

They are effective for both Deaf students and for hearing students. Biser (2003) demonstrates how experienced organisers can help SDHH to enable prior information and contextualise and

encode new materials. Similarly, Lang and Steely (2003) have found that, in part, the use of graphic organisers in online courses often leads to better student outcomes.

3.8.3 Text Features

The use of learning strategies and supports can make content more accessible and comprehensible. Howell and Luckner (2003), as well as Kelley and Clausen-Grace (2014) have identified the benefits of educating students about text features as a reading comprehension technique. Understanding the sections of a text, including headings, subheadings, captions, and glossaries, and how to use them, will increase the confidence and comfort level of a deaf student with the text (Howell & Luckner, 2003).

Examples of this include specific lessons that orientate the student to the text, a text navigation job aid, and a key text feature preview. Images can be used as an example to strengthen texts such as the emphasis on separation with reference to foods, as shown below:

Figure 3.8: Imagery

Howell and Luckner (2003) have found that the successful use of visual imagery to promote new vocabulary learning, is beneficial in a classroom environment. Creating mental images, specifically to accompany every word of the vocabulary, allowed the subjects of their study to remember new vocabulary without the need for additional help. This includes using content-related, purposeful (non-decorative) images, an illustrated glossary, labelling images for new vocabulary as appropriate, and a range of examples to illustrate abstract concepts such as videos, images, and vignettes.

3.8.4 Summarisation Skills

Howell and Luckner (2003) have specifically proposed a teaching summarisation as a skill in itself and found that the participants did not completely understand how to summarise key points in their research, and instead only condensed sentences from a passage of reading. Teaching summarisation as a strategy helps students to understand what a summary is, how

specific information can be identified, and how information can be studied and retained in the future. To do this, academics should be able to create scaffolded assignments with a guided summary, provide examples from other fields/subjects, and provide job support and resources for additional practice or support.

3.8.5   Glossaries and Vocabulary Support

The English vocabulary could become an enormous and sometimes insurmountable challenge for the SDHH – equal to that of a "hearing" student. It can benefit SDHH alike to provide simple resources such as hyperlinking challenging terms, including a content-specific glossary, or to provide resources to refresh assumed prerequisite knowledge. The image below is an example of support for tooltip vocabulary with an embedded description of certain terms:

Figure 3.9: Multiple Versions

In general, assumptions on what would be most beneficial for the SDHH should not be made, and instead, a range of choices should be given so that the SDHH can select what works best for them, or use a combination to improve their understanding. Similarly, a study by Lang and Steely (2003) has found that the inclusion of online courses of text plus American sign language (ASL), videos, and vocabulary support resulted in higher evaluation ratings. Likewise, the text should not automatically be replaced with pictures or symbols, given the possible problems with English literacy. Rather, the most successful way is to incorporate text and graphics to support each other, and not simply replace each other (Fajardo, Cañas, Salmerón, & Abascal, 2006).

This was supported by the research carried out by Yoon and Kim (2011) who found that using captions in conjunction with an ASL translation for videos, resulted in substantially higher comprehension and had no negative effect on cognitive load. The captions combined with an ASL video translation resulted in slightly higher comprehension and had no negative effect on cognitive load. Current literature shows advances made to transcribe audio in online

and virtual meetings to text, to accommodate SDHH, and those who may benefit from the innovations (Yoshioka, Chen, Dimitriadis, Hinthorn, Huang, Stolcke, & Zeng, 2019).

3.9 COMMUNICATION CONSIDERATIONS AND EDUCATIONAL IMPLICA-TIONS FOR STUDENTS WHO ARE DEAF AND HARD OF HEARING IN OPEN DISTANCE AND E-LEARNING

Skrebneva (2015), as well as Morgan and Kaneko (2019) argue that in most cases, several SDHH spent a significant part of their school years in speech therapy, especially in their early school years, and took instruction in a spoken language that they could not understand. The basis for the argument is that fewer resources, as well as time, are allocated to teaching SDHH in lower primary on several subjects, as most teachers are not fluent in sign languages, making it difficult for SDHH to communicate with them in an inclusive setting. A lack of fluency and comprehension of sign language often lead to less communication and prohibit the students from learning literacy skills beyond grade 4 (corresponding to a nine-year-old who has attended school since they were six). Hence, for a long time, SDHH has not done well on an academical level.

Although a comparatively small number of orally gifted students who are HOH and could benefit from amplification, could continue their studies, the majority of SDHH, who remain unable to speak, are deemed academic failures and sent to vocational schools. The educational ramifications that arise from the opposing models of disability are that existing models and procedures of education continue to presume and be based on the pathological concept of deafness, in which Deaf students are generally assumed to be profoundly impaired when assessed against a hearing norm. By incorporating the psychological aspect of the two popular paradigms, IHEs may start to rethink the "normativity of hearing" to be weighed against the "hearing impairment," which in turn means that the kind of educational activity they find acceptable, will look quite different from most contemporary schooling.

One of the three theories that frame this analysis is the CDT, and one element of it is the support for SDHH to have access to autonomy as well as to fully engage in the activities at the universities. Communication is crucial in order to participate completely, and the ODeL universities should be advised about the open communication methods available to IHEs and the choice of communication mode for SDHH. This is supported by the literature on Deaf education which has shown that placing SDHH in a conversational classroom alongside their "hearing" peers, can trigger barriers to their learning and development because deafness itself is not a special need but rather a language problem (Peel, 2004). These premises can cause

multiple problems, as, under these circumstances, SDHH have no communication opportunities but just lipread or writing things down to access information, and this prevents them from learning experiences based on the language they speak (Matjila, 2018).

Moroe and De Andrade (2018) categorise the different languages in "preferred language," "spoken language with references," "spoken language and signs," and "sign language." Whereas the language alternatives being spoken, include the auditory-verbal approach and the auditory-oral approach, sign language incorporates gestures, body language, facial expression, and movement, and it has its grammar and structure rules like any other language. Students who use sign language as a communication mode do not rely on hearing amplification in the form of hearing aids or cochlear implants.

Sign language, like English, differs from regions all over the world, hence the SA version of SASL. The auditory-oral approach is the same as the auditory-verbal approach, except that this approach helps the students to master the spoken language (Moroe & De Andrade 2018) by using visual signals such as lipreading. The spoken language and sign communication also involve amplification and vision, but the auditory portion is replaced by the use of manual communication.

3.9.1   South African Sign Language

Sign language performs multiple roles for SDHH. It does not serve only as the community's vernacular language, but also as a sign of participation in a cultural group. Thus, it plays a significant role in establishing what can be called the DEAF-WORLD experience – that is, how Deaf people make sense of the world around them. It does so in two distinct ways: First, as a linguistic mediator by its position, and second, as a component of cultural identity (De Meulder & Haualand, 2019).

SASL is currently a visual-spatial language (perceived by the eyes and created with the hands, the neck, and the upper body) used by the SA Deaf community. It does not represent English by hand with individual signs corresponding to English words. It is a complete language with all the characteristics of the world's other languages (Perniss, Lu, Morgan, & Vigliocco, 2018). Signs in SASL are phonologically composed of five parameters, as in all other sign languages: Hand shape, position, movement, palm orientation, and non-manual features, such as unique facial expressions as visualised in figure 2.4.

SASL is a different language in its own right, and not a language of derivation, pidgin, or contact. It is a controlled, grammatical, formal, and non-arbitrary communication system similar to other natural sign languages in nature. The proof of SASL's distinctive character

offers adequate documentation for the robustness of this language, which is especially remarkable, considering the systematic persecution of Deaf people and their language in SA and elsewhere.

In this regard, it is encouraging that research on SASL provides evidence and insights that can contribute to the many bodies of international literature, which suggests that the essence of signed language may have some universal characteristics combined with distinct characteristics to different sign languages. The literature appears to be based on conventional face-to-face institutions, and there is little or no evidence as to how SDHH need to be accommodated in an ODeL sense, as there are no classrooms and interpreters to completely attend to the students while the lessons are in progress.

De Meulder and Haualand (2019), as well as Ngobeni, Maimane, and Rankhumise (2020) have raised a concern about a sign language interpreter being an automatic tool for inclusion whereas they need to be familiar with the course material to be addressed in the classroom, as their functions are not limited to conveying the substance of the classroom contact. The tasks of the sign language interpreter expand to a method that allows the instructor to do further research on the subject and concepts, so that they are familiar with the words and phrases as well as the signs to convey them.

There seems to be a consensus though, that a good sign language interpreter does not begin to translate immediately after a person starts communicating. They rather should be allowed time to evaluate the details and the message being conveyed cognitively. This implies that the sign language interpreters must have an academic and subject-related vocabulary for the modules and content they translate.

Although there are developments made in mainstream IHEs about the definitions of sign language in the classroom, there are further issues to overcome. Paniagua and Simpson (2018) claim that the role of interpreters in the classroom has helped students in the USA by making the language more responsive (*words they understand*) and expressive (*words they use*). Consequently, interpreters follow approximately one or two sentences behind the person who is actively communicating. This option of using sign language interpreters and note-taking in classrooms is not feasible and realistic in an ODeL setting, as SDHH and every student study in their own time and space where some online activities may be asynchronous.

One of the results of the learning experiences of some SDHH in ODeL is that, while some have devices to absorb the external sound stimuli, it is troublesome when everyone is arguing in a room and this disturbs the sound processing. Though this was not a generalisation

from Matjila (2018) who used a smaller sample of SDHH, the phenomenological analysis gave insight into some communicational challenges perceived by SDHH in ODeL.

Reports state that there are about 300 different sign languages in the world. Due to its significance for the development and growth of the Deaf population, only 41 countries around the world have recognised sign languages as an official language. The United Nations (UN) has since proclaimed 23 September to be the International Day of Sign Language. While the cabinet of SA is in the process to approve SASL as the 12th official language, SASL is not yet fully recognised, as the existing 11 official languages of the country are Sepedi, Sesotho, Setswana, siSwati, Tshivenda, Xitsonga, Afrikaans, English, isiNdebele, isiXhosa, and isiZulu.

This recognition also provides for the promotion and production of SASL by the Pan-South African Language Board (The Constitution of the Republic of South Africa, 1996). Despite not enjoying the status of the other 11 official languages, SASL is nevertheless listed explicitly in the Constitution. In Chapter 1(6:5), the Constitution has created the Pan South African Language Board (PanSALB, 2022), which is empowered to promote and create conditions for the creation and use of the 11 official languages, including Khoi, Nama, and San languages, and sign languages as per the Pan South African Language Board Act, 1995.

For each of the official languages, as well as for the Khoi and San languages, a different National Language Board was established under the auspices of PanSALB (PanSALB, 2006). A National Language Board was also established for SASL in 2001, with two main goals: Initiating and implementing strategic initiatives aimed at an increasing awareness, identifying needs, and promoting SASL, and also identifying and funding initiatives aimed at improving SASL (PanSALB, 2006). A related description of SASL is included in the National Language Policy Document provided by the Department of Arts and Culture (África, 2020).

The SA Schools Act (África, 2020) also contains a clear reference to SASL in the section on language policy in government schools, in the educational sphere. Chapter 2 of the Constitution (*Bill of Rights*) guarantees that "*everyone shall have the right to obtain an education in the official language or languages of their choice in public educational institutions where that education is fairly practicable.*" This is taken further by the SA Schools Act, stating that "*a recognised sign language has the status of an official language for public school learning purposes.*" This argument is further explained and reiterated in the Department of Education's Language in Education Policy, which is surprisingly silent to concerns of the SA Deaf community and SASL (Department of Justice, 1996).

In the country's education system since 2018, SASL has been officially recognised not as a home language, but as an additional language for teaching and learning. The thorough

analysis done by Hall (2019) on the CDT found that a political will is required to ensure that sign language is understood as academic advocacy, and that it is therefore not sufficient to just move this agenda forward, especially in the HE spaces.

3.9.2 Assistive Devices

3.9.2.1 Hearing Aids

A hearing aid is a device that raises or amplifies sound to make it louder. The main forms of hearing aids are those worn at the back of the ear, inside the ear and those implanted further down the ear canal. Typically, these devices include a microphone, volume-control amplifier, speaker, battery, and acoustically built ear mould as shown in the figure below:

Figure 3.10: Hearing Aid

3.9.2.2 Cochlear Implants

Whereas the hearing aid amplifies the ambient sound stimulus, the cochlear implants produce the sensation by stimulating the auditory nerve electrically. The divider consists of two elements, which are internal and external. The electrodes are implanted in or on the cochlea while the outside portion is implanted on the temporal bone as shown in the following figure:
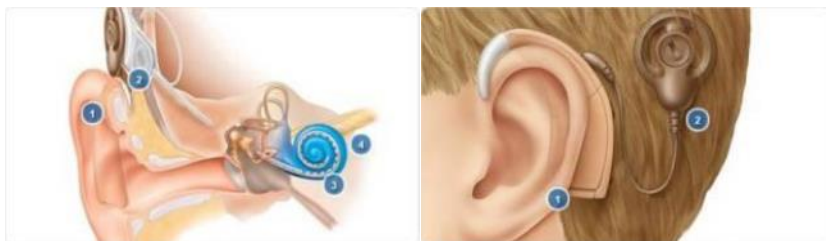
Figure 3.11: Cochlear Implant

1) Sound Processor   3) Electrode   2) Transmitter Coil   4) Inner Ear

Cochlear implants are shown below. The diagram depicts the level of sounds and the decibels:
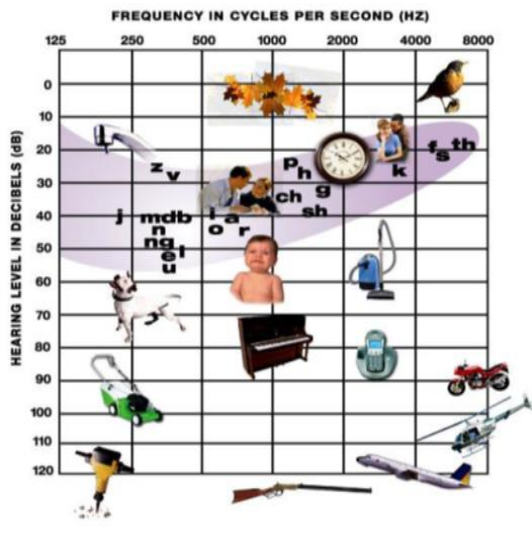
Figure 3.12: Audiogram

Cochlear implants are usually only recommended for students who are profoundly deaf and cannot benefit from other types of hearing aid at all. Although the student may begin to perceive the electrical stimulus soon after surgery, improvements in their language skills usually take at least one year to become apparent.

3.10   LOCATING THE FOURTH INDUSTRIAL REVOLUTION IN THE FIFTH GENERATION OF DISTANCE EDUCATION

The 4IR is the current and developing environment in which changing technologies and trends like the Internet of Things (IoT) and Artificial Intelligence (AI) change the way we live and work. The 4IR has several implications for skills development and education, including rein-venting education systems and strategic approaches to stimulate creativity and innovation (Kayembe & Nel, 2019).

Tsekeris (2019) takes a similar view when defining the characteristics of the 4IR in the use of information and communications technology (ICT), commonly used in businesses, government, and civil society.

3.10.1 Predictable Opportunities and Challenges in the Fourth Industrial Revolution

3.10.1.1   Opportunities for Technological Advancement in Education

Education in the 4IR (HE 4.0) is a dynamic, dialectical, and exciting tool that can potentially change society for the better. In many other fields of life, the 4IR has various consequences. As such, it holds educational opportunities as well as challenges. By using various components of the 4IR, such as the IoT, 3D-printing, quantum computing, and AI, the education sector could be completely transformed to provide solutions to new challenges (Tsekeris, 2019). The correct and effective use of new digital technology in HE is both a requirement and an imperative for maintaining the high-quality standards demanded by a productive and prosperous world.

Ștefan (2019) confirms that, regardless of the positive influence of new digital education technology, there are challenges that come along and which should not be taken for granted, like the digital divide. While Pather (2020) recognises this divide, the application and use of technology are used to solve some social exclusion. In other words, it is possible to use recent technological developments as a bridge to close the distance between rich and poor, and between different races. Additionally, the 4IR provides educational institutions with the ability to establish collaborations with other stakeholders such as governments and private companies in particular.

Private stakeholders such as IBM, Microsoft (MS), and others have mainly lobbied for the 4IR through research and development where these companies and stakeholders can collaborate. SA President Cyril Ramaphosa has established a 31-member commission, including academics from various IHEs on the 4IR, headed by the ministry of communications (South Africa Government, 2019). This is to

- advise government officials about the 4IR;
- develop a framework for a multisectoral 4IR strategy; and
- coordinate, track, and analyse multi-sectoral initiatives to position SA as a successful international 4IR player.

3.10.1.2   Challenges in Technological Advancements for Education

One of the effects of the 4IR concerns curricula and teaching and learning in the education field – rather than with robotic tutors. In other words, teaching and learning need to be cross-sectoral.

Students and educators from different fields need to know about the various factors involved in effectively implementing the 4IR (Butler-Adam, 2018; Ștefan, 2019).

As Butler-Adam (2018) explains, students studying basic and applied sciences need to understand the political and social nature of the world they live in. In turn, students studying humanities and social sciences need to at least understand the basis of AI and how it works. As far as teaching and learning are concerned, online training and the growing use of AI need new guidance to provide a theoretical basis for digital pedagogy (Penprase, 2018).

Therefore, digital literacy should be a fundamental prerequisite for SDHH to develop the adaptive capacity to participate in the global digital society, take advantage of the digital economy, and derive new opportunities for employment, innovation, creative expression, and social inclusion (Brown-Martin, 2017). In general, digital skills are considered to be the "main prerequisite for carrying out online resource enhancement activities, for achieving positive results from Internet use, and for the entire cycle of access and knowledge inequality" (Brown-Martin, 2017).

We have become an integral part of a comprehensive educational system (equally critical for both mathematics and language learning), such that without a clear digital learning programme, a portion of the population would be analphabetic, unable to fulfil the requisite job requirements. The concept of digital competencies can no longer be limited or reduced to technical features. Bridging and connecting social capital, which must be inseparably balanced with strong human capital and sustainable institutional capital, is the fundamental democratic foundation of social and economic wellbeing, not just at a national but also at global levels (Kravchenko & Kyzymenko, 2019).

Thus, there seems to be a need to relate digital skills to an accepted collection of values, principles, and rules such as diversity and non-discrimination, equality and self-determination of knowledge, engagement and understanding, justice and solidarity, fairness and ethical accountability, resilience, and sustainability (Brailas, Koskinas, & Alexias, 2017).

3.10.1.3   *The Challenges in South Africa in terms of the Fourth Industrial Revolution and Education*

The Action Plan for the Department of Basic Education, the National Development Plan and the 2004 White Paper on e-Education identify several challenges concerning education and technological advancement.

Meyer and Gent (2016) list the lack of funding as the main challenge that might affect the successful implementation of the 4IR in education in SA. While education funding has

increased in previous years, it is still not sufficient for educational institutions to operate fully. Among others, it has led to higher university fees and reduced research funding. This is corroborated by Cloete (2017) who argues that technology is a driving force behind the commodification of education in SA and most parts of the world, despite the inequalities evident in the societies.

The challenge for educational institutions is to spend more on new developments in technology and to prioritise what funding should be used for. Substantial financial backing is required for new technology to succeed in IHEs. The largest cost of training is tangled with trained educators and technical resources.

While the said challenges may seem to be recent, they were identified and go back to the drafted and approved Action Plan for the Department of Basic Education, and the 2004 White Paper on e-Education, and are being revived in the NDP 2030. The following were identified:

- Identifying which educators require pedagogical help.
- Critically and on-time evaluation of the educational outcomes.
- Introducing new skills to educators and students of the 21st century.
- Providing access to realistic online communities and web content.
- Making students more focused, fresh, novel, and entertaining.
- Allowing for self-learning and discovery.
- Promoting critical thought and sharing new ideas.
- Raising administrative responsibilities, such as labelling assessments and notification of absences.

The Covid-19 and lockdown restrictions applied in early 2020, accelerated the use of online services and this gave a glimpse of what it means to be going fully online. Lessons learned should be incorporated into the proposed framework to ensure that there is a reasonable accommodation for SDHH when a university goes fully online as it aspires (Basham *et al*., 2020; Bonell *et al*., 2020; Motala & Menon, 2020).

3.11 DEAFHOOD IN OPEN DISTANCE AND E-LEARNING: TOWARDS THE UNITED NATIONS' SUSTAINABLE DEVELOPMENT GOAL 4

The contemporary literature on disability studies is more inclined toward inclusion and access to education. This is a move to ensure that the exclusion that prevailed, is addressed by in-

cluding and integrating students with disabilities into the mainstream system (Singh & Mahapatra, 2019). While the inclusion movement is being appreciated since it promotes equality, the UN is advocating for equity, a stance that will accelerate and uplift the needs of students with disabilities. The image below demonstrates the difference between equality and equity where equality is where every student is given the same resources, while equity is where students with disabilities are uplifted and reasonably accommodated in competing with their peers.
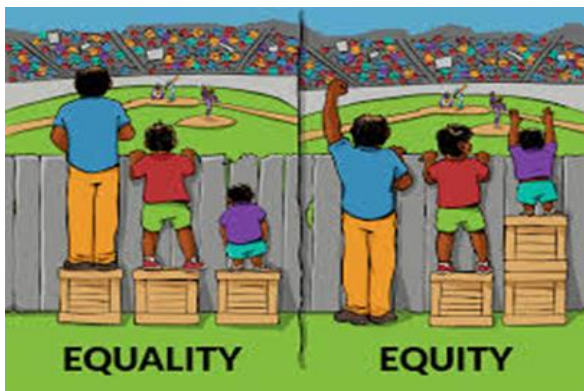
Figure 3.13: Equality *versus* Equity

3.11.1 United Nations Guidelines and the Sustainable Development Goals on Disability and Impairments

UNESCO is the UN's scientific and cultural educational body. It pursues peacebuilding through international collaboration in economic, scientific, and cultural fields. The UNESCO projects, approved in 2015 by the UN General Assembly, contribute to achieving the SDGs set out in Agenda 2030. The SDGs are the blueprint for each governing state to create a stable, prosperous future (UNESCO, 2019). It aims to discuss the global challenges citizens face like those related to poverty, inequality, climate change, environmental degradation, peace, and justice. Many of the 17 targets are intertwined, and the planet must achieve them by accommodating all of them by 2030.

SDG 4, which this study partially responds to, is aimed at ensuring equitable and equal quality education and encouraging opportunities for lifelong learning for everybody. First, the SDHH need to have exposure, and similarly so, to IHEs, after having passed primary and secondary education. Second, governments and IHEs are encouraged to build facilities and programmes that are inclusive and facilitate effective learning for SDHH with specific attention to internet access and computers for pedagogical purposes.

This is also mentioned in Article 24 of the UN Convention on the Rights of Persons with Disabilities (United Nations, 2022), which focuses on education. The article states that

institutions and governments should ensure that services for the study of people with disabilities and, in particular, citizens who are blind or Deaf, be provided with education in the most appropriate languages, modes, and means of communication (United Nations, 2022).

Article 30 of the UN Convention on the Rights of Persons with Disabilities (2016) sets out the state's unique obligations to implement, facilitate, safeguard, and protect the cultural rights of people with disabilities. These include the Deaf culture and their right to have access to open formats for participation in cultural life.

Although SDG 4 aspires to resolve the difficulties of the SDHH, little to no progress appears to be made in addressing the needs of SDHH. The progress study on SDG 4 for 2019 reveals inequalities in educational opportunities, and results that lag across continents, sub-Saharan Africa, and parts of Central and Southern Asia (United Nations, 2020). As a result, most SDHH are not equipped to engage in a highly competitive global economy. This disparity will necessitate state officials to refocus their efforts and ensure that the standard of education is improved, and that more people of all ages will be able to access it. The lag of the said results will allow policymakers to refocus their efforts to ensure that the standard of education is improved and that more people of all ages are able to access it. The UN progress report (2020) indicates little progress in improving access to education for disadvantaged students or students with disabilities in general. One commitment made, is to advance facilities and programmes that are inclusive and facilitate successful learning for people who are Deaf and Hard of Hearing, with particular attention to internet connectivity, while computers are still not regarded in service of pedagogical purposes.

3.11.2 Linking the African Union Agenda 2063 and the Sustainable Development Goals

"Agenda 2063: The Africa that we want" (African Union, 2015) is the blueprint and master plan for Africa to become the global superpower of the future. It is the continent's strategic framework aimed at achieving its objective of inclusive and sustainable development and is a concrete manifestation of the pan-African movement for unity, self-determination, democracy, growth, and collective prosperity pursued under Pan-Africanism and the African Renaissance (African Union, 2015).

The basis of Agenda 2063 is the awareness of African leaders to refocus and prioritise the continent's agenda away from the struggle against colonialism and to achieve political independence, which is also the goal of the Organization of African Unity, the predecessor to the African Union (AU), and to seek sustainable social and economic growth. Although the AU emphasises strategies for ensuring that its people are well-trained and competent with ICT

skills, there is less debate about how the continent reacts to SDG 4 in education that affects disability issues.

The goal of this educational project is to use ICT-based programmes to improve access to tertiary and continuing education in Africa, by simultaneously reaching a large number of students and professionals at multiple locations. Besides, it aims to develop suitable and high-quality ODeL facilities to provide students with guaranteed access to such a university, from anywhere in the world and at any time. While ODeL appears to be a viable educational model for reaching SDHH in all African countries, the AU seems to lack guidance on how to be inclusive in this regard.

3.11.3 South African Government Response to Sustainable Development Goal 4

Until 1994, the SA Ministry of Education was split into 18 divisions of racially segregated educational systems. Each agency had its policies related to students with special educational needs. Not all departments of education cared for these students, thereby fully marginalising the disregarded groups. There were significant inequalities and gaps in the provision of comprehensive education for the different race groups and practically no support at the preschool level for black children with disabilities (Hay, 2003).

The SA government adopted the White Paper on the Rights of People with Disabilities in December 2015, and this accelerated the application of social reforms that were espoused after SA became a democratic country in 1994. Below are some papers that responded to disability issues:

- The 1995 resolution of the South African Federal Council on Disability.
- The South African Schools Act (Act 84 of 1996).
- The recommendations of the National Commission on Special Needs in Education and Training (NCSNET).
- The National Committee for Education Support Services.

For the first time, the country had a disability policy with an implementation plan that explicitly referred to steps that needed to be taken by various agencies and organisations in supporting and protecting the rights of people with disabilities. Previous to this, a variety of legislation had been introduced that made note of people with disabilities or discussed disability issues. The DE appointed the NCSNET to investigate and make recommendations on all aspects of special needs and support programmes in education and training. The study recommended a

shift toward a system-change approach in education from concentrating on improvements that needed to be made among students (Department of Education, 1997).

The Presidency on SA's Voluntary National Review (VNR) Report (2019) revealed the SA government's positive moves toward meeting SDG 4. Some of the milestones are that students who were beset with various disabilities while completing high school, had since advanced slowly albeit at a low level. The downside is that the education system continues to suffer from inequalities in the quality of education, low enrolment levels in upper secondary and tertiary education, and insufficient education access. Furthermore, a big skills-level limitation is the lack of internet access. While approximately one-third of schools have computers for pedagogical purposes, fewer than 19 percent have internet connectivity for these purposes. This is significantly lower than in many countries competing with SA.

This may lead to, or delay the country's initiative to increase the rate of participation in the AU's educational programme, which will be focused on ICT engagement at ODeL universities. Given the slow progress in response to SDG 4, the progress report stresses that education appears to be a priority at all levels of government in their overall policy and planning.

SA's tertiary sector has experienced dramatic changes, with mergers between universities in traditionally segregated parts of the country, such as homelands, as part of SA, as well as between universities and former technikons and colleges. The VNR Report of SA (The Presidency, 2019) notes that, while the mergers were aimed at harmonising standards and efficiency, campuses located in previously disadvantaged homeland areas, tend to struggle in many instances to compete for students with good academic backgrounds. Under the next 11 sections, the legislation that addressed disability in educational spaces, is discussed.

3.11.3.1   *National Education Policy Act (Act 27 of 1996)*

Among other things, this policy aims to ensure that no person is denied the opportunity to obtain an education, no matter what their disability is.

3.11.3.2   *Higher Education Act*

The Higher Education Act (Act 101 of 1997) provides for the establishment, management, and financing of public IHEs and the registration of private IHEs. Looking through the disability lens, it restructures and improves programmes and structures to better respond to the country's human capital, as well as its economic and developmental needs, to address past discrimination and ensure equality and fair access, to provide optimal learning and knowledge-building opportunities, and to promote the principles that underpin an open and democratic process.

3.11.3.3   Education White Paper 3 on the Transformation of the Higher Education System

This White Paper was developed to eradicate prejudice of all kinds by fostering access equity and equal chances of success for all. Furthermore, it advances the redress of inequalities and assists in meeting the needs for learning and training programmes and regional growth needs, including the highly qualified needs of the industry, with a special focus on job creation.

3.11.3.4   Education White Paper 6 on Special Needs Education: Building an Inclusive Education and Training System

This White Paper outlines the policy of the government to reform the then existing system of education to make it more effective, equal, and fair. It highlights the importance of transparency in the production of infrastructure, material, and human resources, as well as the funding criteria for developing an inclusive education and training programme. The government has committed itself to provide educational opportunities, in particular for students who continue to encounter barriers to teaching and learning or have dropped out as a result of an IHE's failures to meet their learning needs.

As the focus is on the education sector, it does acknowledge the various learning needs of people with disabilities, including negative attitudes and disparities in stereotyping, inflexible curricula, inappropriate languages or languages of teaching and learning, inappropriate communication, inaccessible and dangerous built environments, and inappropriate and insufficient support.

3.11.3.5   National Plan for Higher Education

The National Higher Education Program (Ministry of Education, 2001) allows IHEs to improve accessibility and reasonable accommodation for students with disabilities. The policy allows IHEs to create plans that reflect goals, adopted strategies, and measures taken to increase access.

3.11.3.6   Promotion of Equality and Prevention of Unfair Discrimination Act (Act 4 of 2000)

For more thorough clarification, this particular legislation was drafted, as most citizens continued to be unaware of the level of the obligation it imposes on the PSET programmes to eradicate discrimination. It notes that unfair discrimination against any individual, based on disability means, *inter alia*, failing to eliminate barriers that arbitrarily hinder or prohibit people with disabilities from accessing equal opportunities, or failing to take measures to properly meet those people's needs.

3.11.3.7   National Development Plan 2030

The NDP 2030, as the policy framework for comprehensive government planning, is a blue-print for eliminating poverty and rising inequality in SA by 2030. This advocates for a socially egalitarian SA society and promotes the idea that all segments of society, including SDHH, have a crucial role to play in achieving national development goals that respond to SDGs. This acknowledges that many SDHH are unable to achieve their full potential due to a variety of barriers that need to be resolved and therefore recommends an improved access to quality education and employment. It underlines the role of education, training, and creativity at all levels in eradicating poverty and inequality and stresses the importance of education in building a productive nation.

The 20-year assessment (1994-2014) tracked progress in the implementation of the educational policy and findings reveal that there are deficiencies at all levels of IHEs, including academics, support staff, and management. This is due to a lack of capacity to tackle the notion of disability and a greater understanding of the needs of students with disabilities, as well as staff who render the SSS.

This has prompted the DHET through The Strategic Disability Policy Framework for Post-School Education and Training (DHET, 2018) to build its internal capacity to support and resolve issues of disability within IHEs by conducting post-school disability studies, designing and implementing policies, and providing IHEs with the required tools to promote progress in this area. This also gave birth to the National Disability-Disaggregated Development Plan with the goals indicated in the next section.

3.11.3.8   The National Disability-Disaggregated Development Plan

The National Disability-Disaggregated Development Plan sets clear goals which are applicable to the PSET framework. The goals respond to the following:

- Access to high-quality education and training leads to dramatically enhanced learning outcomes. The disability sector targets are set on 80,000 educators and 14,000 in-service training officials on the key policy implementation guidelines from 2020 which should be achieved by 2030.

- Increasing the participation rate in HE from 17 percent to 30 percent. The disability sector targets were set at 99,994 by 2020 and 199,988 by 2030.

- Increasing university entrants in science and mathematics to 450,000 by 2030. The disability sector goals were set at 27,765 by 2020 and 55,530 by 2030.

- 100 doctoral graduates per one million per annum. The disability sector targets were set at 308 doctoral graduates with disabilities by 2020 and 616 by 2030.

3.11.3.9 *Policy Framework for the Realisation of Social Inclusion in the Post-School Education and Training System*

This policy is based on the universal human rights model that aims to include all people, irrespective of ethnicity, sex, gender, disability, language, age, geography, HIV and AIDS status, citizenship, beliefs, or medical condition. The focus is on providing equal opportunities, access, and reducing prejudice and bigotry. This policy framework is intended to assist PSET institutions in enforcing social inclusion and to provide the DHET with a monitoring mechanism to ensure that its social inclusion goals are considered in all PSET institutions.

3.11.3.10 *White Paper for Post-School Education and Training – Building an Expanded, Effective, and Integrated Post-School System*

The PSET White Paper acknowledges the rights of people with disabilities and commits to establishing a comprehensive disability policy structure through collaborations with established agencies and other organisations to assist SDHH in improving access to and progress in PSET.

In the system, all IHEs have to deliberate on policies within the institutional (ODeL) context and establish tailored institutional disability management strategies. It is envisioned that this is focused on criteria and guidelines established by the strategic policy process for the incorporation of students and staff with disabilities into all facets of university or college life, including academic life, community, sport, and accommodation.

3.11.3.11 *The Strategic Policy Framework on Disability for Post-School Education and Training System (2018)*

Notwithstanding international and regional agreements, regulations, policies, and guidelines, post-school disability management remains inconsistent and distinct from that of the current institutional-level transition and diversity systems. By incorporating them into conventional programmes, the DHET has made substantial strides in enhancing education and career opportunities for people with disabilities. While much has been achieved in the PSET, the representation of disability rights remains inconsistent and isolated at an institutional level from that of current transition and diversity programmes. Commitment to people with disabilities histo-

rically differed greatly between institutions, as did the resources dedicated to dealing with disability issues.

There was no formal policy for dealing with the inclusion of students with disabilities in the PSET sector. The Strategic Policy Framework on Disability for the Post-School Education and Training Programme is also required to direct people with disabilities in improving access to and progress in PSET (including private institutions). Implementing this strategic policy framework would speed up progress and resolutions on inclusion, integration, and equity for students with disabilities in PSET. The Strategic Policy Framework for the Post-School Education and Training System aims to establish an inclusive PSET programme for people with disabilities, direct PSET institutions in developing a supportive atmosphere for people with disabilities, and provide the DHET with a monitoring and evaluation mechanism to ensure compliance with disabilities is mainstreamed across all PSET institutes.

All of these aim to realise the goals of the White Paper on the Rights of Persons with Disabilities to ensure mainstreaming within the PSET framework. With this Strategic Policy Framework for Post-School Education and Training, the DHET provides an enabling atmosphere for the integration and mainstreaming of students with disabilities in the PSET framework, ensuring that disability-related policies and guidelines are enforced and controlled and that obligations are not delegated to IHEs as such.

3.11.4 UNISA's Response to Sustainable Development Goal 4

UNISA has made headway in responding to SDG 4 as well as responding to the national imperatives outlined in the Vision 2030 NDP. A strategic plan for 2016 to 2030 was developed to address diversity issues among other imperatives. Disability is discussed in the strategic plan and focuses on the principles with which UNISA aims to foster humanity, anti-racism, and self-worth in light of cultural and intellectual differences, to achieve equality and non-discrimination on the grounds of ethnicity, nationality, gender, marital status, racial or social origin, colour, sexual orientation, and age. Strategic target 11 of this plan aims to increase successful and productive student services to encourage a better student experience. It is envisioned that this will be achieved through enhancing response times, engaging with students, developing organisational-level agreements with specific timelines for student involvement, and improving the student experience in the delivery of study materials and formative evaluations.

Furthermore, the goals of the AU are addressed by improving customised student experience (including tutorial courses, laboratory research, web-based community groups, assessments, connectivity, time constraints, and application and registration processes) by using

a technology review and updating an integrated connectivity approach for prospective and registered students to create disability centres of excellence. The next sections discuss the three institutional policies that are in line with SDG 4 and matters arising from the NDP.

This headway is also evident in the events where the university is contextualising the SDGs to local content with achievable indicators (Nhamo, 2021). SDG 4 is broader in that it addresses 1) equal access to affordable technical, vocational, and HE, and 2) the elimination of all discrimination in education. Furthermore, there are targets which address the building and upgrading of inclusive and safe schools, expanding HE research for developing countries of which SA is one, and increasing the supply of qualified educators in developing countries. Despite the contribution as per the figure below, these are some of the concerns that need to be addressed to ensure that the university contributes adequately to SDG 4 (Elsevier, 2021; Mawonde & Togo, 2019).
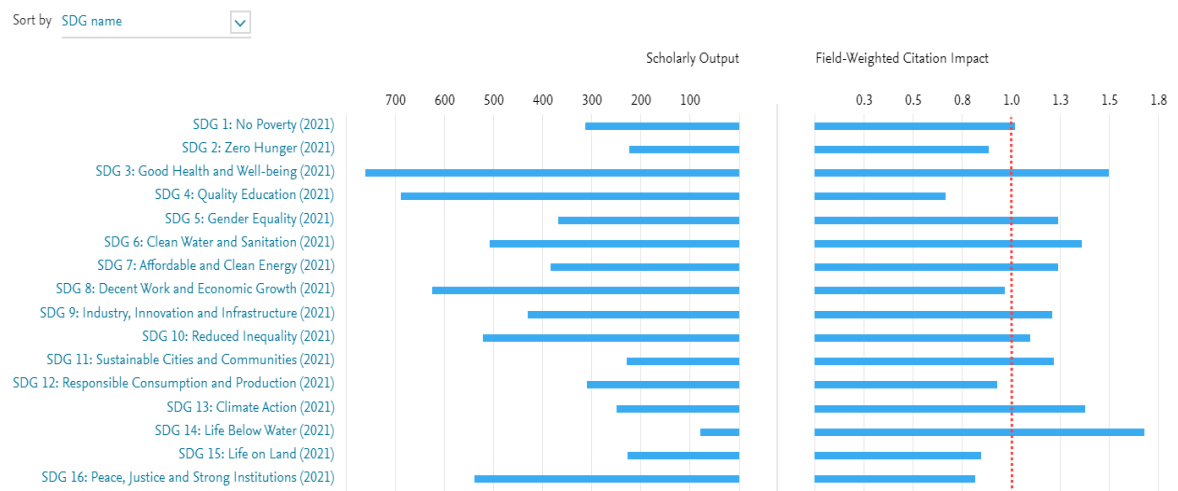
Figure 3.14: UNISA Sustainable Development Goal Contributions (2016-2021) (Elsevier, 2021)

3.11.4.1   Language Policy

The language policy was drafted in response to Section 6 of the SA Constitution of 1996. It acknowledges the 11 official languages and ensures that they provide equality of respect and equal treatment along with SASL. The policy also intends to gain the right to use all official languages without neglecting the SA minority languages or SASL. This can be done by the provision of special communication aids provided on request by SDHH, e.g., SASL interpreters, note-takers, and other practical means or support for effective communication.

The policy also notes that special teaching aids should be readily available on request by SDHH. Through this policy, there seems to be a commitment from UNISA to assist and

instruct students and staff in the language of their choice, including SASL, to improve the student-friendly culture at all major points of service (general information desks, student monitoring facilities, registration desks, the library, etc.). This also refers to the problem statement on curriculum versatility that IHEs should provide facilities through the appropriate department(s) or otherwise to support and enable staff to learn an African language and SASL, thereby improving their skills in any instruction medium. Since SASL is to be recognised as an official language in SA, the revision of the language policy needs to address the recent developments which may contribute to the inclusion of SDHH throughout the SSS. The recommendations on language policy are discussed in section 7.7.1 in the concluding chapter.

3.11.4.2   *Communication Policy*

This policy was revised in 2018 and its emphasis is on adhering to the language policy of UNISA, which is based on the Constitution of SA and the HE Act. This offers guidelines on how – when communicating with employees, students, and other interested parties – all written documents must consider UNISA's language policy. While there is no mention of SASL, it does recognise the languages as per the constitution of the country and the HE Act.

The 2017 Revised Language Policy for HE promulgates two points on the importance of this study: First, although it does not detail the implementation of disability assistance for students, it declares that HE has the mandate to encourage and establish conditions for the establishment of all SA languages, including unofficial languages like Khoi, Nama, and San. Second, in compliance with the 2012 use of the Official Languages Act (Act No. 12 of 2012), it acknowledges the need for SASL skills and capacity development which IHEs are mandated to implement.

The task of enforcing the two preceding promulgations was linked to IHEs and the DHET, and developed a Comprehensive Disability Policy Structure for the PSET programme (DHET, 2018). IHEs should align their communication and language policies with this structure to include facilitation, promotion, preservation, and sign language development as well as allowing units with disabilities to have sign language interpreters.

3.11.4.3   *Policy on Students with Disabilities*

While the policy is based on the human rights and social model, it also has a considerable focus on SDG 4. It is derived from the National Disability Strategy (1997) which recommends that the DE, in collaboration with the Department of Arts, Culture, Science, and Technology,

DeafSA, and other stakeholders, create a framework for the creation of a comprehensive education policy to promote and secure equal opportunities for students with disabilities in IHEs.

This policy has an implementation plan and gives guidelines for the provision of services to students with disabilities in general. While there is a provision of sign language interpretation services, the implementation plan indicates that the provider is the Muckleneuk main campus of UNISA, which will relegate the task and responsibilities to its regional service centres across the country and in Africa. While this may be a progressive move, it needs to respond to and complement the UNISA ODeL policy (UNISA, 2018) and business model where the provision of services should not be location-based, but should also benefit those studying outside the borders of the country in responding to its mission and vision statements. The essence of UNISA's vision statement set out in the strategic plan "towards the African university in the service of humanity" remains a compelling signifier of the bold aspirations and unique positioning the university aspires to have.

Most importantly, this policy promotes versatility and outlines how SDHH should be accommodated in assessment processes in line with the education framework that considers the student's language and cultural background. From this, the expectation is that SDHH should be assessed on their language of choice which is often SASL.

3.12   RESEARCH GAPS

3.12.1 Concepts

There are different terms (concepts) used like "hearing impairment," accompanied by a justification thereof from various schools of thought, whereas other terms are regarded as derogatory. The appropriate concept in line with the applied research paradigm, which is transformative and emancipatory, allows for SDHH, which translates to D(d)eaf students where the upper case implies to a community of students who use sign language, and the lower case highlights the HOH students.

There seems to be a contradiction in the usage of concepts, for example, where there are Deaf people who associate with the upper-case letter D and do not associate themselves as being disabled or rather having a disability, but in a HE context, they are classified as such and qualify for financial assistance and special services for those disabilities. Universities may lack an understanding of the aspects and expect more participation due to the categories. They then assume that many students will utilise the disability services, irrespective of whether they have

been classified as such or not, especially in SA which is a third-world country with one of the most unequal societies in the world (StatsSA, 2020).

3.12.2 Theory

There seems to be several gaps in the selection and application of theories when addressing the issue of SDHH in an interdisciplinary and transdisciplinary context. As indicated in section 2.3, most studies do not justify the selection of theories used and applied, which forms an important aspect of a theoretical framework (Alavi, Archibald, McMaster, Lopez, & Cleary, 2018). While there is fair literature on SDHH, the context is mostly different on the levels of IHEs and face-to-face education, hence ODeL is addressed in the applied theoretical framework. This study generates justifications for theories to be applied in the context of disability in HE.

3.12.3 Methodology

Various methodologies have been applied in line with the objectives and aims of the studies. However, the voice of the SDHH is often missed and research designs do not include or make provisions for them. In evaluative studies where all stakeholders need to form part of the research from the conceptualisation of the studies, it is not often the case. The reviewed literature shows a reasonably more study applying mono methodology which allows for descriptive stats of understanding the lived experiences of students, but lesser on a pragmatic approach.

Action research through mixed methods seems to be an appropriate research design, and while being in line with the transformative research paradigm, it has been used less (Ivankova, 2015). This seems to be a research design that IHEs may use to realise the SDG 4, since it allows for all stakeholders to be involved in the research process, including the review of action taken as a collective.

This study opted for a pragmatic approach, applying TMMR due to its feasibility for the thesis' academic project, the limitations addressed in the concluding chapter on Covid-19 regulations, and their impact on data collection during the lockdowns.

3.12.4 Student Support Models for Students who are Deaf and Hard of Hearing in Open Distance and e-Learning

ODeL is a different system with different pedagogical and student support systems, due to the transactional distance. Literature shows the challenges faced by the ordinary student population, as inclusive education has been advocated for, especially in the African context.

Challenges experienced by SDHH have been highlighted in the literature and there is evidence of progress to address the challenges in the environment, especially during the Covid-19 and 4IR eras. While challenges are addressed, fewer studies have holistically evaluated the student support systems from pre-entry, admissions, teaching and learning, as well as the exit points to show how the said measures impacted in response to a reasonable accommodation for SDHH in ODeL.

Tsekeris (2019) suggests that, before the commencement of teaching and learning, students should be equipped with skills to acquire the ability to succeed in online learning. Challenges of adjustment need to be acknowledged and form part of transitional initiatives where students are oriented to the ODeL model.
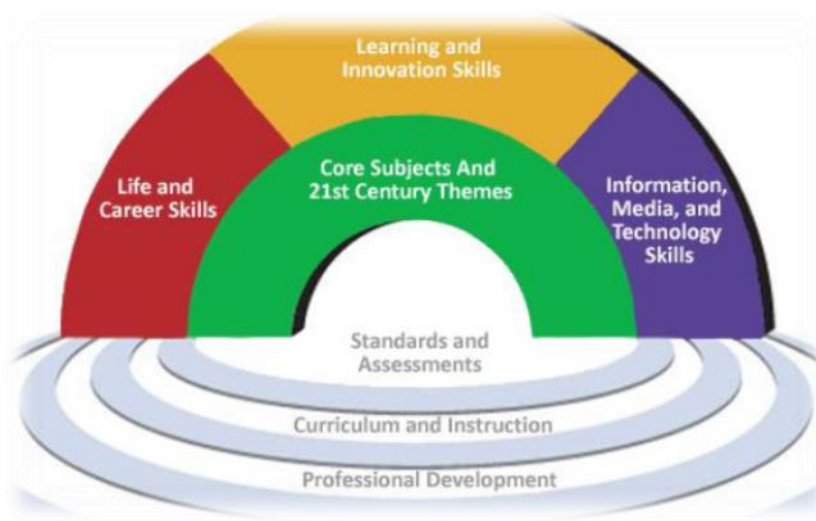
Figure 3.15: P21's Framework for 21st-century Learning (Tsekeris, 2019)

Motivational concerns must be considered upon admission, so that students can reflect on matters related to stress and discontent. Some of the students at ODeL universities have (full-time) jobs, and may have time and stress management challenges. Matjila (2018) proposes the inclusion of empowerment programmes in education and advocacy initiatives that are or should be organised by the DRUs. With the mandate to realise SDG 4, it is important to evaluate the systems and implement measures to address the shortcomings to assist the IHEs, which feed to the DHET and the governmental progress to contribute to SDG 4.

3.13   CONCLUSION

The literature review chapter introduced the archetypes of deafhood, providing an understanding of SDHH. Contemporary approaches were highlighted and linked to the CDT on identity construction on deafhood. A historic background was provided on ODeL and how it has

transformed from distance education through the fifth generation model. Student support development in ODeL in Alan Tait's framework was discussed, which takes into consideration the cognitive, affective, and systematic factors and how they should not be overlooked while providing student support.

The DRUs and their functions were discussed, including a website review of three universities. Considerations for SDHH on communication as well as teaching and learning were provided, indicating the barriers that may be eliminated to promote reasonable accommodations for SDHH in ODeL, including SASL and assistive devices. The predictable opportunities and challenges in the fifth generation of distance education as well as in the era of the 4IR and Covid-19, were discussed. The chapter concluded with progress, as the contributions to SDG were highlighted at the meso, micro, and macro levels. The next chapter introduces the research design and its application thereof.

CHAPTER 4
RESEARCH DESIGN

4.1   INTRODUCTION

The research design tells the reader how the research was carried out and what philosophical principles underpin the analysis (Quinlan, Zikmund, Babin, Carr, & Griffin, 2015). This chapter describes the philosophical assumptions and process of data collection as well as the rigour undertaken including ethical considerations. It starts by addressing the philosophical foundations and assumptions which informed the research paradigm for this study.

4.2   PHILOSOPHICAL FOUNDATIONS AND ASSUMPTIONS

Philosophy is the use of abstract ideas and beliefs that guide science in carrying out research. Burrell and Morgan (1979) have considered how the interpretation of conceptual premises starts with an evaluation of how and where to incorporate it into the overall research process. Such assumptions are important and may not be dismissed or ignored because first, they shape how to formulate the problem statement as well as research questions, and/or hypothesis as is the case with this study:

H1:   SDHH will experience lower inclusion rates throughout SSS programmes in an ODeL university.

H0:   There is no relation between the degree of inclusion and SSS programmes for SDHH in an ODeL university.

RQ: How does the provision of SSS contribute to the inclusion of SDHH in an ODeL university?

Second, researchers formulate problems and research questions to test and generate knowledge that addresses the questions (Scotland, 2012). The figure below shows what informed my philosophical and scientific assumptions when approaching this study:
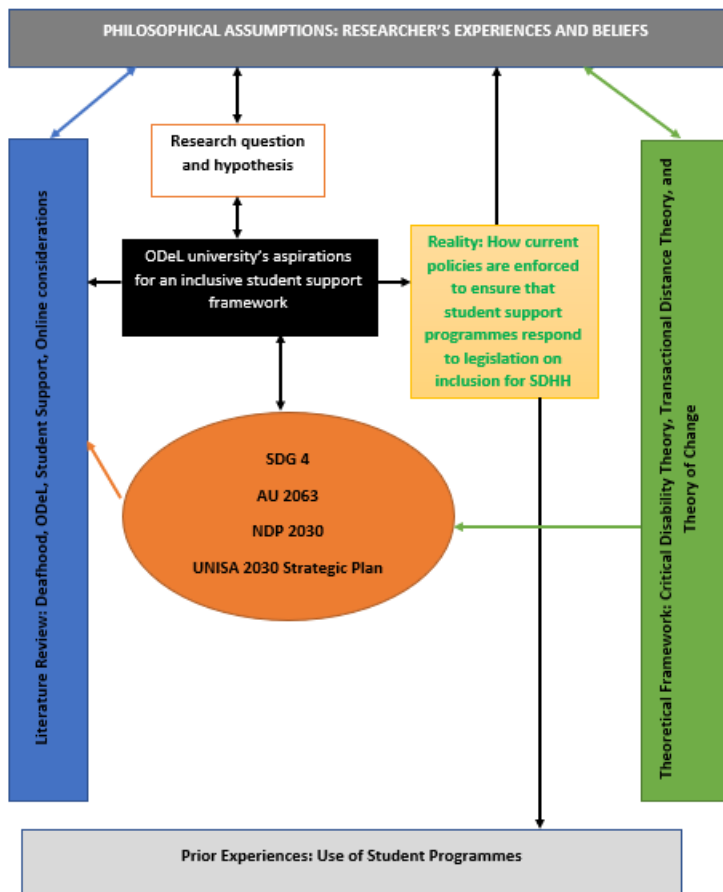
Figure 4.1: Researchers' Philosophical Assumptions and Beliefs (Personal Archive)

The exploratory analysis of the philosophical foundations and assumptions by Scotland (2012) gave rise to an in-depth interpretation and application of ontology, epistemology, axiology, and methodology, underlying the research paradigm(s).

The term "paradigm" has its origin in Greek, meaning "pattern." This term was first used by Kuhn (1962) in the early '60s to describe a philosophical way of thought. The term "research paradigm" is used to define a particular "worldview." Kivunja and Kuyini (2017) have drawn early inferences from Lather (1986) as well as Mackenzie and Knipe (2006) in dissecting a "paradigm" into four elements, namely epistemology, ontology, axiology, and methodology.

Kivunja and Kuyini (2017) employ the ethnographic and hermeneutic approach, which provides an understanding and guidance on how to apply the research paradigms in the context of education and social sciences. This worldview is defined as a viewpoint, thinking or through school, or collection of shared beliefs informing the significance or interpretation of research data. It is also the abstract values and ideals that form the way in which a researcher observes the world, and how they interpret and behave inside this world. It is summarised as the

analytical lens by which the researcher explores the methodological dimensions of their research project to evaluate the methods of analysis that will be used and how the data will be analysed.

Similarly, Guba and Lincoln (1988), as well as Lincoln and Guba (2000) define "research paradigms" as human constructions, dealing with first principles and ultimately indicate where the researcher comes from to build meaning, embedded in the data. Paradigms are therefore important because they include beliefs and guidelines which, in the case of this study, provide a multidisciplinary study of Psychology, distance education, and deaf studies for scholars in a specific discipline, and influence what should be studied, how it should be studied, and how the study results should be interpreted.

By incorporating the above definitions, a research paradigm can be regarded as a phenomenon that defines the philosophical orientation of a researcher and, in essence, has significant implications for every decision made in the research process, including methodology. For this study, the following section discusses the philosophical underpinnings of the employed transformative research paradigm and its interrelation with ontology, epistemology, axiology, and methodology.

4.2.1 Ontology

Kivunja and Kuyini (2017) agree with Killam (2013) on the description of "ontology" as a philosophical exploration of the nature of existence or reality, of becoming or being, as well as being the basic concept of things that exist and their relations, and how the fundamental belief system as a researcher explores the meaning of being and life. Besides, philosophical assumptions about the nature of reality are crucial to understanding how the gathered data make sense. Such assumptions, theories, principles, or propositions, help to guide the thought about the problem statement, its meaning, and how to address it to contribute to scientific knowledge (Scotland, 2012).

Ontology therefore refers to situations of reality's existence. This study will follow external, multiple views chosen to answer the research questions and the hypothesis raised. The first view that forms this multiplicity is external, objective, and independent of the participants as social actors. This was undertaken to establish the relation between the degree of inclusion and student support programmes for SDHH in an ODeL university. The second view is a socially formed, subjective fact that is multiple and may alter at any given time. As a branch of philosophy, ontology is concerned with the assumptions that we make to believe that something

makes sense or is real, or the very nature or essence of the social phenomenon that we are looking into.

A paradigm is essential because it helps to understand the things that make up the world as it is known (Laher *et al*., 2019). This recent evidence suggests first, that ontology is concerned with the assumptions we make to assume that something is important or true, or the very existence or essence of the social phenomenon we are looking into. Second, it helps researchers to conceptualise the structure and essence of reality so that what they think about facts, can be understood. Third, to make sense of the significance embedded in research results, it aims to establish the real essence of the fundamental concepts that constitute the themes that we examine. Lastly, it makes one ask themselves questions such as:

- Are there truth and reality in the social world out there or is it a fabrication, created by one's mind?
- What kind of truth or reality is it?
- Is it the reality of an objective in nature, or is it the product of individual cognition?
- What is the nature of the circumstance under investigation?

The application of ontology enables one to examine their underlying belief system and philosophical assumptions about the nature of being, existence, and reality. Philosophical assumptions about the nature of reality are crucial to understanding how meaning is constituted in data collection processes. These assumptions, concepts, and propositions help the researcher to orientate their thinking about understanding the problem and how it has been approached in responding to the hypothesis and research questions set out in section 1.7.

4.2.2 Epistemology

Since ontology is linked to truth, epistemology is the view of knowledge and its acceptability. In Greek, the term "episteme" refers to understanding something. Simply put, epistemology is used in research to describe how we come to know something, how we know the truth or the reality, or as Cooksey and McDonald (2011) put it, what counts in the world as knowledge. It is concerned with the very basis of knowledge – its existence, ways of how it can be learned, and how it can be transmitted to other human beings. It focuses on the essence of human knowledge and comprehension that you, as the researcher or knower, may learn to be able to expand, enhance, and deepen understanding in a particular field of study.

Scotland (2012) alludes to the fact that epistemology is concerned with the nature and forms of knowledge, and that epistemological assumptions are concerned with how knowledge can be generated, acquired, and communicated, that is, what it means to know. The acceptable information about the collected raw data to be obtained, is both observable patterns and subjective interpretations that provide acceptable knowledge, depending on the research question and the hypothesis. The emphasis of realistic applied research is on combining multiple viewpoints that assist with data transformation and interpretation. The appropriate information is on the phenomenon for the first part of the analysis (quantitative phase), which provides reliable data and evidence for generalisation. For the second analysis (qualitative phase), the subjective significances and social phenomena shape appropriate information.

To gain clarity and understanding of this trend, the following questions need to be asked as per guidance from Creswell (2015):

- What is the nature of the knower-to-be relation, and what is known?
- Is knowledge something that, on the one hand, can be gained, or is it something that must be experienced personally?

4.2.3 Axiology

Axiology is a component of the research paradigm and a philosophical approach to value-of-right decision-making (Finnis, 1980) and further references to the ethical problems which need to be addressed when planning a study. It addresses the nature of ethics and ethical conduct in science and guides the researcher on how to consider the principles of what is being studied for humans, plants, or any phenomenon, and what is involved in the analysis.

Hesse-Biber and Leavy (2008) define axiology as the role of values in the study as well as the value-bound and etic-emic position of the researcher to understand the studied phenomenon in terms of its internal descriptions, rather than any existing external schemes. Values also play an important role in understanding and analysing data to realise the objectives of the study. To achieve the objectives of the study, the researcher adopted both objective as well as subjective viewpoints for this analysis. The objective point of view is value-free and etic, with the researcher being independent of the data and retaining an impartial stance, while the subjective perspective for the second part of the analysis is measured as bound and emic where the researcher is part of what is being studied, and thus the subjectivity cannot be isolated.

There is a level of corroboration from the studies by Kivunja and Kuyini (2017), Laher *et al*. (2019), Ngulube and Ngulube (2015), and Scotland (2012) that provides some valuable

insights into the interpretation of axiology, that includes identifying, testing, and interpreting definitions, considering what importance the various aspects of the study are assigned to, the subjects, the data, and the audience. When discussing the researcher's philosophical underpinnings, questions are raised to better understand these considerations (Scotland, 2012).

The concern is based on the understanding that all human beings have a dignity that must be respected, and that they have a fundamental human right to make choices that researchers need to understand and respect. The following questions formed part of applying axiology to the study, while the ethical considerations section in this chapter further outlines the principles of privacy, precision, property, and accessibility in detail:

- What can be done to protect the interests of all participants?
- What are the legal problems and features to be considered?
- What political, intercultural, and moral problems can occur and how will they be dealt with?
- How can research be carried out in a way that is socially just, respectful, and peaceful?
- How can risk or harm, whether physical, psychological, legal, social, economic, or otherwise, be avoided or minimised?

4.2.4 Methodology

The terms "methodology" and "research design" are used interchangeably in the literature and refer to data collection, participants, instruments used, and data analysis. Such principles express the logic and flow of the following systemic processes in performing a research project to obtain knowledge about a research issue as per figures 4.2 and 4.3 below (Marczyk, DeMatteo, & Festinger, 2021; Ngulube, 2020; Sileyew, 2019).

Thus, tools dealing with research methods have not completely defined common ground in the usage of these terms, commonly in interdisciplinary research frameworks (Tobi & Kampen, 2017). As a result, the landscape of the research methodology is fractured, with minimal consensus on the usage and application of terminology and research frameworks. The common confusion of words for research methods is due, in part, to some scholars' imprecise and incoherent usage of terminology. Saunders' research onion ring is one of the most used structures for research methodology and continues to be a guideline on how to structure the methodology section of a study (Crossley & Jansen, 2021; Saunders *et al*., 2016; Sinha, Clarke, & Farquharson, 2018).
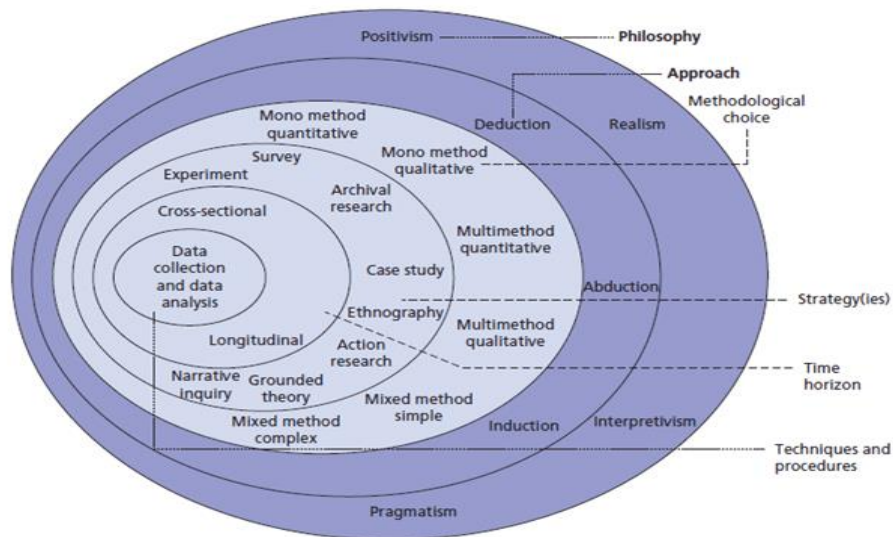
Figure 4.2: Saunders' Research Methodology Onion (Saunders, 1997)

This study embraces the use of the term "research design" over "methodology" where research design is the broad term used to refer to the processes, strategies, and procedures used in a well-planned investigation to find out something (Kivunja & Kuyini, 2017). The structure of this chapter will follow the architect on the diagram below where the methodology is part of the research design as prescribed by Ngulube (2020) for pragmatic contexts.
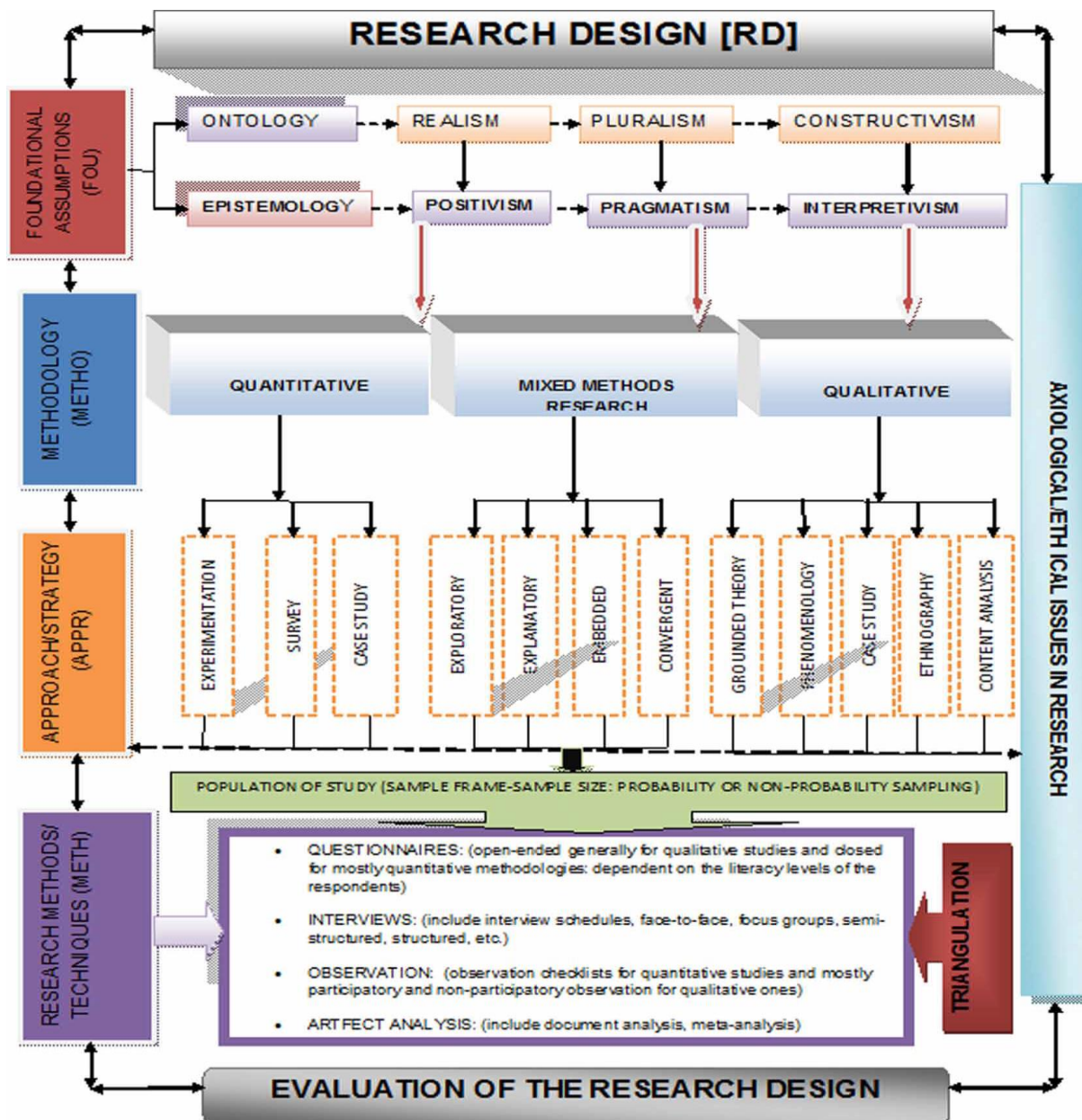
Figure 4.3: Research Design Landscape (Ngulube, 2020)

4.2.5 Research Paradigms

From the above discussions, including the theoretical context and the reviewed literature, it is clear that the research paradigms as positions on epistemology, ontology, and axiology have a considerable influence on the methods to be used in a research project (Morgan, 2007; 2017). This position seems to be an accepted definition as it has been adopted by scholars aligned with different research paradigms, as is the case with indigenous and decolonial scholarship.

Chilisa (2012) positions a research paradigm as a means to depict a worldview, informed by philosophical assumptions about the nature of social reality (ontology), ways of knowing (epistemology), and ethics and value systems (axiology). A paradigm also has

theoretical assumptions about the research process and the appropriate approach to systematic inquiry.

Each paradigm is guided by different philosophical assumptions as discussed above, while the selection of a paradigm implies that the study will be nestled in epistemology, ontology, and axiology, which direct the study towards a methodology. Therefore, choosing a paradigm, implies a near certainty regarding methodologies flowing from that paradigm. This relation seems to be significant since the paradigm choice's methodological consequences, research questions, selection of participants, data collection instruments, and collection procedures, as well as data analysis, permeate. The six sections give a brief on the dominant paradigms of applied research.

4.2.5.1   *Positivist Paradigm*

The positivist paradigm describes a science philosophy which is based on what is known as the empirical method of inquiry of research methods. It postulates that experience-based research, observation, and reason should be the foundation for understanding human behaviour, therefore being the only valid means of extending knowledge and human understanding (Kivunja & Kuyini, 2017).

Searle (2015) found that positivism in its pure form is a systematic approach, requiring an experimental process that is used to test and explore observations and address questions. In the positivist paradigm, its epistemology is said to be objectivist, its ontology realism, its methodology experimental, and its axiology beneficence, in terms of the four fundamental elements or premises of a paradigm. It is also aligned with the realist ontology and assumes that the following five beliefs are accepted:

- A world of material objects exists.
- By sense experience, certain statements about these objects can be known to be true.
- Such objects exist regardless of whether they are considered or not. These perceptive objects are assumed to be largely independent of perception.
- Such objects can also maintain the properties of the forms that we are supposed to have, even though they are not perceived. Their properties are autonomous to perception.
- We experience the world consciously, and pretty much as it is, using our senses. In the end, our claims to know about it are justified.

It has been shown conclusively that the positivist paradigm applies to attempts by the researcher to describe the phenomenon they are researching in the most economical way possible (Creswell, 2015; Downs, 1990; Laher *et al*., 2019; Lincoln & Guba, 2000; Morgan, 2017; Mishra, & Alok, 2017).

The external validity principle tells us that in one sense, inductive inferences will extend the findings obtained from a research study, performed within this paradigm, to other circumstances. This assumes that the positivist researcher will be able to identify events in the specific phenomena that they have researched and be able to generalise what else in the world can be predicted.

Because of these assumptions, the positivist paradigm advocates the use of quantitative research methods as the basis for the ability of the researcher to be precise in describing the parameters and coefficients in the data collected, analysed, and interpreted to understand the relations embedded in the analysed data. Thus, the research conducted under the positivist paradigm often utilises experimental, quasi-experimental, correlational, and causal comparative, randomised control trials and survey research methodologies (Kivunja & Kuyini, 2017).

4.2.5.2   *The Interpretivist Paradigm/Constructivist Paradigm*

Unlike the objective stance of the positivist paradigm, the core goal is to grasp the subjective world of human experience. This paradigm assumes a subjectivist epistemology, a relativistic ontology, a naturalistic methodology, and balanced axiology, where the theory does not precede research, but follows it in such a way that it is based on the data generated by the research activities (Toledo-Pereyra, 2012).

This approach aims to "get to the top of the themes being researched" to talk and to understand and explain what the subject is feeling, or the meaning of the context (Mertens, 2010; Morgan, 2017; Rehman & Alharthi, 2016; Solesvik, 2018).

Every attempt is taken to grasp the point of view of the person being observed, rather than the point of view of the observer. Laher *et al*. (2019) advise that the focus is therefore placed on the perception of the person and their view of the world around them. The key tenet, thus, is that reality is socially constructed. This is the reason why this paradigm is called the constructivist paradigm.

The notion of a subjectivist epistemology is also highlighted by Punch (2005), suggesting that the study makes sense of its results through the reasoning and emotional analysis guided by the researcher's experiences with participants. To this effect the researcher will construct a knowledge society as a result of their personal experience of real life in natural settings

under investigation. It is assumed that researchers and their subjects are engaged in interactive processes in which research data are intertwined, discussed, questioned, listened to, read, written, and recorded. The assumption of relativistic ontology indicates that the situation under study has multiple realities and that these realities can be explored and made meaningful or reconstructed through human interactions between the researcher and the research subjects, and between the research participants mutually (Kivunja & Kuyini, 2017).

Assuming a naturalistic methodology, the researcher used data collected through interviews, discourses, speeches, text messages, and reflective sessions, with the researcher acting as a participant-observer. Balanced axiology assumes that the results of the research will reflect the researcher's values in an attempt to present a balanced report of the findings. For studies conducted with this paradigm, researchers have a wide choice of methodologies, including naturalist, narrative inquiry, case study, grounded theory, phenomenology, hermeneutics, ethnography, phenomenography, action research, and heuristic inquiry methodologies (Cooksey & McDonald, 2011; Humphries *et al.*, 2020; Morgan, 2014).

4.2.5.3   *The Pragmatic Paradigm*

This paradigm advocates 1) a relational epistemology, i.e., research relations are best based on what the researcher considers appropriate; 2) an ontology of non-singular reality, i.e., that the reality is not unique, but that all individuals have their unique interpretation of reality; 3) a methodology of mixed methods, that combines quantitative and qualitative research methods; and 4) building good rapport and relationships. Gage (1989) explains that this paradigm was developed to put an end to the two opposing positions of both the positivist (and postpositivist) on one side and the interpretivists on the other, in this way making an end to what is referred to as the "paradigm wars."

This paradigm was founded by philosophers who believed that the "fact" of the natural world cannot be obtained exclusively through an empirical approach supported by the positivist paradigm, and that social reality cannot be decided according to an interpretivist paradigm (Scotland, 2012). It was based on a rejection of the need to consider either a constructive (postpositive) paradigm, or an interpretative (constructivist) framework, contributing also to a reluctance to embrace the notion that the social science survey should expose "the facts" concerning the real world and encourage "what works" to allow a researcher to tackle the problems without being investigated.

Theorists searched for testing techniques that might be both realistic and pluralistic, requiring a combination of strategies to shed light on the actual actions of the subjects, the

beliefs underlying them, and the effect of such behaviour. This led to a philosophy promoting the usage of mixed approaches as a pragmatic means of interpreting human behaviour, which is the rational model of this paradigm.

4.2.5.4 Indigenous Research Paradigm

McGuire-Adams (2019) gives a background on the importance of indigenous research paradigms and, by extension, indigenous research methodologies for indigenous peoples within the context of the social sciences.

The indigenous research paradigm is aimed at recentring indigenous people and their paradigms to address epistemic violence and injustice. The focus is on promoting the indigenous ways that may have been circumvented with languages and methodologies, and how scientific research may be beneficial to communities who are the owners of particular knowledge.

4.2.5.5 Decolonial Research Paradigm

Held (2019) asserts that to incorporate indigenous methods of knowing in academia – that is, to teach them, to use them in research, and to value them as equally important to Western ways of knowing and producing knowledge is to decolonise research paradigms and procedures.

Decolonisation, as a paradigmatic position, therefore, promotes the Africanisation of current paradigms in order to analyse and explain Africa from within. It supports the idea that examining the African reality must be done primarily inside an African setting, as doing so would result in African ideological distortions, which have long been present in that culture.

4.2.5.6 Post-colonial Research Paradigm

Chilisa (2019) shares how the transformative research paradigm shares assumptions with postcolonial indigenous research approaches. This is due to the emphasis of the postcolonial indigenous research approaches on changing traditional means of knowledge creation by being inclusive of other knowledge systems, which adopt decolonisation and indigenisation goals.

Therefore, the idea behind post-colonial research inspires using indigenous knowledge to supplement an existing body of knowledge. The post-colonial paradigm stresses the value of a fresh start and a different way of thinking. According to this paradigmatic perspective, researchers need to relook how information is gathered and begin a process of posing and responding to post-colonial concerns.

4.3   RESEARCH PARADIGM: TRANSFORMATIVE PARADIGM

This paradigm grounds its work on social justice problems and aims to tackle the political, social, and economic concerns that contribute to societal inequality, confrontation, resistance, and power dynamics at all levels (Cram & Mertens, 2016). Although this is a mixed method research study, the suitable research paradigm to be applied, has to be emancipatory and transformative, despite the pragmatic nature of the study. This is true since this study's philosophical and foundational assumptions support ontological pluralism and epistemological pragmatism as well as their harmonious fit to the pragmatic research paradigm (Matjila & Van der Merwe, 2021).

This is often considered a progressive model, as it assumes a transactional epistemology in which the researcher communicates with the participants, an ontology of historical reality, particularly when it relates to exploitation, a dialogic methodology and axiology that respects cultural norms (Solesvik 2018), and it aims to shift policies, tackle systemic injustice, and promote social equity (Romm, 2018). The transformative paradigm is interested in empowering and removing oppressive structures around research subjects as it is in this context: Accessibility of student support in reasonable accommodation, including SASL, the first language of most Deaf students.

As guided by Ivankova (2015), as well as Ivankova and Wingo (2018), MMR, through action research is a suitable method to address the problem statement of this thesis, although this is unpacked in the concluding chapter under the limitations of the study. TMMR is rather employed as a result and will be discussed in section 4.4.

In essence, this study is focused on the CDT, as it consequently warrants to be part of this research paradigm, as implemented around inclusive education, which may contribute to empowerment. According to Barnes (1992), such an approach allows researchers to put their knowledge and skills at the disposal of people with disabilities or special needs, in this case, SDHH at an ODeL university.

The critics of this paradigm warn that transformation may not be achieved, and that emancipation is not guaranteed either. The improvement in the lives of the respondents may be marginal or non-existent. Additionally, the anticipated improvement may not be possible until participants become critically conscious of their conditions. Alternatively, the lives of certain participants could be altered for the worse, for example, by linking race to intelligence and moral behaviour, as was the case with Rushton, a Canadian psychologist, who tried to rationalise racist policies (Winston, 2020).

This argument shows that participants are sometimes classified as belonging to a certain marginalised category where homogeneous notions of identity are superimposed. Added to this, the paradigm does not recognise that different participants could enter an ODeL university with different levels of awareness and layers, as well as a diversity in disabilities. It naively assumes that societies are blindly bidding for powerful regimes, enslaving themselves more in the process.

Drawing from Humphries *et al.* (2020) as well as Romm (2018), this paradigm considers the axiology and values of respect to counteract the alluded argument. Building rapport with the participants is therefore key to eliminating the ontological assumptions and understanding the layers of Deafhood.

4.3.1   Philosophical Assumptions of the Transformative Paradigm

4.3.1.1   The Transformative Axiological Assumption

The transformative axiological assumption of the study includes cultural histories, norms, and identities as outlined in section 3.3 of the previous chapter. The literature review further provides more guidelines to promote social justice and be cognisant of the discrimination related to labels and other oppressive factors. Cultural competence is a vital provision connected to the researcher's ability in diverse cultures to accurately reflect reality. Cram and Mertens (2016), as well as Mertens (2009) highlight that cultural competency is and should form an integral part of the principle for those operating within the philosophical assumptions of this transformative framework.

To address the outlined axiological assumptions, sign language community terms of reference (SLCTR) for research on people who are D(d)eaf and using sign language as indicated by Mertens (2012) in acknowledging the rights of SDHH, are considered. The results of applying the guidelines ensure that participants are part of the proposed transformative interventions which they validated and legitimised.

4.3.1.2   The Transformative Ontological Assumption

Cultural relativism is rejected in promoting and recognising different versions of what constitutes reality by the participants. Mertens (2010) explains the need for transformative research on how it considers that privilege is granted to different versions of reality over others and that it is important to objectively analyse the privileged views to assess what is lacking when the views of marginalised people are not privileged.
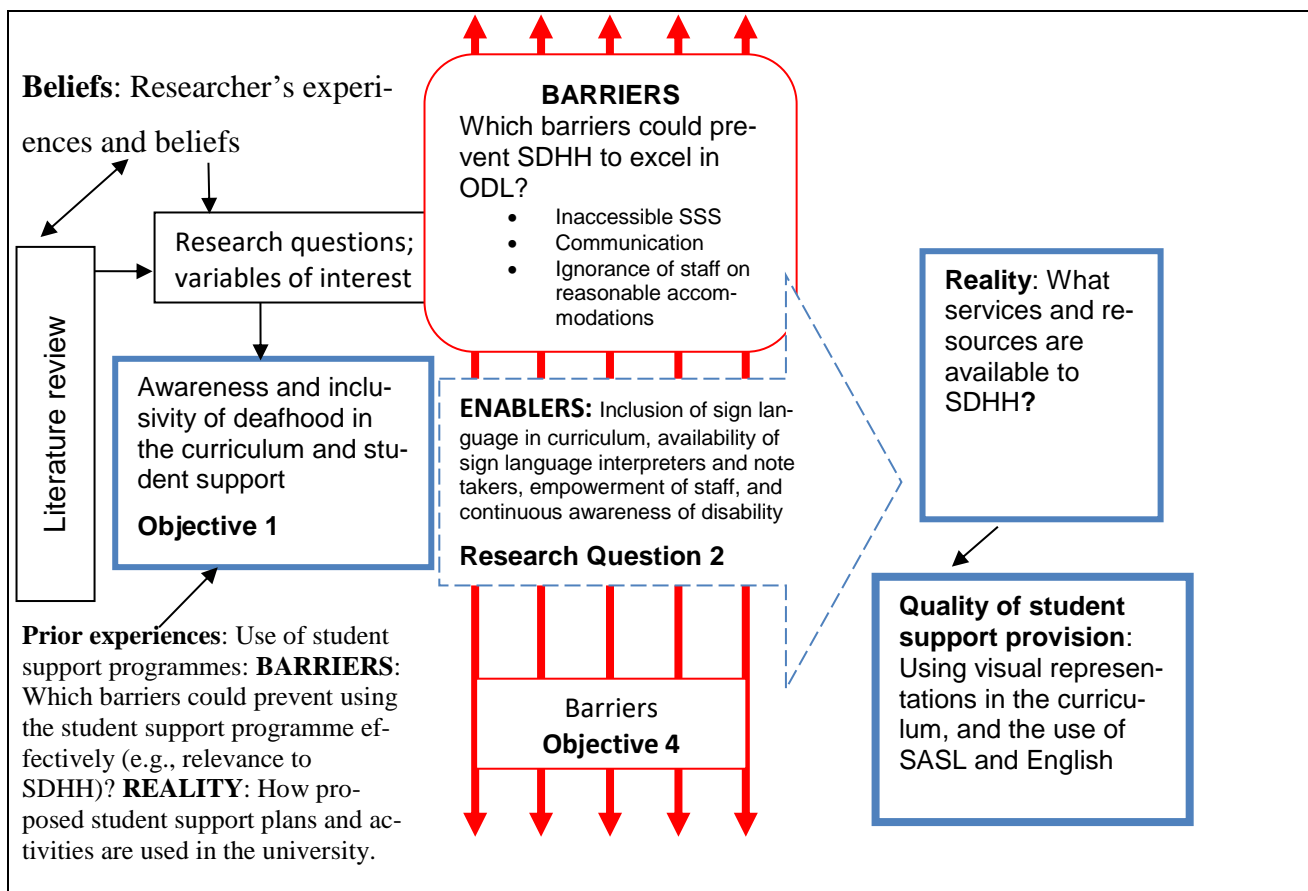
Figure 4.4: The Transformative Ontological Assumption (Personal Archive)

The marginalised in the context of the study are SDHH, and it is important to consider all versions of their reality, since Deafhood has several layers. The central ontological assumption question is, "What version of truth offers an awareness that can lead to improvements in the *status quo* and that can lead to social justice being promoted?"

4.3.1.3   *The Transformative Epistemological Assumption*

The transformative epistemological assumption poses concerns about the existence of researchers' relationships in terms of who influences the research process (Mertens, 2012). The marginalised community in this context is the SDHH, while the researcher is perceived as a non-member of the SDHH community. Building rapport over time with the sign language interpreter and understanding how to communicate directly with the participants without looking at the interpreter, assisted to manage these assumptions.

4.3.1.4   *The Transformative Methodological Assumption*

The transformative methodological assumptions flow from the three drawn assumptions above. First, it takes account of the axiological assumptions and incorporates the SLCTR for research with D(d)eaf people. This assists with understanding ways of ensuring that different realities are addressed through TMMR. The qualitative component ensures that there is a dialogue in responding fully to the cultural competency.

Though Mertens (2012) highlights the need to follow an exploratory sequential design to learn about the community, by investing adequate time to build relationships, this study has adopted the explanatory sequential design in line with testing the hypothesis first. While this may be against the prescribed sequence, the researcher has conducted phenomenological research as part of his Master's studies and was able to address the raised concern (Matjila, 2018).

4.4   METHODOLOGY: TRANSFORMATIVE MIXED METHODS RESEARCH

MMR is the contemporary approach to social analysis that has taken centre stage in recent debates on research methodology. In addition to offering more accurate, reliable, and richer outcomes and inferences relative to standard mono methods, it is suggested and favoured as a response to the paradigm wars (Creswell & Creswell, 2019; Peter, 2010). Garnett, Smith, Kervick, Ballysingh, Moore, and Gonell (2019) define TMMR as MMR methodologies that address inequities and are informed by the philosophical assumptions outlined in section 4.3.1. Furthermore, Camacho (2020) and Mertens (2012) validate that TMRR drives critical and emancipatory research.

The quantitative and qualitative mono methods are often contrasted and presented as two opposite entities. However, Granikov, Hong, Crist, and Pluye (2020) show an increasing interest in combining the two to the breadth and depth of understanding of a phenomenon and confirming the knowledge. Their analysis shows that researchers do not describe or recognise MMR, resulting in the research reports lacking rigour. MMR is a research methodology for conducting research that involves the collection, analysis, and integration of quantitative and qualitative research in a single study or a longitudinal programme of inquiry. The purpose of this form of research is that both qualitative and quantitative research, in combination, provide a better understanding of a research problem or issue than either research approach alone.

Quantitative research methodologies are most often associated with the scientific investigation of quantifiable properties and their relations. They use mathematical models, theories, and hypotheses to measure and portray the empirical associations found in natural phenomena, while qualitative research methodologies provide a means of gaining a deeper

understanding of human behaviours and the factors that influence those behaviours (Ngulube & Ngulube, 2015).

Central to MMR is the idea of integrating quantitative and qualitative data sets and subsequent results within a study and explicitly interrelating them to reach justifiable conclusions (Creswell & Clark, 2018). Researchers use MMR when they collect, analyse, and integrate both quantitative and qualitative data within a study or programme of inquiry to generate conclusions that are more credible or convincing (Granikov *et al.*, 2020; Teddlie & Tashakkori 2009). Thus, MMR allows for exploring more divergent viewpoints on the same issue and providing contextual understandings shaped by real-life experiences and cultural influences (Creswell & Creswell, 2019).

Using TMMR allows researchers to address wicked problems and complex research questions, in finding answers to both exploratory and confirmatory questions within a single study, and reveal a fuller picture of a social problem in practice (Sampana & De La Cruz, 2020). This adoption of TMMR follows the prescription and considerations of Creswell and Clark (2018), while adopting a decision tree for a MMR study and the mapping guidelines of MMR suggested by Romm and Ngulube (2015), while Peter (2010) raises concerns about their absence in pragmatic studies.

4.4.1 Appropriateness of Transformative Mixed Methods Research

TMMR guarantees the integration of both the quantitative and qualitative approaches through the sequential approach and strategies, while adhering to axiological parameters. This integration through quantitative and qualitative data, synthesise and then translates to a richer evaluation inference for evaluation practitioners (Peter, 2010). Therefore, the use of a mono approach for evaluating the existing student support framework at an ODeL university, would have limited the study in achieving its objectives. Consequently, and in line with the rationale for MMR, as outlined by Creswell (2014), the application of TMMR is in fact appropriate for this study.

4.4.1.1 General Level

On a general level, TMMR is appropriate due to its ability to complement quantitative and qualitative approaches based on their strengths and limitations.

4.4.1.2   *Practical Level*

On a practical level, TMMR allows and makes a provision for the use of both quantitative and qualitative data to solve a complex societal problem by not diverting from the transformative agenda.

4.4.1.3   *Procedural Level*

On a procedural level, TMMR helps the researcher to develop a holistic understanding of the problem statement and how to solve it through the scientific process and procedures by having a deeper understanding of the changes that need to take place after evaluating the student support framework to reasonably accommodate SDHH.

It is a useful strategy to understand the need for an intervention programme, as its effects impact the collection of both quantitative and qualitative data over time. Lastly, it allows the comparison of various positions taken from quantitative and qualitative data.

4.4.2   Purpose of Using Transformative Mixed Methods Research

The purpose of using TMMR is to combine elements of quantitative as well as qualitative study in the context of Deafhood as well as their transformation and emancipation (Camacho, 2020; Carey, Andrzejewski & Baggett, 2019). To evaluate the student support framework, it is important to first establish the relation and the degree of inclusion with regards to accommodating SDHH in the ODeL setting. This approach is important in that it enables the researcher to quantify the results and make statistical inferences to understand the degree of inclusion.

While the generalisation is a good concept, the qualitative part allows the researcher to go further and understand the results and inferences made from the quantitative part by seeking meaning and patterns in the participants, and this allows a richer understanding of the phenomenon in addressing the outlined problem. Mertens (2009; 2010) and Romm (2018) motivate the use of TMMR in solving the wicket problems which are enigmatic and cannot easily be solved using mono methods. The wicked problems are social and cultural and often difficult to describe, and inherently impossible for a person not belonging to the marginalised community, to understand.

4.4.3   Context of the Research Situation

The context is first aligned to the research aims and objectives, where the study is based on the HE sector, specifically the ODeL university, UNISA in SA. Second, it is common knowledge that in the previous era of SA politics, SDHH were not participating in the HE environment,

due to the structural restriction on participation. While there are strides in addressing reasonable accommodation for SDHH, the student support framework seems to be exclusive, hence limited reasonable accommodation for SDHH.

4.5   RESEARCH STRATEGY: SEQUENTIAL DESIGN

4.5.1   Transformative Explanatory Sequential Design

This study follows the transformative explanatory sequential design where the quantitative phase includes data collection and analyses of results, using quantitative approaches. The results of the first phase inform the second phase which collects the data by means of semi-structured interviews and thematic data analyses. The integration of the overall data suggests and supplies guidelines on proposing an inclusive and integrated student support framework in ODeL for the SDHH.
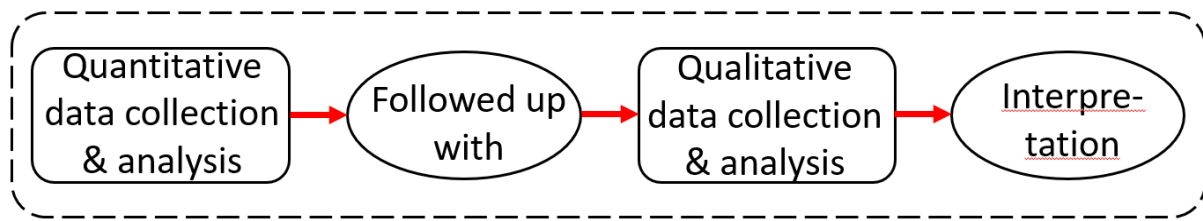
Figure 4.5: Transformative Mixed Methods Design (Creswell, 2012)

4.5.1.1   Timing

The timing of the data collection was in phases and sequentially, starting with the collection of quantitative data to test the hypothesis and have a descriptive context of the phenomenon of the provision and inclusivity of Deafhood throughout the student support programmes. The descriptive stats and inferences informed the second phase of the study which was qualitative, with the intent of further exploring the phenomenon to expand the understanding.

4.5.1.2   Weighing

The weight of priority given to the two phases was equal. Weight occurred in this TMMR study through strategies where the quantitative informed the qualitative part by testing the hypothesis and qualitative part as an inductive approach to generate themes in fully understanding the quantitative part and other issues that arose, which were relevant but not included in the measure of the quantitative part.

4.5.1.3   Mixing

The two fundamental questions when mixing data, are:

- When and at what stage does the mixing occur?
- How does it occur? (Creswell, Vicki, & Piano, 2011; Creswell & Clark 2018; Morgan 2017).

The mixing occurred when the quantitative database informed and connected with the conceptualisation of the qualitative database. This was between the data analysis of the first phase and the data collection of the second phase. The two sets of databases were integrated to respond to the theoretical perspective of the study.

4.5.1.4   Theorising

The final part of the strategy was to provide a discussion on how the transformative lenses shaped the TMMR in line with the guidelines provided by Mertens (2012) and Camacho (2020) on the use and application of the theoretical framework.

4.5.1.4.1   The Critical Disability Theory

The CDT first addresses the sign language and communication axiological aspects. Second, it addresses the strengths and limitations of the social-cultural and clinical-pathological models of disability and how they may complement each other.

4.5.1.4.2   The Transactional Distance Theory

The TDT addresses the already limited dialogue in ODeL and shows how it may be improved even in the case of SDHH. Furthermore, the structure of offerings and programmes should respond to the UDL framework. Lastly, it addresses learner autonomy where the SDHH should be empowered to study and excel while learning from a distance.

4.5.1.4.3   The Theory of Change

The theory of change makes a provision to discuss the context and outline the sequence of required events and the use of a logic model to plan the interventions and evaluation processes and their results, as will be unpacked in the following section.

4.5.2   Transformative Evaluation

TMMR most often follows the principles of systematic research inquiry by using quantitative and qualitative methods (Kivunja & Kuyini, 2017; Sendall, McCosker, Brodie, Hill, & Crane, 2018). This is done by following a cyclical process consisting of clearly defined study phases. For the context of this study, this cyclical process is informed by the theory of change in evaluative studies, which gives guidelines to the chronological order of research activities. The quality framework provided by the theory of change as discussed in section 2.6.1 is graphically integrated into the logic model below to understand the purpose of the intervention.
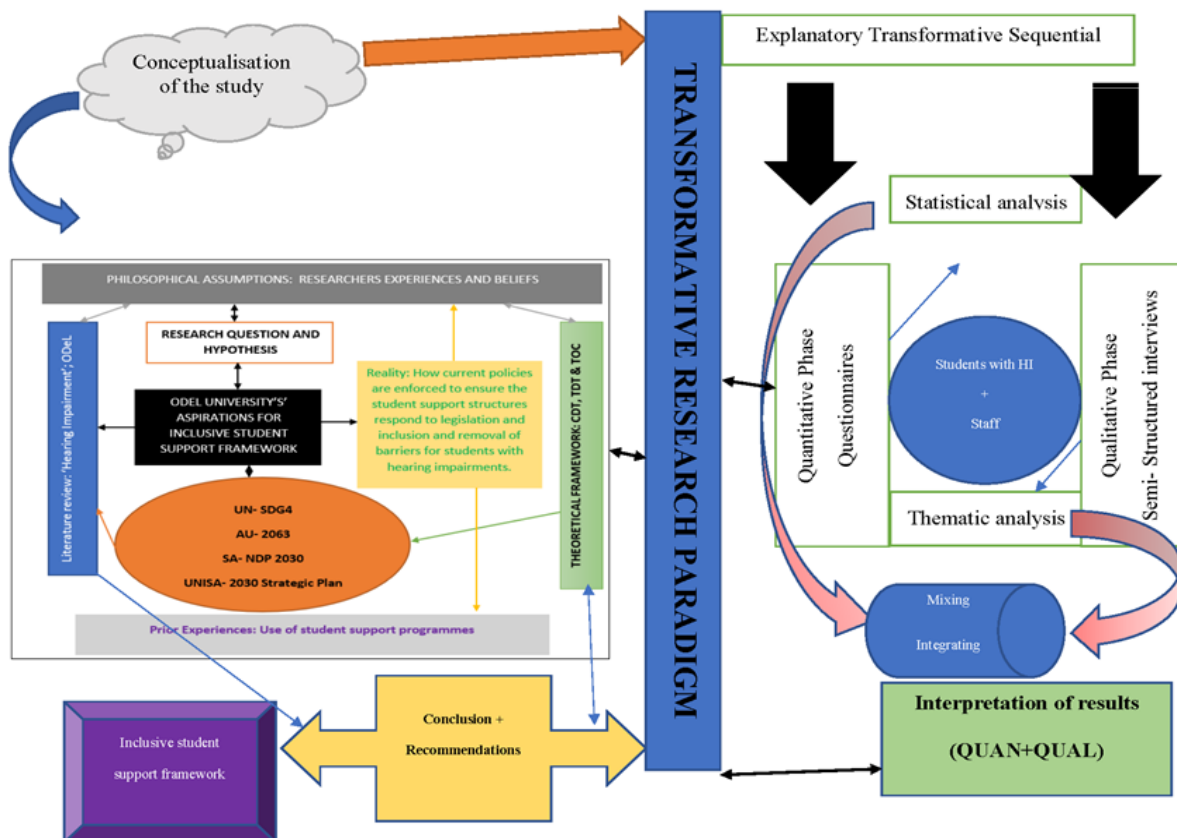
Figure 4.6: A Logic Model to Guide Evaluation to Achieve the Results as Outlined in the Theory of Change (Personal Archive)

4.6   POPULATION AND SAMPLING

According to Emerson (2015), "population" is defined as a complete group of individuals with a specialised collection of features. A "sample" is a subset of the population, while the elements selected from the population are the sample. It is unlikely that researchers should be in a position to obtain data from all elements (all the units in a population) to address the hypothesis and the research questions – therefore, a need to choose a sample (Taherdoost, 2018).

The goal of drawing a sample is to show what the population looks like, as indicated in figure 4.7 below. A sample, therefore, is drawn from a population, mostly because it is not practical to study an entire population in most situations as in the case of this study. To represent all SDHH and staff, a sample was drawn to represent those populations (Creswell, 2014; Datta, 2018).
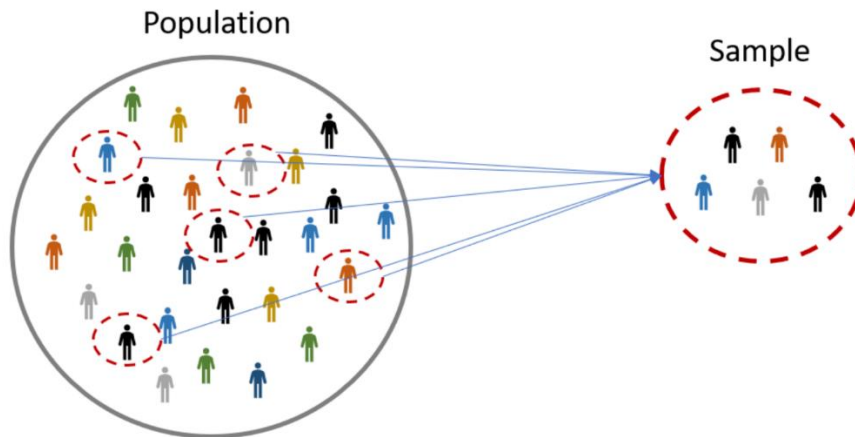
Figure 4.7: Population *versus* Sample (Omniconvert, 2019)

Considering the transformative and pragmatic context of the study, it is important to discuss the sampling techniques, size, and units of analysis.

4.6.1 Sampling Technique

The transformative and pragmatic nature of the study allowed the use of both probability and non-probability sampling techniques in responding to the quantitative and qualitative phases.

4.6.1.1 *Simple Random Sampling*

Simple random sampling is a method whereby each element of the population has the same probability of being selected and each element in the sample is selected by chance (Creswell, 2014; Etikan, Musa, & Alkassim, 2016). This method is found to be relevant, since it allows elements from a population of all relevant members to have an equal chance of being included in the study.

4.6.1.1.1 Census

In the case of the SDHH, the census was applied due to the smaller population which was around 500 students who declared their condition and were categorised on the systems as SDHH. Saleh and Bista (2017) warn of low responses on online surveys and Dehghanpour and

Herrmann (2021) provide guidelines to maximise the response rate which is applied by sending second reminders after a lower anticipated response rate.

4.6.1.1.2   Stratified Random Sampling

Similarly, stratified random sampling was applied to ensure that all relevant members in the portfolios and departments had an equal chance of being included in the study. Both Datta (2018) and Taherdoost (2018) discuss a stratified random sample as a sampling process in which the population is split into non-overlapping groups, while a random sample is chosen from each stratum.

Due to the numerous portfolios and departments at UNISA, proportional, stratified, random sampling was applied. It is an approach that required the collection of the sample according to the proportions of each stratum. The approach is used when strata are of different population sizes as is the case with staff members in various student support departments.

4.6.1.2   Non- Probability Sampling

Inversely to probability sampling, there are elements in the population that have a known non-zero chance of being selected through the use of a random selection procedure (Etikan, Musa, & Alkassim, 2016).

4.6.1.2.1   Convenience Sampling

Convenience sampling (also known as "haphazard sampling" or "accidental sampling") is a form of non-probability or non-random sampling where members of the target population who meet certain functional requirements, such as easy accessibility, geographical proximity, and availability at a given time, or willingness to participate, are included in the study (Etikan, Musa, & Alkassim 2016). In the same breath, Taherdoost (2018) defines "convenience sampling" as a selection of participants, since they are often readily and easily available.

This method was found to be inexpensive and allowed expediency to interview those who indicated so on the data collection tool from the first phase of the study. It also allowed data collection during the imposed Covid-19 lockdowns in the country.

4.6.2   Units of Analysis

In line with the above definitions, as well as the aims and objectives of the study, sampling was done from the following elements:

- SDHH, registered at an ODeL university, and

- Student support staff members at the same ODeL university.

The sampling frame was representative of all the participants and was based on the list of all registered students as well as staff members with their e-mail addresses. The recruitment of participants was done in line with the ODeL institution's ethical considerations which are discussed further in section 4.10.

The process took into cognisance the Protection of Personal Information Act (POPIA) from the Department of Justice (2013) and its effect (Act No. 4 of 2013) which commenced from July 2021 and applied to the second phase of the study (Adams, Adeleke, Anderson, Bawa, Branson, Christoffels, De Vries, Etheredge, Flack-Davison, Gaffley, Marks, Mdhluli, Mahomed, Molefe, Muthivhi, Ncube, Olckers, Papathanasopoulos, Pillay, Ramsay, 2021; Adams, Veldsman, Ramsay, & Soodyall, 2021). This required of the researcher to protect the personal information of all participants as classified by the act and ethical clearance committee.

4.6.2.1   Inclusion and Exclusion Criteria

The inclusion and exclusion criteria, as discussed below, were put in place to enhance the selection process.

4.6.2.1.1   Inclusion Criteria: Students

- Participants should be actively registered students in an ODeL university.

- Participants should have indicated on the registration form that they are SDHH.

- Participants should demonstrate a willingness to participate in the study.

4.6.2.1.2   Inclusion Criteria: Staff

- Permanent or fixed-term staff with more than one year of working experience in the college/faculty of an administrative department where SSS are rendered.

4.6.2.1.3   Exclusion Criteria: Students

- Students who are not Deaf or Hard of Hearing.

- Alumni.

4.6.2.1.4   Exclusion Criteria: Staff

- Student-workers.

- Temporary staff.

- Staff with less than 1 year of experience.

- Staff in departments not involved with student support.

4.6.3 Sampling Size

The population of SDHH at UNISA is less than 600, and the census was applied as a sampling technique to have significant results for a quantitative study. The confidence level and margin of error were applied to staff with a population size of 5,000, ensuring that 400 qualify to generalise the results. 105 SDHH responded to the survey while responses from the staff were at 108.

A provision was included in the questionnaires to be contacted for interviews out of the participants' own will. For the second phase of the study, the interviews were conducted with five students and eight staff members.

4.7   RESEARCH TECHNIQUES AND TOOLS

The explanatory sequential design study executed the employment of online questionnaires for the first quantitative phase for both SDHH and staff. The second phase utilised semi-structured interviews and participant observation as a form of data collection.

4.7.1 Questionnaire

To achieve the objective of the study and test the hypothesis, a questionnaire was used as a data collection tool for the first quantitative phase. Bryman and Bell (2015), as well as Wrench *et al*. (2016) define a questionnaire as a tool that contains a series of questions in an attempt to gain statistical information about the elements of a population. The questionnaire was sent to the population and sample frame via e-mails, and responses were captured electronically. The respondents consented to give their contact details to participate in the second phase of the study, which was qualitative.

The layout consisted of three sections:

- The administrative section, which addressed the axiological aspects.

- The second section classified the demographical variables.

- The third section responded to the target questions related to the content of the enquiry.

A structured questionnaire consisted of closed-ended questions for achieving specific response options and two open-ended question.

4.7.2 Interviews

The semi-structured interview is a qualitative data collection technique in which the interviewer asks informants a set of pre-defined, yet open-ended questions (Creswell, 2007; Ishtiaq, 2019). DeJonckheere and Vaughn (2019) define "semi-structured interviews" as a tool that promotes a conversation between the researcher and the participant, which is driven by a versatile interview guideline and complemented by follow-up questions, probes, and remarks.

Semi-structured interviews are a suitable form of data collection that connect the quantitative phase. Interviews are undertaken in natural environments, most of which are online. Using this tool, the researcher gathered open-ended data by exploring the opinions, feelings, and beliefs of the participants on a specific topic, and deepening the insights into personal and often sensitive issues. An interview guide flowing from the main research question and sub-questions was developed to enhance the credibility of the study as discussed in section 4.9.

4.7.3 Participant Observations

According to Kawulich (2005), "observation" as a data collection tool in qualitative research may be defined as a systematic description of activities, attitudes, and objects in the social setting selected for the analysis. This technique enables the researcher to describe the existing environment during interviews, to provide a picture to the reader through the use of their senses.

Equally so, Frey (2018) suggests that "participant observation" is a qualitative data collection technique that offers rich detailed information on human actions and experiences in a particular context. This approach allows a researcher to engage and examine both the individual and the environment. In doing so, the researcher gains a holistic view of how people make sense of their experiences and what is happening around them.

Roulet, Gill, Stenger, and Gill (2017) provide guidelines for addressing the axiological aspect of the study, which is important in collecting data through observation. The axiological assumptions were specifically considered during the data collection from the SDHH, where the sign language interpreter formed part of the trio with the researcher and participant. The level of observational participation was moderate, which allowed the researcher to maintain a balance between the insider and outsider roles as suggested by the transformative research paradigm. This level of participation allows and promotes the building of rapport.

4.8   DATA ANALYSIS

The data analysis process aims to convert raw data into useful and usable information by means of the research process. This process includes evaluating, cleaning, transforming, and modelling data to find valuable information, suggesting conclusions, and promoting decision-making (Almalki, 2016; Sendall *et al*., 2018).

The figure below depicts the patch followed to analyse data in this TMMR study by colour coding the pathways on both quantitative and qualitative data. The descriptive design was used to analyse the quantitative data through a correlation procedure, while the thematic analysis procedure was followed to analyse qualitative data.

Hitchcock and Onwuegbuzie (2020) outline the difficulties in analysing data in MMR studies and suggest the use of the crossover analysis framework in instances where two data sets need to be analysed by non-traditional data analysis techniques. This framework allows the researcher, among other things, to use qualitative approaches to analyse quantitative data and *vice versa*.
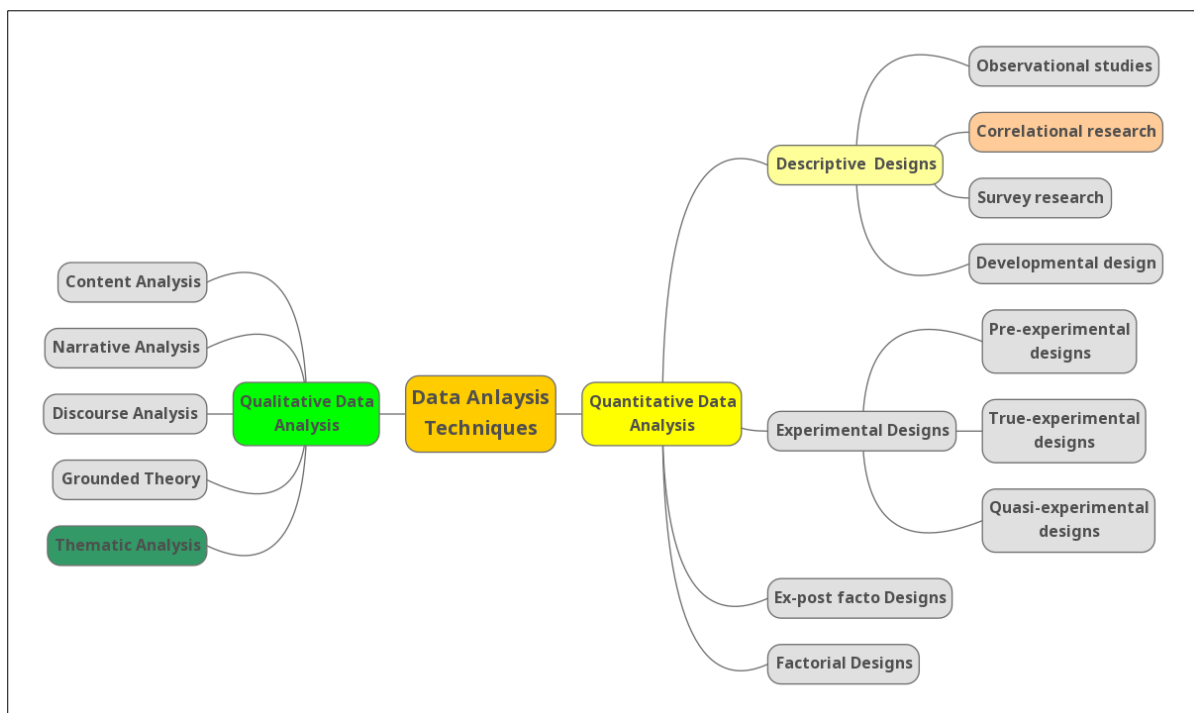
Figure 4.8: Data Analysis Techniques (Personal Archive)

Although this study did not apply this data analysis framework, it provided some guidelines considering that the study employed transformative explanatory sequential design where the mixing and timing occurred between the data analysis of the quantitative phase and data collection of the qualitative phases. The statistical analysis was conducted before the qualitative

data collection, which was followed by the thematic data analysis after the qualitative data collection and general integration of all the collected data.

4.8.1 Data Management Plan and Processing

"Data management" is the system of managing data right from the moment it is collected and continuously updated to ensure continuity across respondents and to detect omissions which allows the edited data to be amended in a way that makes an analysis possible (Huberman & Miles, 1994).

The quantitative data were collected and coded using alphanumeric codes to minimise the responses to more manageable storage using the Statistical Package for the Social Sciences SAV file format. Similarly, the ATLAS.ti project file was used to store the transcribed qualitative data.

4.8.2 Quantitative Data Analysis: Descriptive Design

Based on Bryman and Bell (2015), quantitative research typically focuses on quantification in the processing and analysis of data and, as a research technique, is deductivist and analytical, while integrating a natural science model of the research method (one inspired by positivism), although quantitative researchers do not always adhere to all three these characteristics. Thus, it focuses on the numerical data and the presentation thereof, by objectively placing it within the positivist research paradigm, which is accommodated in the pragmatic, yet transformative research paradigm applied in this study (Quinlan, Zikmund, Babin, Carr, & Griffin, 2015).

The correlation technique under the descriptive design involves the systematic investigation of the nature of relations and allows the testing of the relation and the level of degree of inclusion with the provision of SSS towards SDHH (Leedy & Ormrod, 2015).

Furthermore, the correlational technique addresses inferences made, hypothetical testing, and the regression analysis where the primary objective of inferential statistics is to measure population parameters. The regression analysis explains the relation between the set of independent variables and the dependent variables as outlined in chapter 1. This research integrated the hypothesis tests that helped to assess whether the relation found in the sample data currently occur in the population.

4.8.3 Qualitative Data Analysis: Reflective Thematic Data Analysis

Qualitative research is about meaning and meaning-making, and regarding these as often context-bound, placed, and situated. Qualitative data analysis is about telling "stories," under-

standing and developing, not discovering, and seeking the "reality" that is either "out there and can be identified or hidden deep within the data" (Creswell & Creswell, 2019; Laher *et al.*, 2019). Data analysis techniques, therefore, help us to infer the said meanings and discoveries which have evolved over the years, including thematic analysis techniques.

The recent literature on thematic data analysis shows this by unpacking the tripartite typologies of thematic analysis, which have been clustered and categorised into 1) call coding reliability, 2) codebook, and 3) reflexive approaches (Braun & Clarke, 2019; Terry, Hayfield, Clarke, & Braun, 2017).

The reflexive thematic analysis (RTA) therefore reinforces themes as being analytic outputs that flow from the intensive coding process. The coding output is a reflection of the analytic work of intersecting raw data. The hallmark of this technique is its versatility, not just theoretical versatility, but flexibility in terms of analysis, sample size and constitution, data collection process, and generation of meaningful approaches from homogeneous and heterogeneous samples (Castleberry & Nolen, 2018).

Braun and Clarke (2019) argue that through the RTA, themes do not emerge passively from the coding process because they are not waiting to be identified or to be retrieved. They are, however, themes that become contextual stories about the data generated at the intersection of the philosophical foundations and assumptions through the researcher's analytical tools and skills, placing the raw data at the centre of this process. They further advise that though it is important to follow the procedures correctly to promote dependability as one pillar of the trustworthiness of data, researchers should go a step further by reflecting on the philosophical assumptions (ontology, epistemology, axiology, and methodology) through this analytical process.

The recorded data from the semi-structured interviews from both SDHH and staff were transcribed verbatim, and the audio was listened to numerous times while transcribing. At this point, the sign language interpreter was involved in checking the transcribed data obtained from the SDHH. This was important to eliminate discrepancies, as the data recorded were often done, using an English translation directly from the SASL where the context may have been lost as in any translation context.

To circumvent and manage this risk, member checking followed where the participants confirmed the intensity of the transcribed data. This was also important for the first set of transcriptions where the researcher relied on the sign language interpreter for audio outputs. Member checking was done to confirm whether the interviews were captured according to the responses from the said sample. This exercise allowed me to immerse myself in the data by

remembering the environment of the interview and the context in which it was performed. At this point, I made notes on the findings and reflected on the interview experience by documenting these reflections in the margins while reflecting on the transcriptions.

The focus of the transcripts is more on the content (what is being discussed), the use of language (features such as metaphors, symbols, repetitions, and pauses), meaning, as well as initial interpretivist comments. Some of the comments, specifically on the student's database, were related to personal reflexivity that was created (e.g., how the interviewer's characteristics, such as gender, age, social status, and the presence of a sign language interpreter, influenced the type of relationship and rapport formed with the participants).

The notes were transformed into codes, as relations were established and emerged to form themes through the use of ATLAS.ti qualitative data analysis software. The software further responded to the trustworthiness of data for the audit trail which is briefly explained in the next section.

4.9   EVALUATION OF THE RESEARCH DESIGN: QUALITY

4.9.1   Research Rigour and Quality

"Rigour in research" refers to the protocols followed to ensure the final research product's consistency. Furthermore, it guarantees the legitimacy or soundness of the analysis process, enabling the findings to be more authentic (Laher *et al*., 2019).

Section 4.5.2 on transformative evaluation outlines the steps followed through the logic model, divided from the theory of change that ensured rigour in the study. Moreover, the criteria (found in the table below) to make judgements from both quantitative and qualitative phases add to the rigour and quality. The process ensured that the problem statement, as well as objectives and aims, are aligned with the theoretical framework and the transformative research paradigm, rendering the applied methodology to be relevant.

In response to the authenticity, the American Psychological Association (APA) reference style was applied throughout the thesis for acknowledging the authors – the full reference list is after the conclusion chapter. The final report went through the Turnitin programme to address plagiarism and similarity indexes as well as academic integrity which all respond to quality in this context.
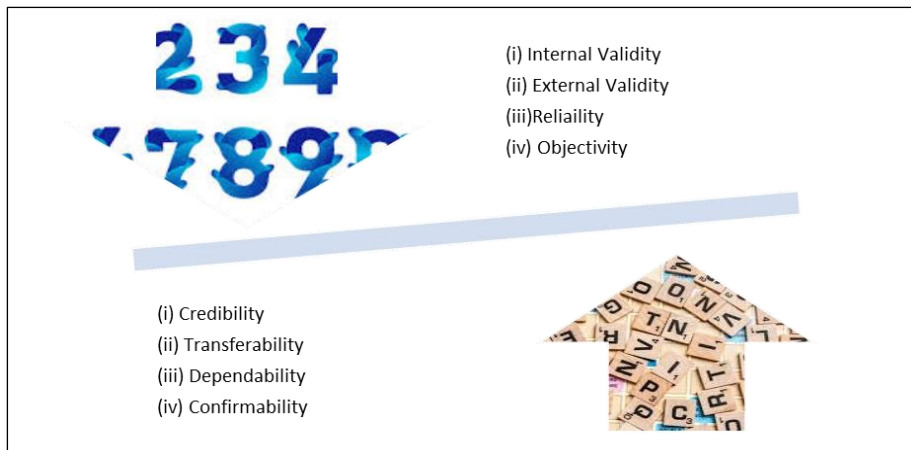
Figure 4.9: Criteria for Judging Quantitative and Qualitative Phases (adapted from Bryman & Bell, 2015)

4.9.2 Reliability, Validity, and Objectivity

Reliability, validity, and objectivity are concepts used to determine the consistency of the study. They respond to how well the process, techniques, and instruments are used to test a phenomenon or relation. Reliability is about the consistency of the data collection tool, and its validity is about its accuracy. The objectivity of the researcher depends much on their bias, as it may contaminate the results.

The term "reliability" refers to how accurately a measure can test something. If the same result can be reliably obtained by using the same methods under (theoretically) the same conditions, the calculation will then be rendered as reliable. On the other hand, the term "validity" refers to how precise a measure can calculate what it is supposed to explore or investigate. The term "high validity" means that it generates findings that relate to specific properties, characteristics, and variations in the physical or social environment.

Given (2012) describes "objectivity" as the degree to which the study is undistorted by the bias of the researcher. This was maintained in the first phase of the study by allowing the evidence to respond to the enquiry. The ontological assumption for this study allowed the independence of truth by the participants, therefore, not to be influenced by their beliefs or version of the truth.

The adopted measure was designed by Möwes (2005) in a different context and country where reliability, validity, and objectivity were addressed and incorporated. This tool provided a base for evaluating the existing student support framework in an ODeL university in SA. The following indexes were amended and adopted for the context of this study:

- Biographical index.

- Awareness of SSS.

- Accessibility of SSS.

- Effectiveness of SSS.

- The level of inclusion in SSS.

- Recommendations and areas of improvement.

After adopting the measure, pre-testing and piloting were conducted to further enhance the quality of the measure.

4.9.3 Pre-Testing

Pre-testing was conducted after the finalisation of the questionnaire, to assess the questions and instruments used before the data collection process. Cooper and Schindler (2014) discuss how this process is necessary to establish and discover errors in questions, sequence, and instructions, and get a feel from the respondents before rolling out the measure.

This process was critical in identifying challenges flowing from the adopted measure. A pilot test was conducted after addressing the identified shortcomings of the measure, like the terminology used, especially for the respondents whose SASL was their first language and who only used English for academic purposes.

4.9.4 Pilot Study

After the pre-testing process, where the methodological and language flaws were detected, a pilot study was undertaken to test the finalised questionnaire before the main study, in order to enhance reliability and validity. This "pre-study," as coined by Cooper and Schindler (2014) allowed the preliminary testing of the hypothesis. Second, it assisted with the determination of the feasibility of the study and how easy or difficult it would be for respondents to populate the measure. Lastly, the reliability and validity concerns were addressed through pilot testing.

4.9.5 Trustworthiness of Data

The positivist school of thought seems to doubt the trustworthiness of qualitative research in general, perhaps because their definitions of validity and reliability cannot be discussed in naturalistic work in the same way (Lincoln & Guba, 2000; Shenton, 2004).

Gunawan (2015) considers reliability/dependability as a validity/credibility threat, challenging many of the normal qualitative characteristics of reliability checks, such as member inspection (returning to participants after data analysis) or peer inspection (using an expert panel or an experienced colleague to reanalyse some of the data) as ways to verify that the data have been correctly evaluated by the researcher.

The said doubts were eliminated in this study by recognising the value of qualitative research and the criteria in place to ensure that they respond to trustworthiness as prescribed by Nowell, Norris, White, and Moules (2017). The study demonstrated this through the accurate qualitative data analysis process by disclosing the analytical methods with sufficient details. Furthermore, the consistency and audit trail ensured that the criteria are met in responding to the trustworthiness of the data. Table 4.10 provides a summary of the said demonstration.

4.9.5.1   *Credibility*

Credibility is a criterion that responds to interval validity in a quantitative study. It addresses the "fit" between the views of respondents and their portrayal by the researcher. Therefore, it refers to the degree to which a study is accurate and relevant, with specific regard to the extent of agreement between the participants and the researcher (Nowell *et al.*, 2017).

Other strategies as suggested by Shenton (2004) were applied to increase the credibility of the study, like standard interview guides and the signing of consent forms that ensured that participants were honest during the data collection phase.

4.9.5.2   *Transferability*

Transferability responds to external validity which results in the generalisation of outcomes in a quantitative study. The provision of a thick description of a particular phenomenon during data analysis makes this possible for the reader to make inferences to relate the results or outcomes to other settings (Guba & Lincoln, 1988).

The term "transferability" thus refers to the degree to which the empirical research results can be replicated in other contexts (Taylor, 2016). However, it is difficult to illustrate transferability in qualitative research, where the results are unique to a particular context. In this study, transferability was achieved through a thorough explanation of the participants' context, selection, and characteristics, as well as the use of effective data collection and analysis techniques. Consequently, to further promote transferability, verbatim quotations were given in support of the findings.

4.9.5.3 Dependability

This criterion responds to reliability in quantitative studies, and to achieve this, a process that is logical and flowing coherently is implemented to ensure that there is an audit trail (Lincoln & Guba, 2000).

4.9.5.3.1 Audit Trail

Nowell *et al*. (2017) emphasise the importance of reflexivity which is central to attaining dependability. To maintain and establish a consistent audit trail, the following documents were saved by the researcher to respond to reflexivity:

- Records of raw data.
- Fieldnotes.
- Transcripts.

Johnson, Adkins, and Chauvin (2020) argue that an audit trail should provide the reader with evidence of the choices and decisions, made by the researcher regarding theoretical frameworks and methodologies used in the study. This view is supported by Carcary (2020) who reasons that another researcher with the same data and similar context should arrive at the same or comparable conclusions that are not contradictory.

4.9.5.4 Conformability

Conformability responds to objectivity in quantitative research, and it is concerned with making decisions to ensure that the interpretations and results of the study are derived from the collected data (Nowell *et al*., 2017; Shenton, 2004). Furthermore, it is important to demonstrate how the assumptions and interpretation were reached to refer to the degree to which the outcomes of the analysis are based primarily on the study participants and circumstances, rather than the researcher's characteristics.

Nowell *et al*. (2017) recommend the inclusion of theoretical frameworks and methodologies as well, giving a justification of their selection and relevance to allow readers to make their own decision on the degree of credibility applied in a study. The table below demonstrates measures undertaken to make provisions to address the quality and trustworthiness of data in this study.

No	Criterion Quality	Provision Made to Address Quality
1	Credibility	Rapport was built with participants before the study commenced. Member checking after transcripts was drafted, also responding to the credibility of the study which ensured that the transcribed material was conveyed through the sign language interpreter. The interview guide and consent form were some of the measures to increase the credibility of the study.
2	Transferability	A thorough background study on the phenomena under investigation was done through a literature review. The context which is HE and ODeL was explained with the provision of student support to SDHH, highlighting the strides made in HE and pointing out the gaps thereof.
3	Dependability	The TMMR was explained and linked to the philosophical assumptions (ontology, epistemology, and axiology) about the problem statement. The theoretical framework suggested the use of methodologies to achieve the aims and objectives of the study. The study may be repeated in a similar context with a different impairment or disability.
4	Conformability	This figure explicitly describes the admission of the researcher's philosophical assumptions and beliefs, thus assisting him to minimise his bias throughout the study. Measures taken to address academic integrity, as well as ethical considerations were explained. The record and audit trail were possible, and record management was in place to address this aspect.

Table 4.1: Application of Trustworthiness in the Study (Personal Archive)

4.10   AXIOLOGICAL EVALUATION AND ETHICAL CONSIDERATIONS

The transformative research paradigm offers a valuable structure for discussing the role of researchers in addressing issues related to inequality, prejudice, and power differences. This puts a critical emphasis on the complexities of power inequality that have been the legacy of many members of the sign language community, whose perception of truth is privileged.

The epistemological assumption raised concerns about the nature of the relationship between researchers as to who controls the investigation, particularly when it is performed by a team of members and non-members of the sign language communities, as in the case of this study. Methodological assumptions enabled researchers, interested in researching a subject within the sign language community, to adopt the research guidelines established by the group itself, while the transformative axiological assumptions placed social justice and human rights concerns at the centre of decision-making concerning work in the sign language communities.

This section on ethical principles illustrates ethical compliance by illustrating the comprehension and implementation of appropriate conduct and action when performing this study. This consideration is based on the understanding that all human beings have a dignity that must be respected, and that they have a fundamental human right to make choices that a researcher must respect.

4.10.1 Ethics in Research

From the literature, one observes how research ethics has culminated in the protection of subjects that were abused by researchers. The Belmont report shows that there were already restrictions on the ethical use of human subjects in studies before 1906 (Department of Health, Education, and Welfare; National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, 2014). Between 1939 and 1945, at least 75 scientific experimental activities involving cruel and sometimes fatal testing of human subjects, were undertaken in Nazi concentration camps.

Figure 4.10: Exploitation of Recruitment Processes

The Nuremberg Code of 1947 was the first international document to promote mutual participation and informed consent. In 1953, the USA government created a document on ethical review. This was followed by the 1964 Declaration of Helsinki, which later regulated international research ethics and set down guidelines for research associated with clinical treatment as well as non-therapeutic science.

In 1978, the Belmont report provided a framework for ethics in human subjects' research, and most governments and universities still utilise it for scientific research ethics policies. In 1966, SA had the first Ethics Review Committee set up at the University of Witwatersrand. UNISA had its first policy on research ethics in 2007, and has since updated the policy, complementing it with copyright infringement and plagiarism laws, as well as the policy on academic integrity.

The development and implementation of ethics are focused on philosophic principles and questions posed by Scotland (2012), as discussed earlier in section 4.2.3. These criteria centre on four principles that need to be followed when working with participants and data. These principles have the acronym PAPA, being privacy, accuracy, property and accessibility, and will be unpacked in the sections below.

4.10.1.1 Privacy

Under this principle, attention was given to what details the participants had to share about themselves, by giving them guidelines on the security of the gathered and examined data. It also represented the fact that the participants did not have to reveal their details on the informed consent document that they had to sign before their inclusion and participation in the study.

4.10.1.2 Accuracy

This principle was considered to be the responsibility for the application of authenticity, fidelity, and accuracy of the information. It also directed the researcher on cross-checking with the participants to ensure that the correct data is collected acceptably.

4.10.1.3 Property

Under this principle, understanding the ownership of the data and rights to the research report which belongs to the university as per the research policies, was achieved. It further assisted to understand and explain to the participants that the data would be published in the thesis being placed on the university repository system.

4.10.1.4   Accessibility

The principal of the university has to consider who will have access to the data and its management with reference to its storage and security. Furthermore, the conditions to safeguard the said data, were explored.

4.10.2 Basic Ethical Principles

4.10.2.1   Principle 1: Respect for Individuals

Respect for individuals requires at least two ethical convictions: First, that they should be regarded as autonomous agents and, second, that individuals with diminished autonomy are entitled to protection. Thus, the concept of respect for individuals is divided into two distinct moral requirements: The requirement to accept autonomy and the requirement to protect those with diminished autonomy (Department of Health, Education, and Welfare; National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, 2014).

In most cases of research involving human subjects, respect for individuals requires participants to enter the research voluntarily and with sufficient knowledge. This was also the case with this study, where informed consent was obtained before the commencement of data collection. The consent form, as well as the information sheet, are attached in Annexure B. These documents include the three elements, knowledge, understanding, and voluntary participation. Security, confidentiality, and the right to withdraw from the analysis were also discussed.

4.10.2.2   Principle 2: Beneficence

People are treated in an ethical manner, not only by respecting their decisions and protecting them from harm, but also by making efforts to ensure their wellbeing. Such treatment is governed by the principle of beneficence. The term "beneficence" is often understood as referring to acts of kindness or charity that go beyond strict obligations. It can also be understood in a stronger sense as an obligation, as it is implemented in this document.

Two general principles have been formulated as complementary examples of beneficial behaviour in this regard: 1) Do not harm others, and 2) maximising the potential benefits and mitigating potential harm of people. Risk and benefit analyses were performed, while the ethics committees reviewed the extent and scope of the risks associated with participating in this study.

4.10.2.3 *Principle 3: Justice*

Who will gain the rewards of research and bear its burdens? This is a question of justice, in the sense of "fairness in distribution" or "what is entitled." The injustice arises when any advantage to which a person is entitled, is withheld for a reasonable cause or when some burden is unduly placed. Another way of conceiving the concept of fairness is that people should be handled equally. This argument, however, requires an explanation.

Who is fair, and who is unequal? Which considerations justify a departure from the principle of equal distribution? Almost all analysts allow distinctions based on experience, age, poverty, ability, merit, and place to often constitute grounds for differential treatment for other purposes. It is also important to clarify in which ways individuals should be treated fairly.

There are several widely accepted formulations of just ways of distributing burdens and benefits. Every definition refers to some of the related assets based on which burdens and benefits should be allocated. Such formulations prescribe 1) for each person an equal share, 2) according to individual needs, 3) for each initiative, 4) for each person according to social contribution, and 5) for each individual according to merit.

The research design guided appropriate procedures and outcomes for this analysis in the selection of research participants. Permission was requested to provide an e-mail database of the SDHH. The selection process also followed the rules of the POPIA to ensure the privacy of the participants.

4.10.3 Protection of Personal Information Act of 2020 in South Africa

The POPI Act, as it is affectionately called, was signed into law in November 2013, updated on 1 July 2020, and coming into effect on 1 July 2021. This was considered necessary by the government to address the following aspects:

- To encourage the security of personal information shared by public and private bodies.
- To lay down certain conditions to establish the minimum requirements for the processing of personal information.
- To provide for the establishment of an information regulator to exercise certain powers and perform certain duties and functions under this Act, read together with the Promotion of Access to Information Act of 2000.
- To provide for the issuance of codes of conduct and for the rights of individuals concerning unsolicited electronic correspondence and automated decision-making.

- To monitor the flow of personal information through the boundaries of SA.
- To provide for matters relevant thereto.

4.10.4 Research Ethics in Sign Language Communities

The term "SDHH" reflects the full range of diversity found in the general population, with additional layers of complexity associated with hearing loss and the type of hearing loss, parental hearing status, access and ability to benefit from hearing-enhancing technologies, sign-and/or voice-based language use, and the use of visually accessible sign languages (Harris *et al.*, 2008). This ambiguity poses particularly complex challenges for the ethical conduct of research, due to issues of power that affect the cultural and linguistic identity of this group. Ladd (2003) argues that the ethical framework for research in the D(d)eaf group is rooted in the sign language community because it represents a "collectivist culture in which participants are linked together."

Mertens (2010) points out that cultural competence is an important principle for those operating within the philosophical premises of a transformative paradigm. Cultural competence is a crucial factor that relates to a researcher's ability to accurately reflect reality in diverse cultures. Harris *et al.* (2008) clarify the suggestion that culturally competent researchers must identify themselves with the culture at issue.

Cultural competence is not a static state. It is rather a process through which the researcher develops a deeper understanding of unequal access to power and privilege, through self-reflection and engagement with community members. Therefore, cultural competence in research can be broadly viewed as a systematic, responsive mode of inquiry that actively recognises, understands, and appreciates the cultural context in which the research takes place. It also frames and articulates the epistemology of the research effort, using the cultural and contextually relevant methodology and community-generated, interpretive means to their exposure.

The APA suggests that the researcher should act as an agent of pro-social change, countering racism, discrimination, sexism, and inequality in all its forms. To this end, culturally competent researchers aim to establish relations across disparities, gain the trust of group members, and focus on and identify their prejudices (Pope & Vetter, 2016).

The SLCTR were introduced to encourage the inclusiveness of the community's perspectives. This open framework empowered participants to take a stance about how researchers should examine them.

Principle	Focus
1	Authority for the construction of meanings and knowledge within the framework of the sign language culture lies with the members of the community.
2	Researchers should understand the members of the sign language community and have the right to take full account of those items that they trust in many of the interactions.
3	Investigators should consider the worldview of sign language and have trust in any agreements or activities that affect the participants.
4	In applying the terms of reference of sign language groups, researchers will consider the diverse perspectives, understandings, and ways of life (in sign language societies) that represent their contemporary cultures.
5	Researchers should ensure that the views and experiences of the important reference group (sign language group) are reflected in any process of evaluation and assessment of the extent to which the SLCTR have been considered.
6	Researchers should negotiate the establishment of appropriate processes within and between sign language groups, to consider and determine the criteria for meeting cultural imperatives, social needs, and priorities.

Table 4.2: Sign Language Communities' Terms of Reference Principles (Harris *et al*., 2008)

4.11   CONCLUSION

The chapter gave an overview of the philosophical foundations and assumptions highlighting the use and application of ontology, epistemology, and axiology. The transformative research paradigm was discussed, distinguishing it from the positivist, constructivist, and pragmatic research paradigms. The explanatory sequential design informing the TMMR, sampling, research techniques, and data analysis were discussed. The chapter concluded with the data analysis plan as well as the evaluation of the research design, responding to the quality of the study.

The next chapter will present the quantitative data results, collected for the first phase of the study. The pilot study will be discussed which will be followed by an analysis of the empirical study.

CHAPTER 5
QUANTITATIVE DATA PRESENTATION,
ANALYSIS, AND DISCUSSION

5.1   INTRODUCTION

The quantitative analysis of the results of the explanatory sequential design study is presented in this chapter. Inferential statistics were used to obtain conclusive results, as described in the data analysis plan in section 4.8.2 of the previous chapter. SDHH and employees at an ODeL university who served as the research's analytical units provided the quantitative data.

To evaluate differences in participant responses, the descriptive statistics provided and presented data as frequencies, percentages, measures of central tendencies, the mean, median, and mode, as well as the standard deviations and standard error. The t-test implemented in inferential statistics, was used to compare participant responses to show the degree of agreement and disagreement with the variables being evaluated.

Additionally, correlation analysis was used to test the unit of analysis responses, and the Chi-square test was used to test the strength of associations. The 0.05 level of significance was tested, using the p-value. The responses are followed by a discussion of the validity of the data collection methods in the following section.

5.2   RELIABILITY

The statements examined the effectiveness of SSS as well as the SDHH level of access to those services at the ODeL university. Since Cronbach's alpha was higher than 0.7 and fell within a desirable range, the level of inclusion had an internal consistency.

The SDHH data's overall Cronbach alpha was 90 percent (being > 70 percent), which is considered acceptable. It follows that the data collected can be quantitatively analysed to yield precise results, as shown in table 5.1 below.

Student	Cronbach's Alpha	N of Items
Accessed these support services	0.7926	13
Effectiveness of SSS for SDHH	0.9436	13
Level of satisfaction with the inclusion of SDHH by the SSS	0.9460	13

Table 5.1: Reliability of Student Data

The following student support programmes were evaluated: Admission (application and registration), student counselling and career guidance, the library, face-to-face tutorials, online

tutorials, ARCSWID, the academic literacy programme (reading and writing skills), computer labs – TEL, telecentres (internet cafés registered with UNISA), student funding, student development, information services, and the SRU from 105 participating institutions (SDHH).

The responses from staff at the ODeL university were included in the second database. The responses covered three areas: The level of liaising or referring SDHH to other SSS, the effectiveness of SSS for SDHH, and the level of satisfaction on the inclusion of SDHH in SSS. Since the measured statements' Cronbach alpha was higher than 0.7, which is within a desirable range, the statements were considered to be internally consistent. The overall Cronbach alpha for the data from staff participants was 91 percent (therefore > 70 percent), thus in an acceptable range. It is conclusive then, that the data collected can be analysed, using quantitative techniques and drawing precise results as per table 5.2 below.

Staff	Cronbach's Alpha	N of Items
Liaising or referred SSS	0.8625	14
Effectiveness of the SSS for students with hearing impairments	0.9403	14
Level of satisfaction with the inclusion of students with hearing impairment by the SSS departments	0.9403	14

Table 5.2: Reliability of Staff Data

The SSS measured were admission (application) and registration; student assessment administration (assignments & exams); counselling and career development (DCCD); the library; face-to-face tutorials; online tutorials; ARCSWID; the academic literacy programme (reading and writing skills); digital access centres – computer labs; teacher centres/telecentres (internet cafés registered with UNISA); student funding; student development; information services; and the SRU from 118 participants (staff at the ODeL university).

5.3   STUDENT RESULTS

5.3.1   Demographic Information of Student Participants
The demographic results and interpretations from the student participants are presented in the next sections.

5.3.1.1 Gender

The results indicated that at this ODeL university, females made up 60 percent of the SDHH population, while males made up 39 percent of the population. 1 percent of the population was non-gender conforming.
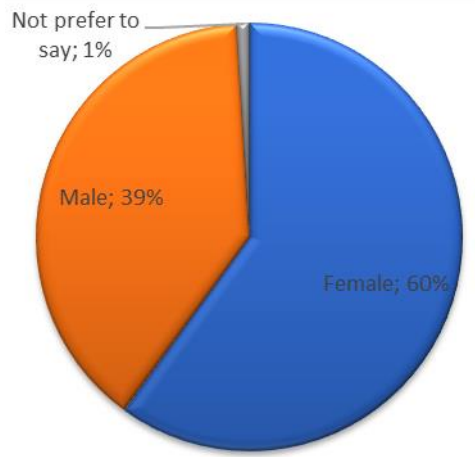
Figure 5.1: Gender of Students

5.3.1.2 Age

An age range of between 21 and 30 made up the majority of the SDHH, with the age ranges of 31 to 40 and 41 to 50 not far behind. There were very few students under the age of 21, and the least number of students were between the ages of 51 and 60.
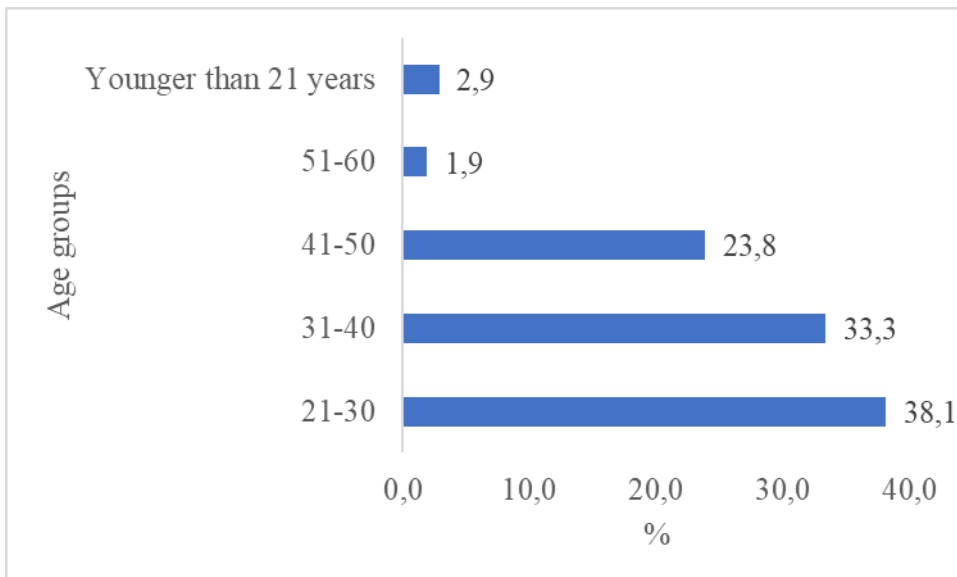
Figure 5.2: Age Groups of Students

5.3.1.3   *Employment Status*

As seen on the bar graph below, 23.8 percent of the SDHH were unemployed while studying full-time, followed by 30.5 percent of the SDHH who were employed while taking classes part-time. While studying part-time, only 1.9 percent of the SDHH were self-employed. In contrast, 4.8 percent were self-employed while studying full-time.
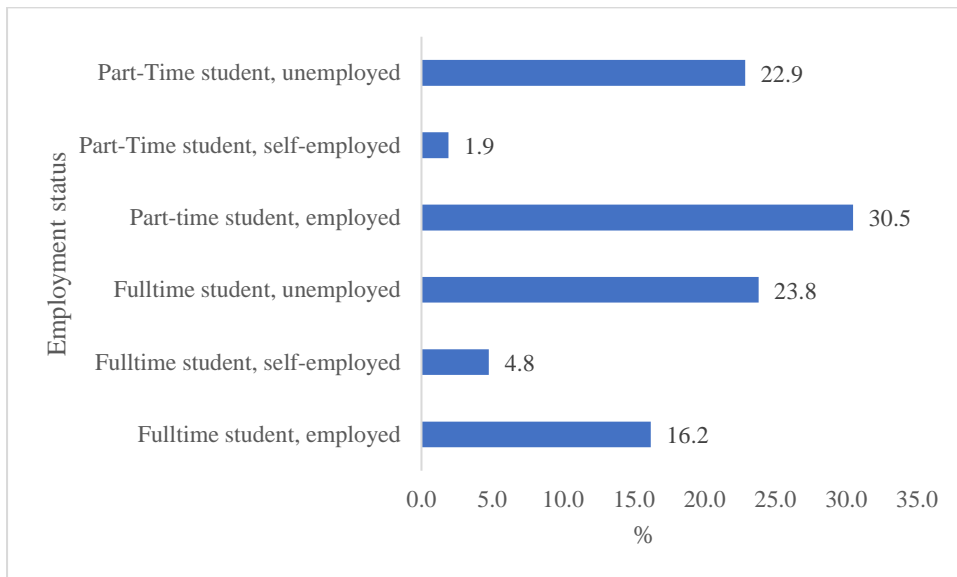
Figure 5.3: Employment Status

5.3.1.4   *Work Experience*

The most prevalent category among the SDHH included those with zero to two years of work experience, which made up about 30 percent of the total. Between five and 10 years of work experience was carried by about 21 percent of students. Additionally, the table below reveals that nearly 3 percent of the students omitted information about their work experience. 17.1 percent of the participants in this survey were SDHH with more than 15 years of experience.
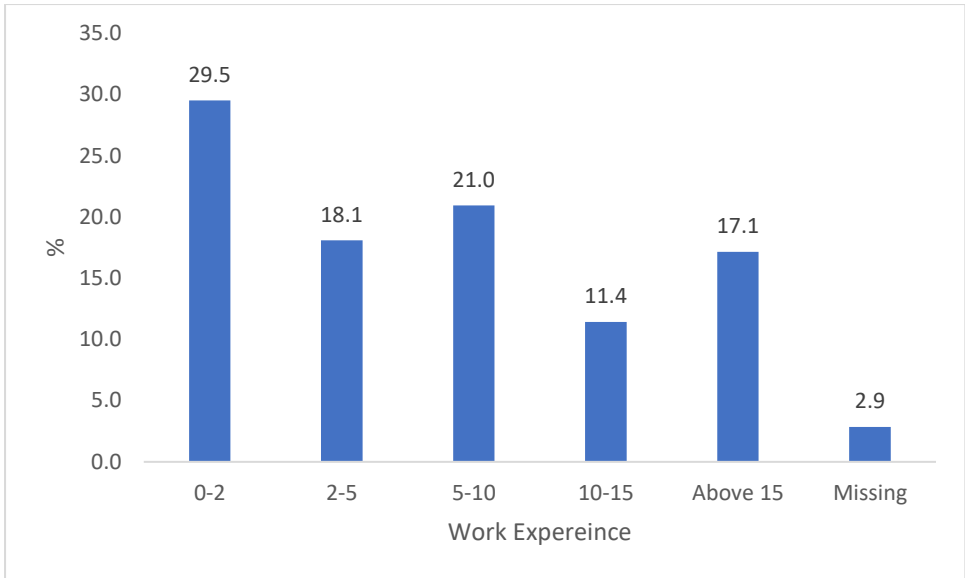
Figure 5.4: Work Experience

20 percent of the students held junior management positions, followed by nearly 44 percent of those in formal employment who were not in managerial roles. Information about the students' responsibilities at their places of employment was missing in 24 percent of the cases. 5.6 percent of the students were in senior management and 6.7 percent in middle management.
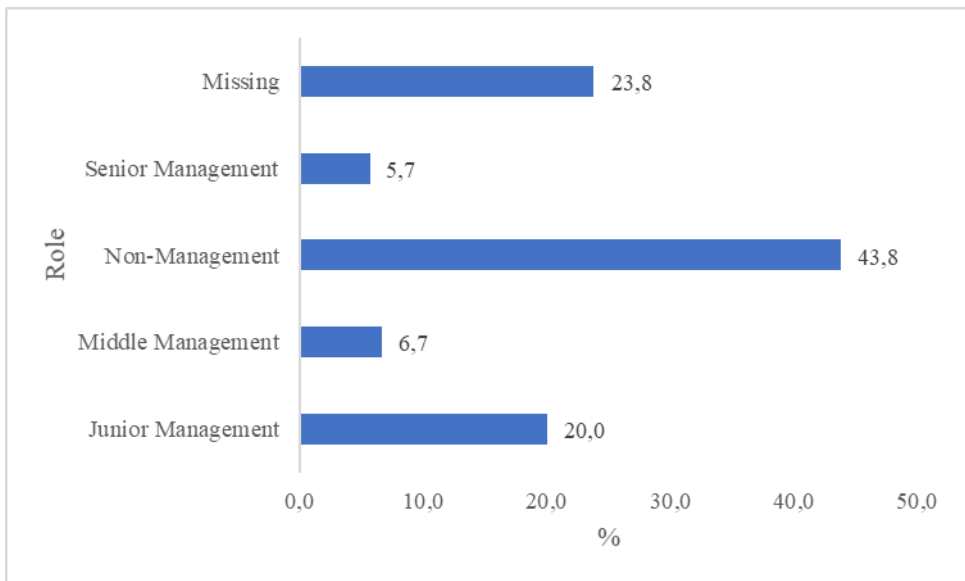
Figure 5.5: Role at Work

5.3.1.5   Deafhood

According to the results, 46 percent of the SDHH identified as hard of hearing, compared to 23 percent who had acquired deafness and 16 percent who were born deaf. 11 percent of the respondents identified as SDHH, but did not fit into any particular category. The findings also

show that some SDHH who self-identified as hard of hearing, have developed hearing loss as a result of several health-related issues, including ailments like chicken pox and memory loss caused by drowning, among other factors.
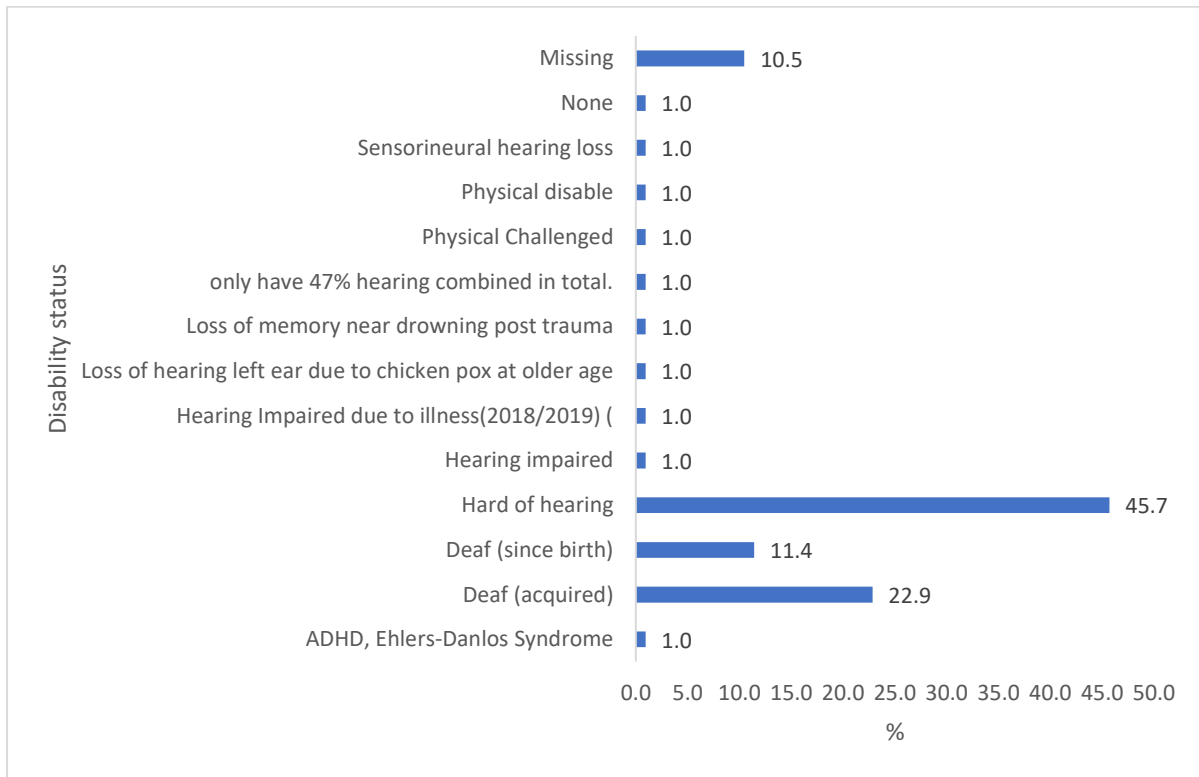
Figure 5.6: Deafhood

5.3.1.6   *Race*

African students made up 66.7 percent of the SDHH population, followed by White students (14.3 percent), Coloured (11.4 percent), and Indian students (7.6 percent).
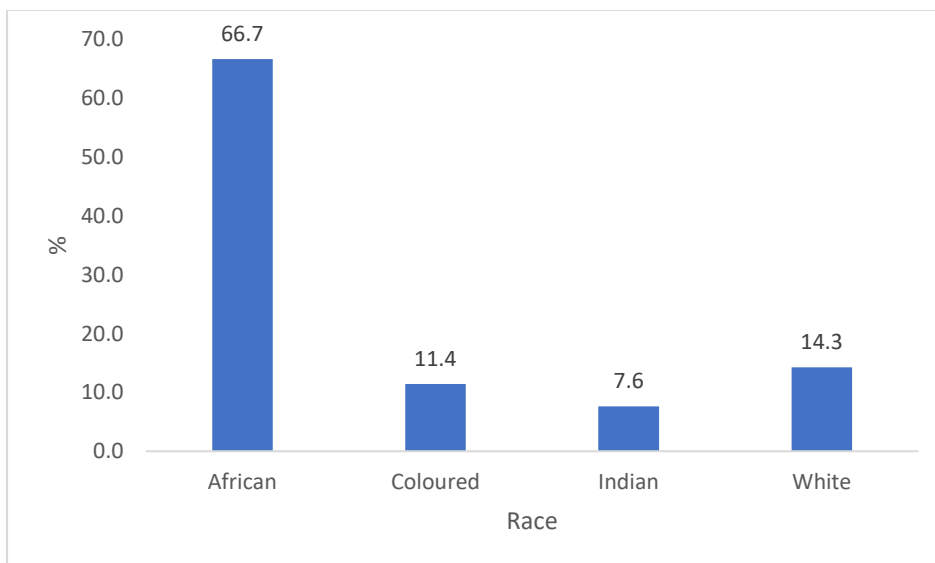
Figure 5.7: Race

5.3.1.7   Home Language

20 percent of the SDHH were English speakers, while 12.4 percent of them were SASL users. Afrikaans accounted for 10.5 percent, while Zulu was at 11.4 percent of the population. Venda, Tsonga, and Ndebele were at 3.8 percent, with Sesotho, the least spoken language making up just 1 percent of the total.
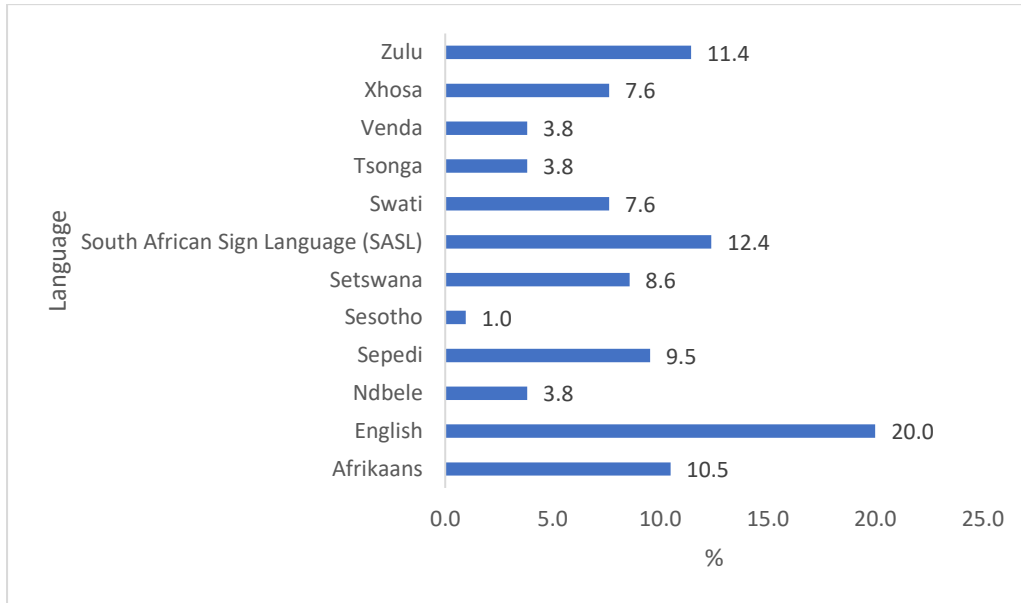
Figure 5.8: Home Languages

5.3.1.8   Marital Status

The majority of the SDHH (63.8 percent) reported being single, with married ones coming in second place (31.4 percent). 1.9 percent of SDHH were widowed or divorced/separated, and 1 percent did not disclose their marital status.
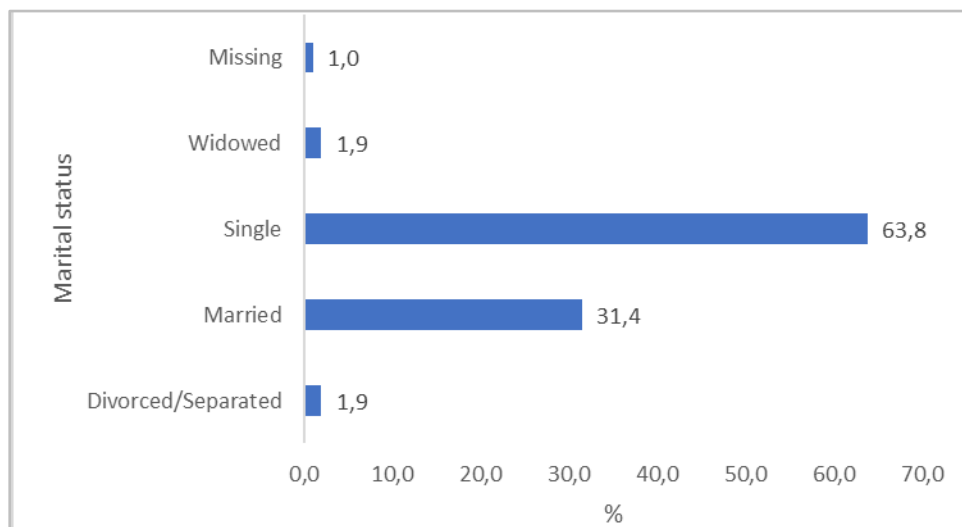
Figure 5.9: Marital Status

5.3.1.9 *Proximity to Open Distance and e-Learning University*

To get to the closest campus or the regional service centre, 41 percent of the SDHH travel more than 35 kilometres. Following this are the SDHH who travel between 11 and 35 kilometres, making up 17 percent of the SDHH population, and SDHH who travel between 0 and 10 kilometres, accounting for 23 percent.
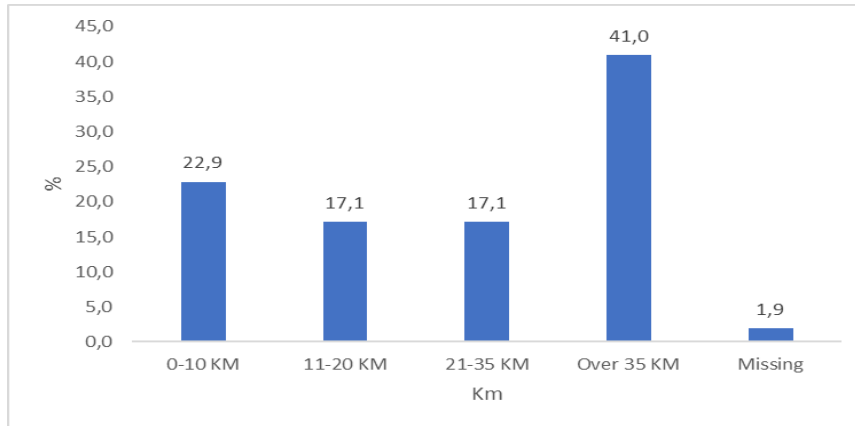
Figure 5.10: Distance Travelled

5.3.1.10 *Educational Background*

According to the results, 71.4 percent of the SDHH attended a traditional or mainstream school, while 10.5 percent went to the school for the Deaf. A special school was attended by 4.8 percent of the SDHH participants, and 3.8 percent did not furnish any information about their educational background.
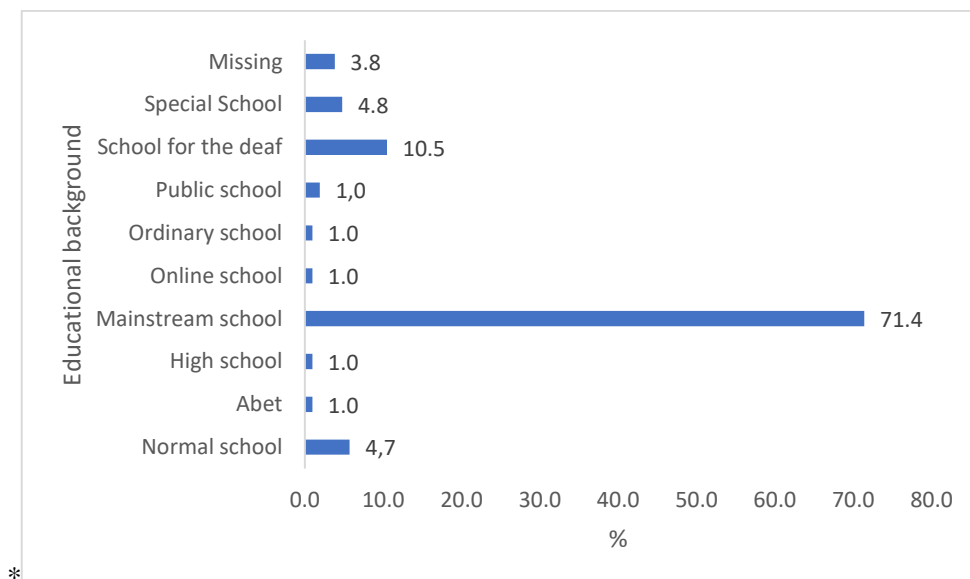
Figure 5.11: Educational Background from High School Attended

The table below shows that 32,4 percent of SDHH have grade 12 (matric) as their highest qualification, followed by 20 percent with a higher certificate and 19 percent with a diploma. 15,2 percent hold a bachelor's degrees or B Tech, while 7,6 percent have honours or postgraduate diplomas. Only 2,9 percent of these students graduated with a master's degree.
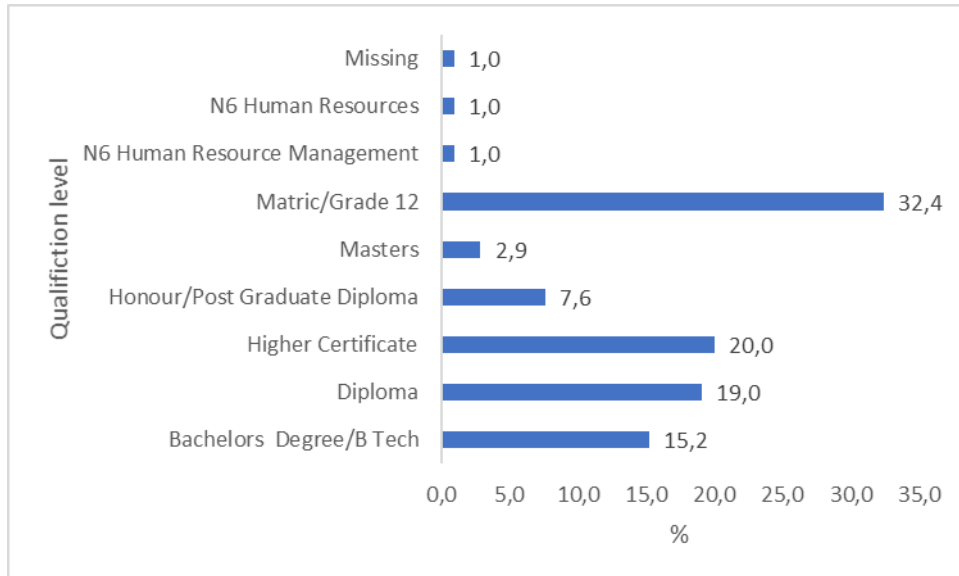
Figure 5.12: Qualification Level

5.3.1.11   Colleges Registered with

22 percent of the SDHH were enrolled at the College of Human Sciences. This includes the 2 percent of those doing Bachelor of Arts and were not sure which college they fall under. It followed by 21 percent at the College of Education, and 16.2 and 17 percent respectively at the Colleges of Law and Economic and Management Sciences. The College of Environmental Sciences and Agriculture constituted 8.6 percent, while the College of Accounting Sciences was 6.7 percent.
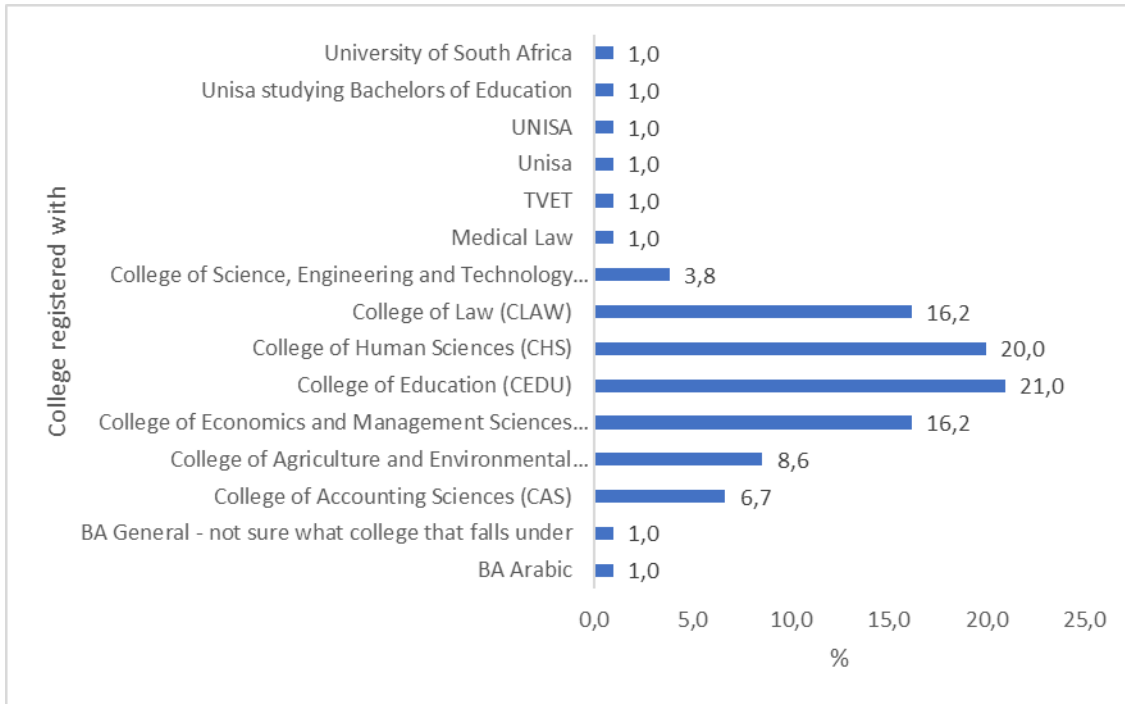
Figure 5.13: Colleges Registered with by the Students

5.3.1.12 *Preferred Mode of Accessing Student Support Services*

The results indicate that 59 percent of the SDHH preferred a combination of face-to-face and online SSS access, while 12.4 percent only preferred face-to-face communication, and 28.6 percent only online communication.
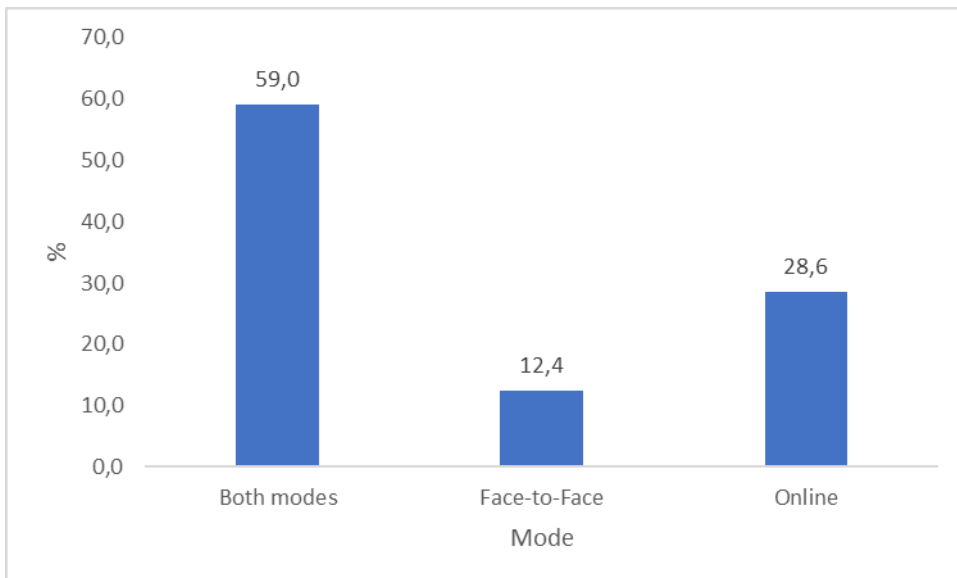
Figure 5.14: Modes of Accessing Student Support Services

5.3.2 Awareness of Student Support Services

Table 5.1 and figure 5.15 below present the findings regarding awareness of SSS.

Awareness	Aware		Unaware		Missing		Total	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Admission (application) and registration	94	90	11	10	0	0	105	100
Student counselling and career guidance	72	69	32	30	1	1	105	100
Library	91	87	13	12	1	1	105	100
Face-to-face tutorials	72	69	32	30	1	1	105	100
Online tutorials	79	75	24	23	2	2	105	100
Disability Unit (ARCSWID)	63	60	39	37	3	3	105	100
Academic literacy programme (reading and writing skills)	35	33	69	66	1	1	105	100
Computer Labs – TEL	50	48	53	50	2	2	105	100
Telecentres (internet cafés registered with UNISA)	29	28	74	70	2	2	105	100
Student funding	74	70	29	28	2	2	105	100
Student development	45	43	58	55	2	2	105	100
Information services	59	56	43	41	3	3	105	100
Student retention unit	28	27	74	70	3	3	105	100

Table 5.3: Awareness of Student Support Services

The majority of the SDHH (> 50 percent) were *significantly aware* of the following services as indicated in the above table: Admission (application) and registration; student counselling and career guidance; the library; face-to-face tutorials; online tutorials; ARCSWID; student funding; and information services. The services that had a lower level of awareness (< 50 percent) were academic literacy programmes (reading and writing skills); computer labs – TEL; telecentres (internet cafés registered with UNISA); and the SRU.
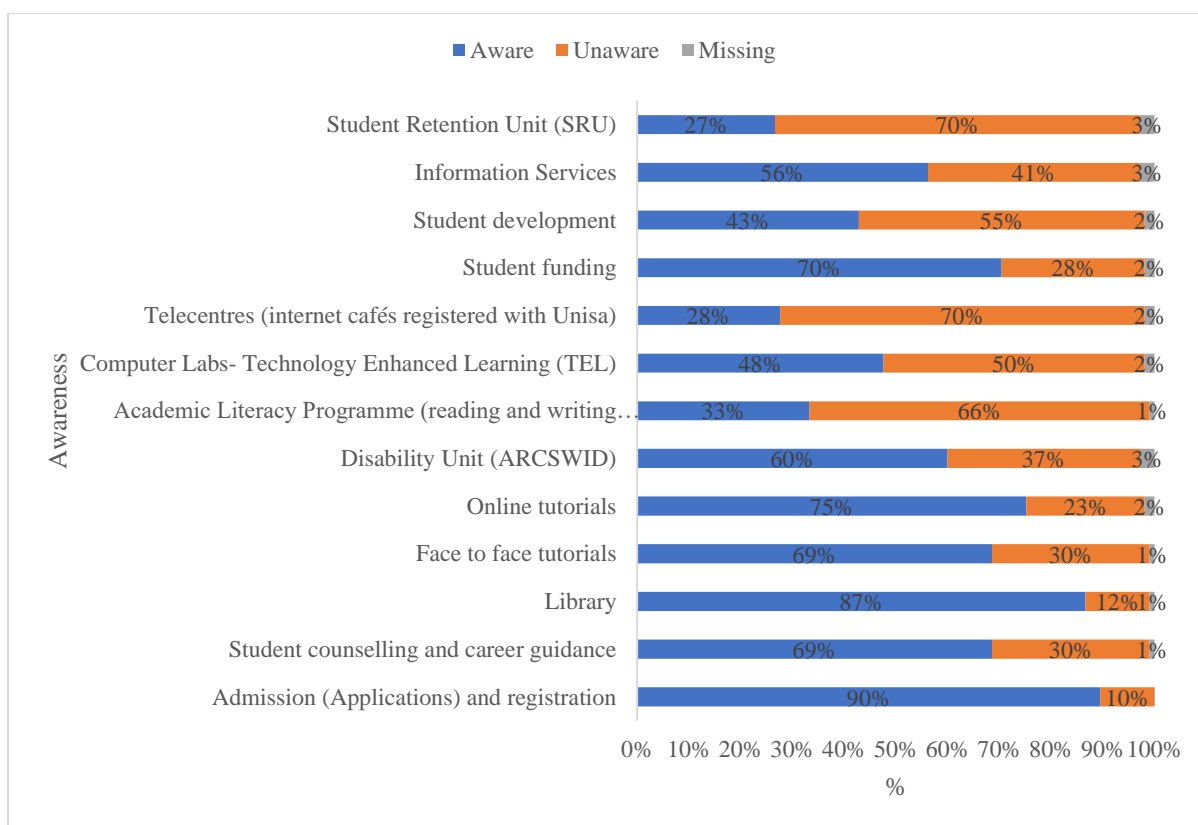
Figure 5.15: Responses Regarding Awareness of Student Support Services

One of the services that the SDHH were more aware of (90 percent), was admission and registration services. This was followed by library services (87 percent); student funding (70 percent); online and in-person tutorials (both at 75 percent); and student counselling and career guidance (both at 69 percent). The majority of the SDHH were unaware of services like the academic literacy programme, telecentres, and student retention.

5.3.3 Access to Student Support Services

Description	Never (1) Freq.	%	Seldom (2) Freq.	%	Sometimes (3) Freq.	%	Often (4) Freq.	%	Very often (5) Freq.	%	Missing Freq.	%	Total Freq.	%
Admission (application) and registration	15	14	9	9	32	30	17	16	29	28	3	3	105	100
Student counselling and career guidance	62	59	20	19	14	13	4	4	3	3	2	2	105	100
Library	48	46	19	18	15	14	10	10	11	10	2	2	105	100
Face-to-face tutorials	76	72	9	9	8	8	3	3	5	5	4	4	105	100

	Never (1)		Seldom (2)		Sometimes (3)		Often (4)		Very often (5)		Missing		Total	
Description	**Freq.**	**%**	**Freq.**	**%**	**Freq.**	**%**	**Freq.**	**%**	**Freq.**	**%**	**Freq.**	**%**	**Freq.**	**%**
Online tutorials	47	45	7	7	21	20	15	14	13	12	2	2	105	100
ARCSWID	58	55	8	8	16	15	13	12	8	8	2	2	105	100
Academic literacy programme (reading and writing skills)	83	79	9	9	9	9	2	2	0	0	2	2	105	100
Computer labs – TEL	72	69	15	14	10	10	5	5	1	1	2	2	105	100
Telecentres (internet cafés registered with UNISA)	90	86	7	7	4	4	1	1	1	1	2	2	105	100
Student funding	50	48	7	7	21	20	13	12	9	9	5	5	105	100
Student development	75	72	11	10	12	11	3	3	1	1	3	3	105	100
Information services	65	62	11	10	16	15	7	7	2	2	4	4	105	100
SRU	89	85	7	6	4	4	1	1	2	2	2	2	105	100

Table 5.4: Access to Support Services

The majority of the SDHH frequently used admission (application) and registration (16 + 28 = 44 percent). These findings are supported by t-test results, which show that the majority of participants frequently used and had access to these SSS, as shown in table 5.4, figure 5.16, and table 5.5. The mean was 3.35 > 3, and the p-value was 0,01 < 0.05 level of significance.

With a t-test mean of 1.70, significantly below 3, and a p-value of 0.01 < 0.05, the majority of participants rarely used student counselling and career guidance (59 + 19 = 78 percent), according to the collected data.

The data shown in figure 5.16 below show that the majority of the SDHH never used the aforementioned SSS. The fact is that 91 percent of the SDHH have never used a student retention unit, while 92 percent have never used telecentre supports. Only 44 percent extensively used the admission and registration services, and only 30 percent did so occasionally.
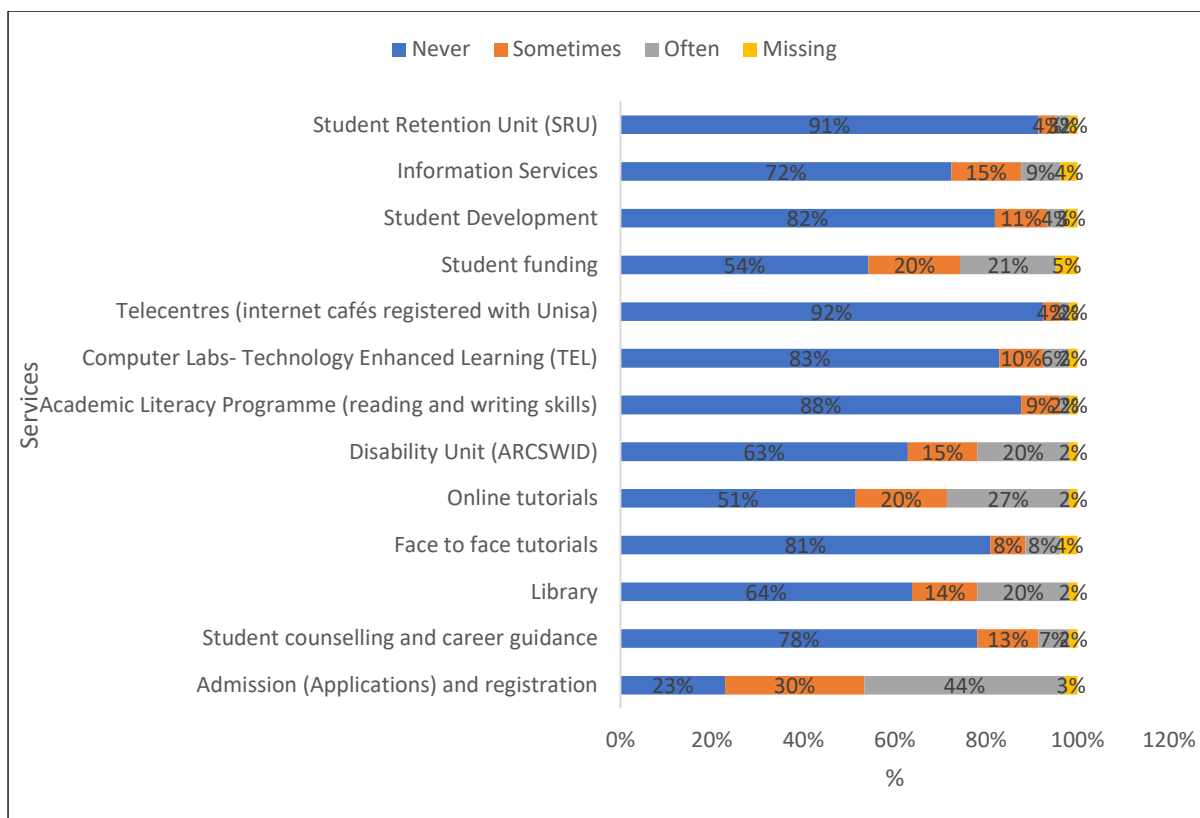
Figure 5.16: Access to Student Support Services

Despite what appears to be a higher level of awareness by the majority of services, only 20 percent of respondents used online tutorials, while about 27 percent did so frequently, and 81 percent never used in-person tutorials. Thus, despite having higher levels of awareness, SDHH do not frequently use student counselling and career guidance, libraries, face-to-face tutorials, online tutorials, or disability units.

With a p-value of 0.0001-0.05, the results of the t-test reveal a significant difference between the student participants who used the support services and those who did not. With a p-value of 0.0001-0.05, the results of the t-test reveal a significant difference between the student participants who used the support services and those who did not.

	N	Mean	Std. Deviation	Std. Error Mean	t	df	Two-Sided p
Admission (application) and registration	102	3.35	1.369	0.136	2.604	101	0.011
Student counselling and career guidance	103	1.70	1.037	0.102	-12.733	102	0.000
Library	103	2.19	1.394	0.137	-5.868	102	0.000
Face-to-face tutorials	101	1.53	1.091	0.109	-13.493	100	0.000
Online tutorials	103	2.42	1.492	0.147	-3.963	102	0.000
ARCSWID	103	2.08	1.391	0.137	-6.729	102	0.000

	N	Mean	Std. Deviation	Std. Error Mean	t	df	Two-Sided p
Academic literacy programme (reading and writing skills)	103	1.32	0.717	0.071	-23.777	102	0.000
Computer Labs – TEL	103	1.52	0.927	0.091	-16.153	102	0.000
Telecentres (internet cafés registered with UNISA)	103	1.21	0.652	0.064	-27.826	102	0.000
Student funding	100	2.24	1.415	0.142	-5.371	99	0.000
Student development	102	1.47	0.887	0.088	-17.420	101	0.000
Information services	101	1.71	1.089	0.108	-11.874	100	0.000
SRU	103	1.25	0.750	0.074	-23.635	102	0.000

Table 5.5: T-test Results: Access to Student Support Services

5.3.4 Effectiveness of Student Support Services

According to the results, about 47 percent of respondents thought the admission and registration process was efficient. Most of the SDHH thought the SSS were ineffective. This is further supported by the fact that no comments or opinions were provided on any of the SSS categories.

Description	Strongly Ineffective (1)		Somewhat Infective (2)		No Opinion (3)		Effective (4)		Strongly Effective (5)		Missing		Total	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Admission (application) and registration	13	12	14	13	26	25	30	29	19	18	3	3	105	100
Student counselling and career guidance	20	19	11	10	45	43	20	19	5	5	4	4	105	100
Library	16	15	11	10	44	42	24	23	6	6	4	4	105	100
Face-to-face tutorials	20	19	10	10	53	50	11	10	5	5	6	6	105	100
Online tutorials	15	14	10	10	38	36	23	22	15	14	4	4	105	100
ARCSWID	11	10	17	16	43	41	17	16	12	11	5	5	105	100
Academic literacy programme (reading and writing skills)	20	19	6	6	59	56	9	9	6	6	5	5	105	100
Computer Labs – TEL	18	17	8	8	55	52	13	12	7	7	4	4	105	100
Telecentres (internet cafés registered with UNISA)	19	18	8	8	60	57	8	8	4	4	6	6	105	100

Student funding	13	12	13	12	45	43	19	18	10	10	5	5	105	100
Student development	17	16	8	8	56	53	15	14	4	4	5	5	105	100
Information services	23	22	9	9	49	47	13	12	7	7	4	4	105	100
SRU	23	22	5	5	60	57	6	6	6	6	5	5	105	100

Table 5.6: Effectiveness of Student Support Services
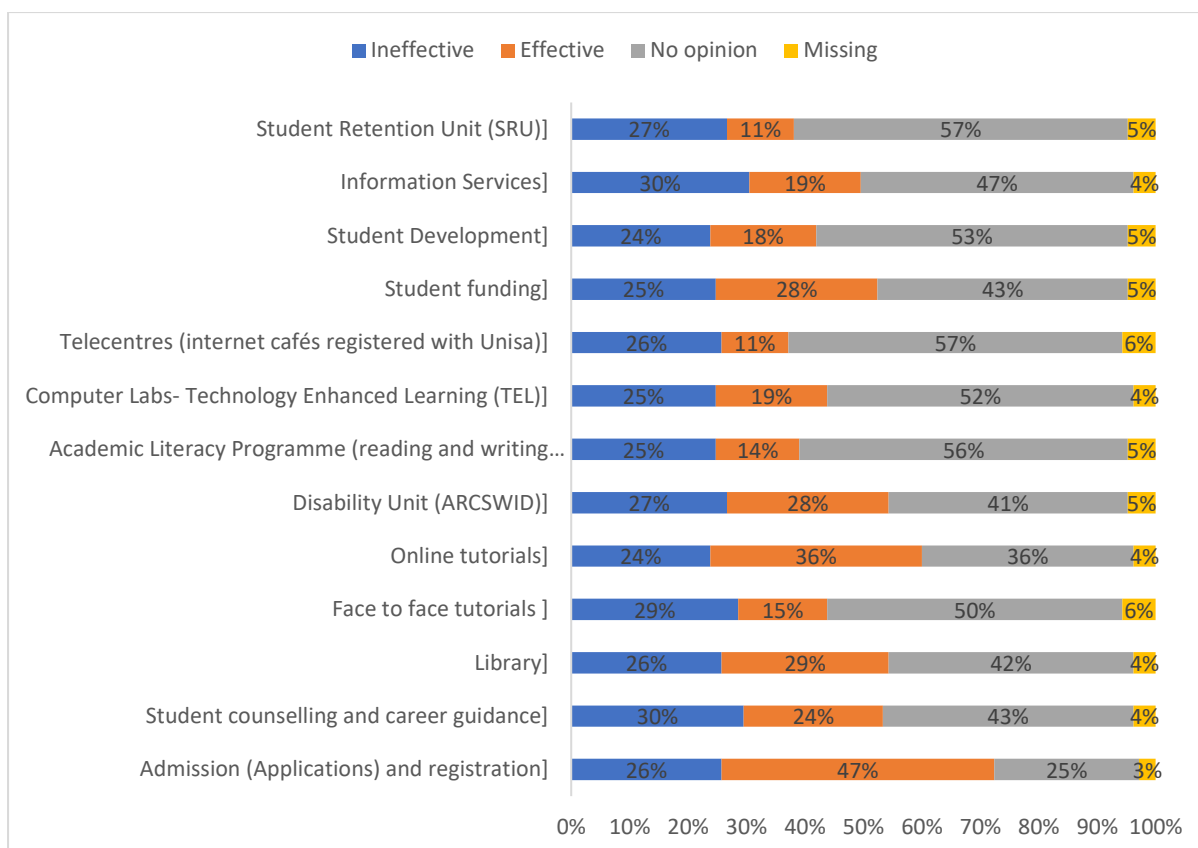
Figure 5.17: Effectiveness of Student Support Services

The results also show a statistically significant difference (p-value = 0.032 < 0.05) between student participants who thought the admission (application) and registration processes were effective. The majority of the SDHH, however, felt that the SRU, telecentres (internet cafés registered with UNISA), academic literacy programme (reading and writing skills), and face-to-face tutorials were ineffective because the mean was below the reference point of 3 and the p-value was 0.05, indicating that the majority did not find these support services effective.

Since the mean is less than 3 and the p-value is bigger than the 0.05 level of significance, there was no statistically significant difference between participants who found the

following services ineffective: Student counselling and career guidance; libraries; online tuto-rials; disability units (ARCSWID); computer labs – TEL; student funding; and student devel-opment.

	N	Mean	Std. Deviation	Std. Error Mean	t	df	Two-Sided p
Admission (application) and registration	102	3.27	1.275	0.126	2.174	101	0.032
Student counselling and career guidance	101	2.79	1.125	0.112	-1.857	100	0.066
Library	101	2.93	1.107	0.110	-0.629	100	0.531
Face-to-face tutorials	99	2.71	1.071	0.108	-2.720	98	0.008
Online tutorials	101	3.13	1.230	0.122	1.052	100	0.296
ARCSWID	100	3.02	1.128	0.113	0.177	99	0.860
Academic literacy programme (reading and writing skills)	100	2.75	1.067	0.107	-2.343	99	0.021
Computer Labs – TEL	101	2.83	1.087	0.108	-1.556	100	0.123
Telecentres (internet cafés regis-tered with UNISA)	99	2.70	1.005	0.101	-3.001	98	0.003
Student funding	100	3.00	1.119	0.112	0.000	99	1.000
Student development	100	2.81	1.022	0.102	-1.859	99	0.066
Information services	101	2.72	1.159	0.115	-2.405	100	0.018
SRU	100	2.67	1.083	0.108	-3.047	99	0.003

Table 5.7: T-test Results: Effectiveness of Student Support Services

5.3.5 Level of Satisfaction with Student Support Services

Most respondents lacked a perspective on their level of satisfaction with the SSS. Just 42 per-cent of students indicated that they were happy with the admission and registration services.
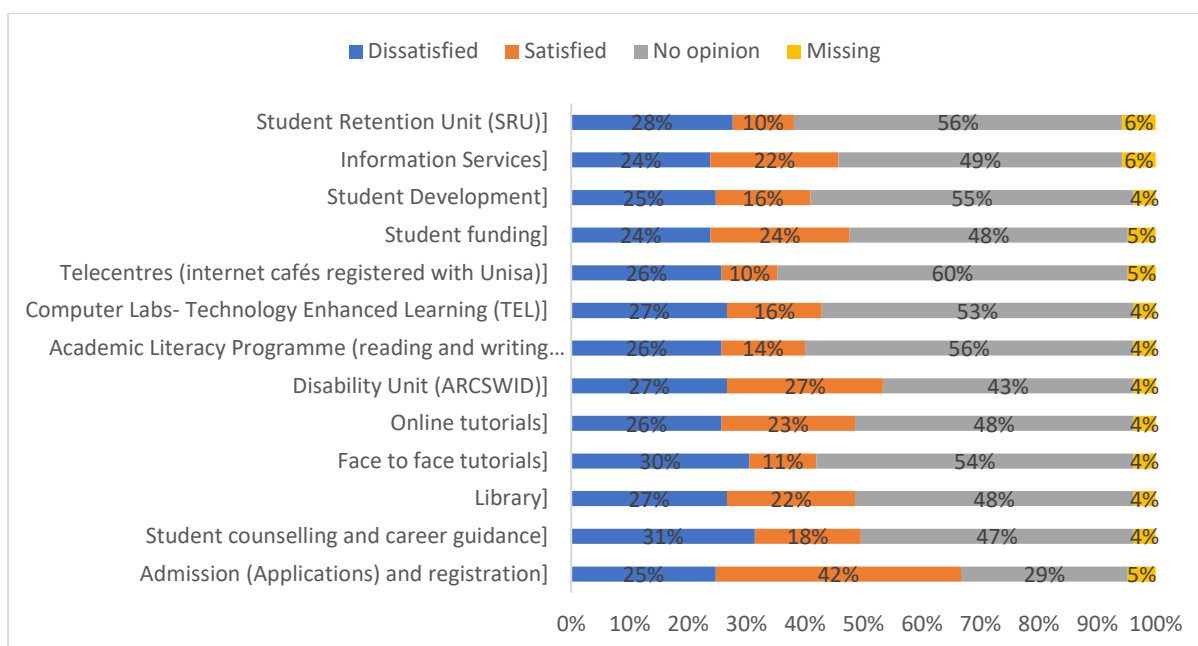
Figure 5.18: Level of Satisfaction

In contrast to students who lacked awareness and scored no higher than 7 percent in each category, students who were dissatisfied in every category did not score higher than 30 percent. Most of the student participants were indifferent toward the SSS.

Satisfaction	Strongly Dissatisfied (1)		Somewhat Dissatisfied (2)		No opinion (3)		Satisfied (4)		Strongly Satisfied (5)		Missing		Total	
Description	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Admission (application) and registration	8	8	18	17	30	29	34	32	10	10	5	5	105	100
Student counselling and career guidance	16	15	17	16	49	47	16	15	3	3	4	4	105	100
Library	16	15	12	11	50	48	20	19	3	3	4	4	105	100
Face-to-face tutorials	23	22	9	9	57	54	10	10	2	2	4	4	105	100
Online tutorials	17	16	10	10	50	48	16	15	8	8	4	4	105	100
ARCSWID	14	13	14	13	45	43	18	17	10	10	4	4	105	100

Satisfaction	Strongly Dissatisfied (1)		Somewhat Dissatisfied (2)		No opinion (3)		Satisfied (4)		Strongly Satisfied (5)		Missing		Total	
Academic literacy programme (reading and writing skills)	19	18	8	8	59	56	13	12	2	2	4	4	105	100
Computer Labs – TEL	19	18	9	9	56	53	13	12	4	4	4	4	105	100
Telecentres (internet cafés registered with UNISA)	20	19	7	7	63	60	7	7	3	3	5	5	105	100
Student funding	16	15	9	9	50	48	16	15	9	9	5	5	105	100
Student development	19	18	7	7	58	55	12	11	5	5	4	4	105	100
Information services	16	15	9	9	51	49	18	17	5	5	6	6	105	100
SRU	22	21	7	7	59	56	7	7	4	4	6	6	105	100

Table 5.8: Level of Satisfaction

The majority of the SDHH were not satisfied with student counselling and career guidance, face-to-face tutorials, academic literacy programme (reading and writing skills), computer labs – TEL, telecentres (internet cafés registered with UNISA), student development, and the SRU, since the mean was less than 3, and the p-values less than 0.05 in these support services, according to the t-test results in table 5.9 below.

Participants' satisfaction with admission (application and registration), the library, online tutorials, ARCSWID, student funding, and information services did not differ significantly from each other since the p-values to the mean in these areas were higher than 0.05.

	N	Mean	Std. Deviation	Std. Error Mean	t	df	Two-Sided p
Admission (application) and registration	100	3.20	1.101	0.110	1.817	99	0.072
Student counselling and career guidance	101	2.73	1.009	0.100	-2.663	100	0.009

	N	Mean	Std. Deviation	Std. Error Mean	t	df	Two-Sided p
Library	101	2.82	1.024	0.102	-1.750	100	0.083
Face-to-face tutorials	101	2.59	1.012	0.101	-4.032	100	0.000
Online tutorials	101	2.88	1.116	0.111	-1.070	100	0.287
Disability Unit (ARCSWID)	101	2.96	1.131	0.113	-0.352	100	0.726
Academic Literacy Programme (reading and writing skills)	101	2.71	0.983	0.098	-2.935	100	0.004
Computer Labs- Technology Enhanced Learning (TEL)	101	2.74	1.036	0.103	-2.497	100	0.014
Telecentres (internet cafés registered with Unisa)	100	2.66	0.977	0.098	-3.481	99	0.001
Student funding	100	2.93	1.121	0.112	-0.624	99	0.534
Student Development	101	2.77	1.048	0.104	-2.184	100	0.031
Information Services	99	2.87	1.056	0.106	-1.237	98	0.219
SRU	99	2.64	1.035	0.104	-3.497	98	0.001

Table 5.9: T-test Results: Level of Satisfaction

5.3.6   Chi-Square Students who are Deaf and Hard of Hearing Results

The results of the Chi-square test show the degree of correlation between the demographic data of the student participants and the levels of awareness, access, effectiveness, and satisfaction with SSS.

5.3.6.1   Gender by Levels of Awareness, Access, Effectiveness, and Satisfaction of Student Support Services

Variable	Description	Services	Chi-square	df	p-value
Gender	Access	Library	15.935a	8	0.0433
		Academic literacy programme	19.806a	6	0.0030
		Telecentres (internet cafés registered with UNISA)	19.512a	8	0.0123
		SRU	106.658a	8	0.0000
	Effectiveness	SRU	22.121a	8	0.0047

Table 5.3: Gender by Levels of Awareness, Access, Effectiveness, and Satisfaction with Student Support Services

The findings in table 5.10 reveal a significant relation between gender and the proportion of female participants who had access to the library, the academic literacy programme, telecentres

(internet cafés registered with UNISA), and the SRU. This is because the Chi-square value was higher, while the p-value was lower than 0.05. Results further support the association between gender and disagreement over the effectiveness of the student retention programme.

5.3.6.2   Age by Levels of Awareness, Access, Effectiveness, and Satisfaction of Student Support Services

Variable	Description	Services	Chi-square	df	p-value
Age	Awareness	ARCSWID	23.342a	8	0.003
		SRU	26.704a	8	0.001
	Access	Admission (application) and registration	31.952a	16	0.010
		Online tutorials	37.753a	16	0.002
		SRU	29.360a	16	0.022
	Effectiveness	Online tutorials	26.425a	16	0.048
		SRU	37.905a	16	0.002
	Satisfaction	Academic literacy programme	29.563a	16	0.020

Table 5.41: Age

According to table 5.11, there is a significant relation between the age group, the majority of participants who reported being aware of the disability unit and the SRU, where the Chi-square was higher than expected and the p-value less than 0.05. This additional association was observed in the majority of participants between the ages of 21 and 30 who had access to admission (application) and registration; online tutorials; and the SRU, where the Chi-square was higher than expected and the p-value less than 0.05. Additionally, there is a correlation between this age group's participants' dissatisfaction with the academic literacy programme and their perception of the efficacy of online tutorials and the SRU.

5.3.6.3   Employment Status by Levels of Access, Effectiveness, and Satisfaction with Student Support Services

Variable	Description	Services	Chi-square	df	p-value
Employment Status	Access	Student counselling and career guidance	53.373a	20	7.16E-05
	Effectiveness	Library	33.864a	20	2.71E-02
		Online tutorials	36.226a	20	1.45E-02

Variable	Description	Services	Chi-square	df	p-value
	Satisfaction	Admission (application) and registration	37.114a	20	1.13E-02
		Student counselling and career guidance	32.508a	20	3.82E-02

Table 5.5: Employment Status

The majority of participants who were part-time workers and who had access to student counselling and career guidance, were significantly more likely to find the library, online tutorials, and admission (application) and registration ineffective. This is shown in table 5.12. Further findings indicate a significant relation between student counselling and career guidance, employment status, and not satisfied with student counselling and career guidance, where the Chi-square was higher than expected and the p-value less than 0.05.

5.3.6.4 Work Experience by Levels of Awareness, Access, Effectiveness, and Satisfaction with Student Support Services

Variable	Description	Services	Chi-square	df	p-value
Work experience	Awareness	Online tutorials	20.897a	10	0.0218
	Access	Student counselling and career guidance	33.134a	20	0.0326
		Face-to-face tutorials	37.747a	20	0.0095
		Telecentres (internet cafés registered with UNISA)	40.859a	20	0.0039
		Student development	43.737a	20	0.0016
	Effectiveness	Admission (application) and registration	40.384a	20	0.0045
		Online tutorials	42.902a	20	0.0021
		Computer labs – TEL	40.168a	20	0.0048
		Telecentres (internet cafés registered with UNISA)	32.457a	20	0.0387
		Information services	35.936a	20	0.0157
		SRU	32.736a	20	0.0361
	Satisfaction	Student counselling and career guidance	33.573a	20	0.0292
		Library	33.102a	20	0.0329
		Online tutorials	33.013a	20	0.0336
		Student funding	42.437a	20	0.0024
		Student development	47.841a	20	0.0004
		Information services	47.886a	20	0.0004

Variable	Description	Services	Chi-square	df	p-value
		SRU	49.411a	20	0.0003

Table 5.6: Work Experience

When the Chi-square is higher than expected and the p-value less than 0.05, the results demonstrate a significant difference between work experience and awareness of, and access to the SSS. The majority of participants with more than five years of work experience stated that they were aware of and used SSS, but they disagreed with those who postulated that the following services were ineffective: Admission (application and registration); online tutorials; computer labs – TEL; telecentres (internet cafés registered with UNISA); information services; and the SRU.

These results reflect the level of satisfaction that participants had. The majority of participants who had more than five years of work experience were dissatisfied with student counselling and career guidance, libraries, online tutorials, student funding, student development, information services, and the SRU, where the Chi-square was higher than expected and the p-value less than 0.05.

5.3.6.5 Role at Work by Levels of Awareness, Access, Effectiveness, and Satisfaction with Student Support Services

Variable	Description	Services	Chi-square	df	p-value
Role if working	Awareness	Student development	18.688a	8	0.0166
	Access	Academic literacy programme (reading and writing skills)	24.085a	12	0.0198
		Library	29.581a	16	0.0203
	Effectiveness	Face-to-face tutorials	29.437a	16	0.0211
		ARCSWID	39.732a	16	0.0009
		Academic literacy programme (reading and writing skills)	45.002a	16	0.0001
		Computer Labs – TEL	38.921a	16	0.0011
		Telecentres (internet cafés registered with UNISA)	49.534a	16	0.0000
		SRU	28.728a	16	0.0258
	Satisfaction	Academic literacy programme (reading and writing skills)	29.111a	16	0.0232

Variable	Description	Services	Chi-square	df	p-value
		Telecentres (internet cafés registered with UNISA)	28.901a	16	0.0246

Table 5.7: Role

According to the findings, most non-management participants who were aware of student development, had used library resources and were familiar with the academic literacy programme (reading and writing skills). In terms of face-to-face tutorials, the ARCSWID, the academic literacy programme (reading and writing skills), computer labs – TEL, Telecentres (internet cafés registered with UNISA), and the SRU, the levels of ineffectiveness expressed by the students were associated more with non-management students than with those with senior management roles (the SRU). The academic literacy programme (reading and writing skills) and telecentres, where the Chi-square was higher than expected and the p-value less than 0.05, were found to have a relation with satisfaction levels (dissatisfied).

5.3.6.6 *Deafhood by Levels of Awareness*

Variable	Description	Services	Chi-square	df	p-value
Deafhood	Awareness	ARCSWID	46.942a	26	7.14E-03
		SRU	51.097a	26	2.32E-03

Table 5.8: Deafhood

The only level of association where the Chi-square was higher than expected and the p-value less than 0.05 was found in students who were hard of hearing and were aware of the ARCSWID and the SRU.

5.3.6.7 *Race by Levels of Awareness, Effectiveness, and Satisfaction with Student Support Services*

Variable	Description	Services	Chi-square	df	p-value
Race	Awareness	Academic literacy programme (reading and writing skills)	13.012a	6	4.284E-02
	Effectiveness	Student counselling and career guidance	22.885a	12	2.872E-02
	Satisfaction	Student development	23.099a	12	2.690E-02
		SRU	24.091a	12	1.977E-02

Table 5.9: Race

Race significantly correlates with participants' access to the academic literacy programme (reading and writing skills), their opinion of the effectiveness of student counselling and career guidance, and their satisfaction with the student development and the SRU. As a result, the majority of African participants were more strongly associated than participants from other groups.

5.3.6.8   *Home Language by Levels of Awareness, Access, Effectiveness, and Satisfaction with Student Support Services*

Variable	Description	Services	Chi-square	df	p-value
Home/First language	Awareness	Student funding	70.759a	22	5.021E-07
	Access	Face-to-face tutorials	65.750a	44	1.841E-02
		Computer labs – TEL	70.557a	44	6.718E-03
		Telecentres (internet cafés registered with UNISA)	69.105a	44	9.192E-03
		Student funding	66.048a	44	1.734E-02
	Effectiveness	Student counselling and career guidance	60.678a	44	4.827E-02
		Library	74.468a	44	2.781E-03
		Face-to-face tutorials	66.112a	40	5.812E-03
		Online tutorials	68.066a	44	1.145E-02
		ARCSWID	64.806a	44	2.221E-02
		Academic literacy programme (reading and writing skills)	60.712a	44	4.798E-02
		Computer labs – TEL	83.756a	44	2.823E-04
		Telecentres (internet cafés registered with UNISA)	75.030a	44	2.439E-03
		Student funding	69.944a	44	7.675E-03
		Student development	82.762a	44	3.649E-04
		Information services	65.270a	44	2.027E-02
		SRU	70.344a	44	7.038E-03
	Satisfaction	Student counselling and career guidance	77.335a	44	1.411E-03
		Computer labs – TEL	76.850a	44	1.585E-03
		Telecentres (internet cafés registered with UNISA)	64.893a	44	2.184E-02
		Student funding	76.952a	44	1.547E-03

Table 5.10 Home Language

Results indicate that home/first language was related to the degree of awareness and use of SSS. The most important correlation was that the majority of participants who spoke African languages believed that SASL was less effective, *contra* English-speaking participants. Most participants who spoke an African language, expressed dissatisfaction with student counselling and career guidance, computer labs – TEL, telecentres (internet cafés registered with UNISA), and student funding where the Chi-square was higher than expected and the p-value less than 0.05.

5.3.6.9 Marital Status by Levels of Awareness and Effectiveness of Student Support Services

Variable	Description	Services	Chi-square	df	p-value
Marital status	Awareness	Computer Labs – TEL	27.514a	8	0,000576
	Effectiveness	Student counselling and career guidance	28.487a	16	0,027633

Table 5.11: Marital Status

The presence of a spouse was strongly correlated with knowledge of computer labs. Most participants who were single, were aware of computer lab services. The majority of participants found student counselling ineffective, as the Chi-square value was higher than expected and the p-value less than 0.05. A significant association was also present in marital status (single).

5.3.6.10 Distance to Campus by Levels of Access, Effectiveness, and Satisfaction with Student Support Services

Variable	Description	Services	Chi-square	df	p-value
Distance	Access	Admission (application) and registration	26.384a	16	0.0489
		Computer Labs – TEL	30.166a	16	0.0172
		Telecentres (internet cafés registered with UNISA)	66.873a	16	0.0000
	Effectiveness	Student counselling and career guidance	28.331a	16	0.0289
	Satisfaction	Telecentres (internet cafés registered with UNISA)	35.001a	16	0.0040

Table 5.12 Distance to Nearest Campus or Regional Service Centre

Results indicate that access to admission (application) and registration, computer labs – TEL, and telecentres (internet cafés registered with UNISA), as well as student counselling and career guidance was found ineffective and students were dissatisfied with it, where the Chi-square

was higher than expected and the p-value less than 0.05. This was significantly correlated with distance to the nearest campus or regional service centre.

5.3.6.11   Educational Background by Levels of Awareness, Access, Effectiveness, and Satisfaction with Student Support Services

Variable	Description	Services	Chi-square	df	p-value
Education	Awareness	Admission (application) and registration	24.285a	12	0.0186
		Information services	55.428a	24	0.0003
	Access	Computer labs – TEL	145.415a	48	0.0000
		Information services	86.344a	48	0.0006
		SRU	77.906a	48	0.0041
	Effectiveness	ARCSWID	63.220a	44	0.0302
		Telecentres (internet cafés registered with UNISA)	62.135a	44	0.0370
		Student development	64.946a	44	0.0216
		Information services	68.078a	44	0.0114
	Satisfaction	Admission (application) and registration	79.992a	44	0.0007
		Student counselling and career guidance	68.519a	44	0.0104
		Library	64.706a	44	0.0227
		Face-to-face tutorials	70.439a	44	0.0069
		Online tutorials	74.925a	44	0.0025
		ARCSWID	63.511a	44	0.0286
		Academic literacy programme (reading and writing skills)	64.156a	44	0.0252
		Computer Labs – TEL	72.990a	44	0.0039
		Telecentres	80.768a	44	0.0006
		Student funding	61.281a	44	0.0433
		Student development	78.451a	44	0.0011
		Information services	74.616a	44	0.0027

Table 5.13: Education

The findings demonstrate a significant relation between educational background and awareness of, access to, the effectiveness of, and the degree of satisfaction with SSS. The majority of participants went to traditional/mainstream schools and were familiar with admission (application) and registration, and information services. They also had access to computer labs for technology – TEL, information services, and the SRU.

The following services were satisfactory, as the Chi-square was higher than expected and the p-value less than 0.05: Libraries, in-person tutorials, online tutorials, ARCSWID, academic literacy programmes (reading and writing skills), computer labs with TEL, telecentres, student funding, student development, and information services.

5.3.6.12   Highest Qualification by Levels of Access to Student Support Services

Variable	Description	Services	Chi-square	df	p-value
Kindly indicate your highest level of qualification	Access	ARCSWID	46.556a	32	0.0465

Table 5.14: Highest Qualification

Results indicate that having accessed the ARCSWID was more closely related to having the highest qualification of matric/grade 12, where the Chi-square was higher than expected and the p-value less than 0.05.

5.3.6.13   College Registered with by Levels of Awareness, Access, and the Effectiveness of Student Support Services

Variable	Description	Services	Chi-square	df	p-value
College registered with	Awareness	Admission (application) and registration	31.408a	14	0.0049
		Student counselling and career guidance	116.635a	28	0.0000
		Library	123.770a	28	0.0000
		Face-to-face tutorials	116.776a	28	0.0000
		Online tutorials	76.168a	28	0.0000
		ARCSWID	62.054a	28	0.0002
		Academic literacy programme	117.131a	28	0.0000
		Computer labs – TEL	117.156a	28	0.0000
		Telecentres (internet cafés registered with UNISA)	72.558a	28	0.0000
		Student funding	77.265a	28	0.0000
		Student development	69.088a	28	0.0000
		Information services	55.794a	28	0.0014
		SRU	56.010a	28	0.0013
	Access	Library	70.492a	52	0.0448

Variable	Description	Services	Chi-square	df	p-value
	Effectiveness	Admission (application) and registration	89.602a	56	0.0029
		Library	78.041a	52	0.0112
		Face-to-face tutorials	82.970a	52	0.0041
		Online tutorials	75.279a	52	0.0191
		ARCSWID	77.823a	52	0.0117
		Student funding	75.946a	48	0.0062
		Student development	82.798a	52	0.0042
		SRU	79.166a	52	0.0090

Table 5.15 Colleges Registered with

There is a direct correlation between being registered with the college and being aware of all the SSS, as well as between having access to the library and knowing where to find admission (application) and registration; face-to-face instruction; online instruction; student funding; and ARCSWID. When the chi-square was higher than anticipated and the p-value less than 0.05, the student development and the SRU were ineffective.

5.3.6.14 *Preferred mode of Accessing Student Support Services by Levels of Awareness, Access, Effectiveness, and Satisfaction with Student Support Services*

Variable	Description	Services	Chi-square	df	p-value
Preferred mode of accessing SSS	Awareness	Online tutorials	10.121a	4	0.0384
	Access	Student counselling and career guidance	20.246a	8	0.0094
		Online tutorials	17.799a	8	0.0228
		Computer labs – TEL	16.084a	8	0.0412
	Effectiveness	Online tutorials	22.454a	8	0.0041

Table 5.16: Preferred Mode of Accessing SSS

The preferred method of using SSS significantly correlated with the knowledge of, access to, and efficacy of the services for students. Online tutorials were associated with awareness, while student counselling and career guidance were associated with services accessed. Online tutorials and computer labs were associated with TEL, whereas online tutorials on its own were associated with effectiveness.

5.4 STAFF RESULTS

5.4.1 Demographical Information of Staff Participants

5.4.1.1 *Gender*

The majority of staff participants were females (63 percent) compared to their male counter-parts (35 percent).
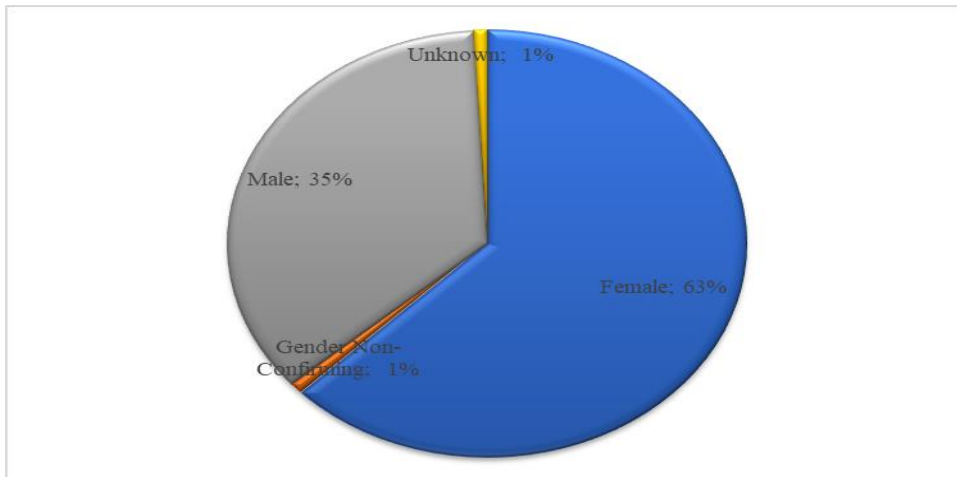
Figure 5.19: Demographical Information of Staff Participants

5.4.1.2 *Designation*

Admin and professional staff constituted 89 percent, while academics and researchers were at 5.1 percent, with 4.2 percent whose designation was not either admin or professional or academic.
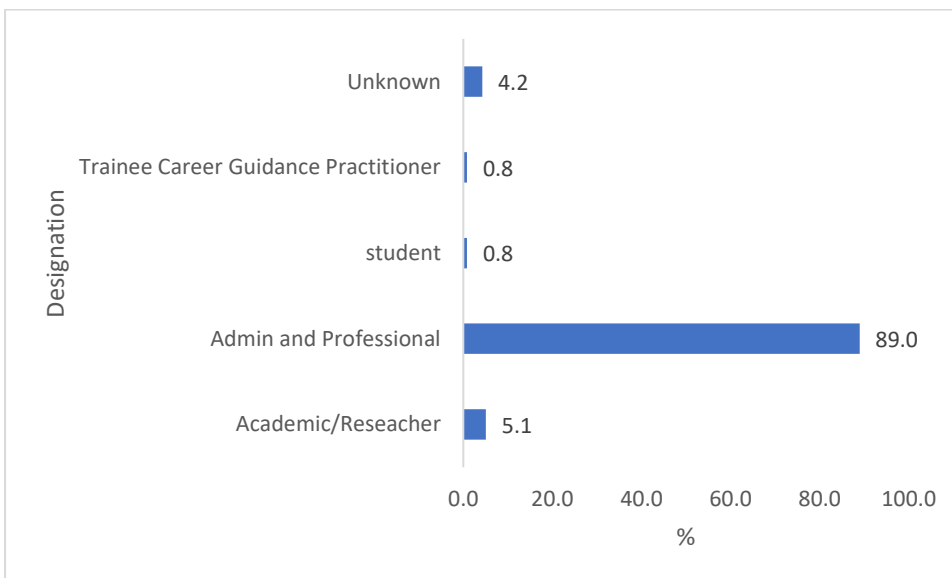
Figure 5.20: Designation

5.4.1.3 Race

The majority of staff who participated in the study were Africans (61 percent) followed by Whites (23.7 percent), Coloured (10.2 percent), and Indians (5.1 percent).
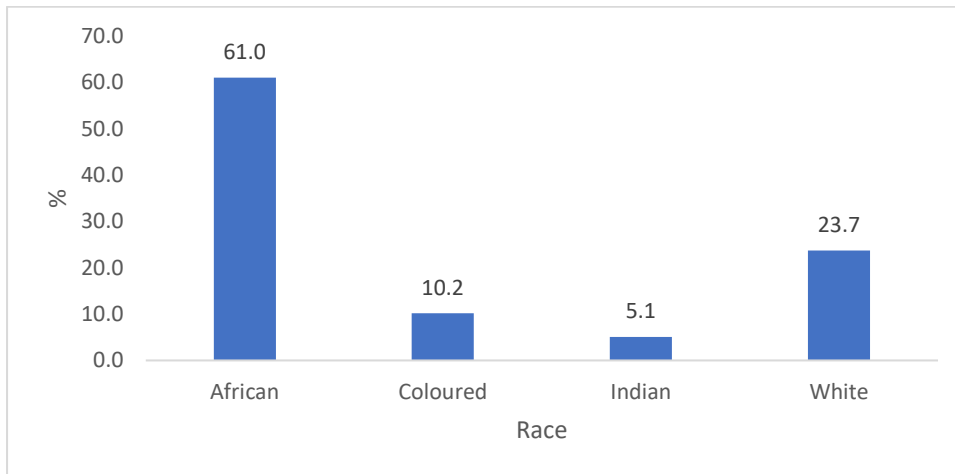
Figure 5.21 Race

5.4.1.4 Position at Work

Most of the participants were advisors and librarians (38.1 percent) at level P8, followed by supervisors and student counsellors at level P7 (23.7 percent), while administrative officers and assistants formed 16.9 percent. Management comprising of unit managers/HODs/deputy directors/directors both in administrative departments and the colleges formed 9.3 percent of the participants, while the academic staff were at 4.2 percent.
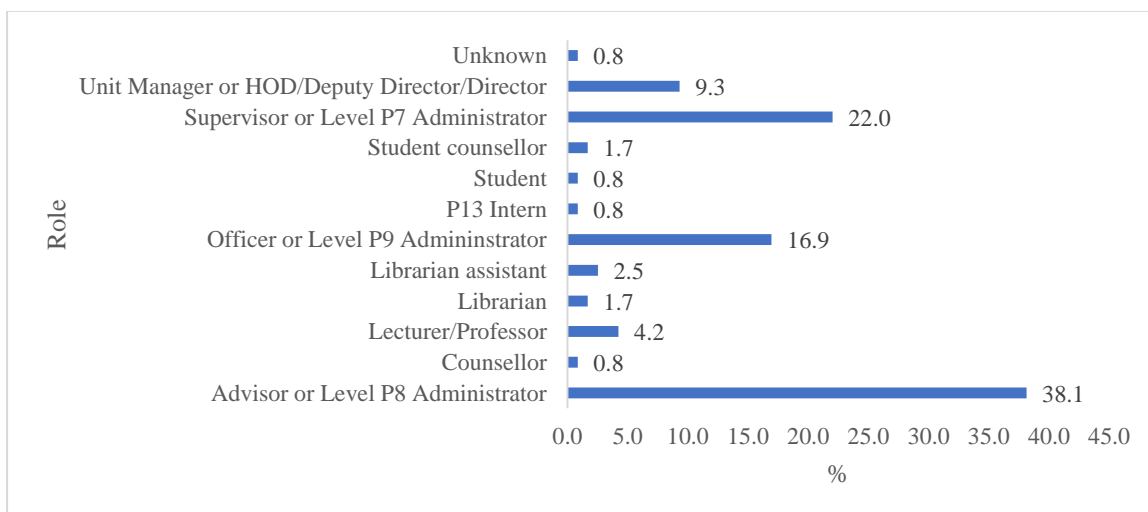
Figure 5.22: Position at Work

5.4.1.5 Departments

According to the results, admission and registration (20.3 percent) was the department with the highest representation, followed by counselling and career development (19.5 percent), the library (16.1 percent), tutorials (11 percent), colleges (9.3 percent), and TEL-computer labs (8.5 percent). Academic literacies (5.1 percent), ARCSWID, and student funding were other departments with lower representation (3.4 percent). 2.5 percent of the representation was made up of the SRU and student development.
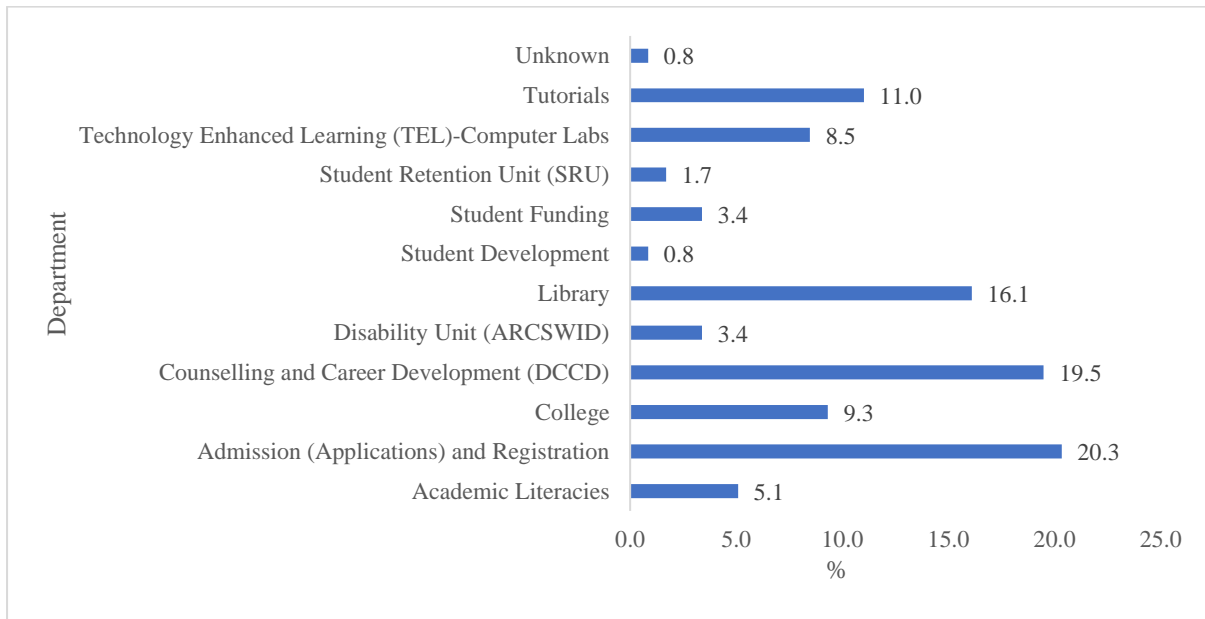
Figure 5.193: Departments

5.4.1.6 Level of Working Experience

The majority of participants (39 percent) had more than 15 years of professional experience, followed by those with 10 to 15 years (28 percent). 11.8 percent of participants had five years and less experience, while 17.8 percent had between five and 10 years of experience.
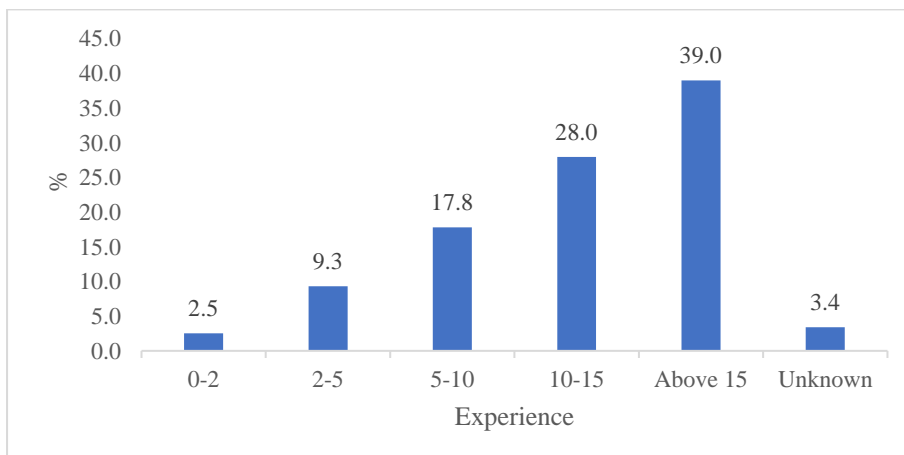
Figure 5.24: Level of Working Experience

5.4.1.7   *Preferred Modes of Supporting Students*

The findings indicate that staff preferred a dual mode of supporting SDHH (50.8 percent), while 24.6 percent preferred face-to-face and 22 percent preferred online. The percentage of participants who did not state their preference was less than 3 percent.
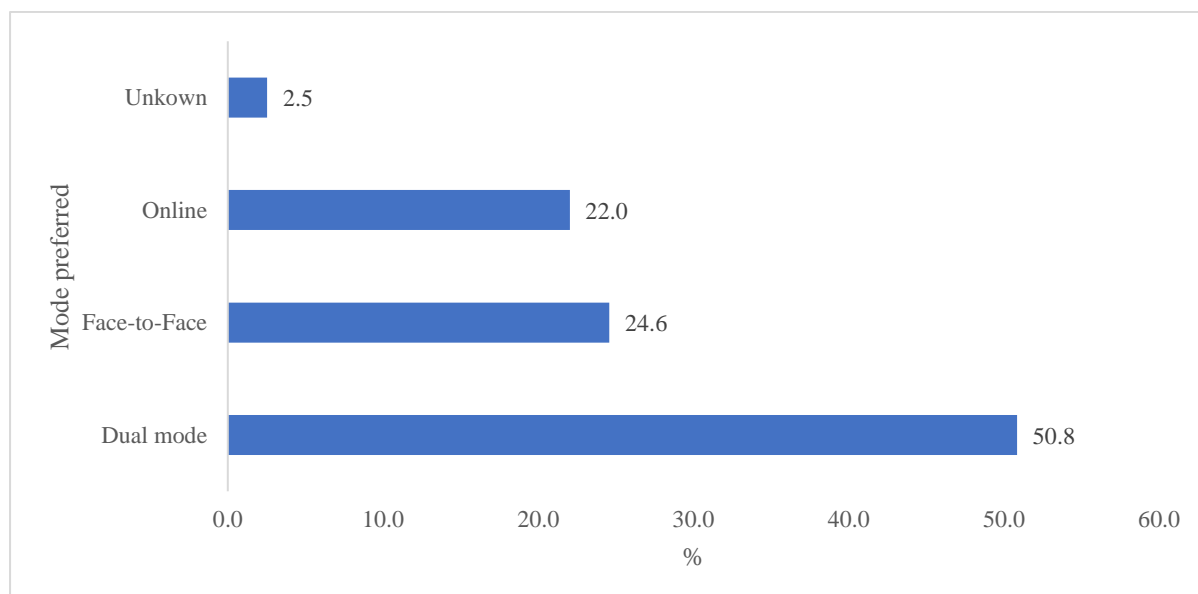
Figure 5.25: Preferred Modes of Supporting Students

5.4.2   Awareness of Student Support Services

Awareness	Aware (1)		Unaware (2)		Unknown		Total	
Services	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Admission (application) and registration	116	98	1	1	1	1	118	100
Student assessment administration (assign-ments and exams)	116	98	1	1	1	1	118	100
DCCD	114	97	3	3	1	1	118	100
Library	117	99		0	1	1	118	100
Face-to-face tutorials	109	92	7	6	2	2	118	100
Online tutorials	113	96	4	3	1	1	118	100
ARCSWID	111	94	5	4	2	2	118	100
Academic literacy programme (reading and writing skills)	100	85	17	14	1	1	118	100
Digital access centres – computer labs	107	91	10	8	1	1	118	100
Teacher centres/telecentres (internet cafés registered with UNISA)	83	70	34	29	1	1	118	100
Student funding	114	97	3	3	1	1	118	100
Student development	93	79	24	20	1	1	118	100
Information services	85	72	31	26	2	2	118	100

Awareness	Aware (1)		Unaware (2)		Unknown		Total	
Services	Freq.	%	Freq.	%	Freq.	%	Freq.	%
SRU	85	72	32	27	1	1	118	100

Table 5.24: Level of Awareness of Student Support Services

The majority of staff participants were aware of the ODeL university's SSS. An additional graphical representation of awareness across all SSS is shown in figure 5.26 below.
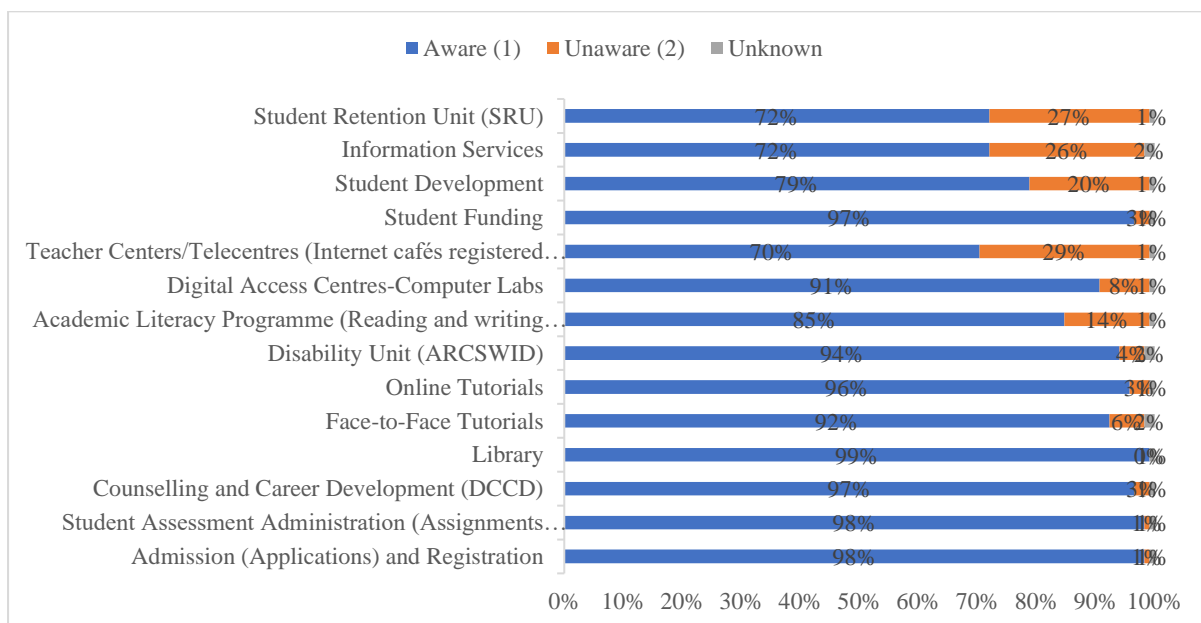
Figure 5.26: Awareness of Student Support Services by Staff

5.4.3 Liaison and Referrals to Student Support Services

	Never		Seldom		Sometimes		Often		Very often		Missing		Total	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Admission (application) and registration	2	2	3	3	7	6	32	27	74	63	0	0	118	100
Student assessment administration (assignments exams)	2	2	9	8	16	14	44	37	47	40	0	0	118	100
DCCD	7	6	10	8	12	10	34	29	55	47	0	0	118	100
Library	1	1	10	8	13	11	39	33	54	46	1	1	118	100

Face-to-face tutorials	21	18	15	13	13	11	32	27	35	30	2	2	118	100
Online tutorials	44	37	10	8	11	9	29	25	22	19	2	2	118	100
ARCSWID	11	9	15	13	23	19	42	36	27	23	0	0	118	100
Academic literacy programme (reading and writing skills)	23	19	23	19	18	15	29	25	25	21	0	0	118	100
Digital access centres – computer labs	14	12	13	11	13	11	36	31	42	36	0	0	118	100
Teacher centres/telecentres (internet cafés registered with UNISA)	72	61	17	14	12	10	12	10	5	4	0	0	118	100
Student funding	7	6	8	7	16	14	36	31	51	43	0	0	118	100
Student development	39	33	28	24	13	11	21	18	17	14	0	0	118	100
Information Services	42	36	23	19	17	14	18	15	18	15	0	0	118	100
SRU	50	42	27	23	15	13	17	14	9	8	0	0	118	100

Table 5.175: Liaised with or Referred Students to Support Services

As shown in table 5.25 above and figure 5.27 below, the majority of staff have frequently communicated with their counterparts in other SSS and referred students to receive services.
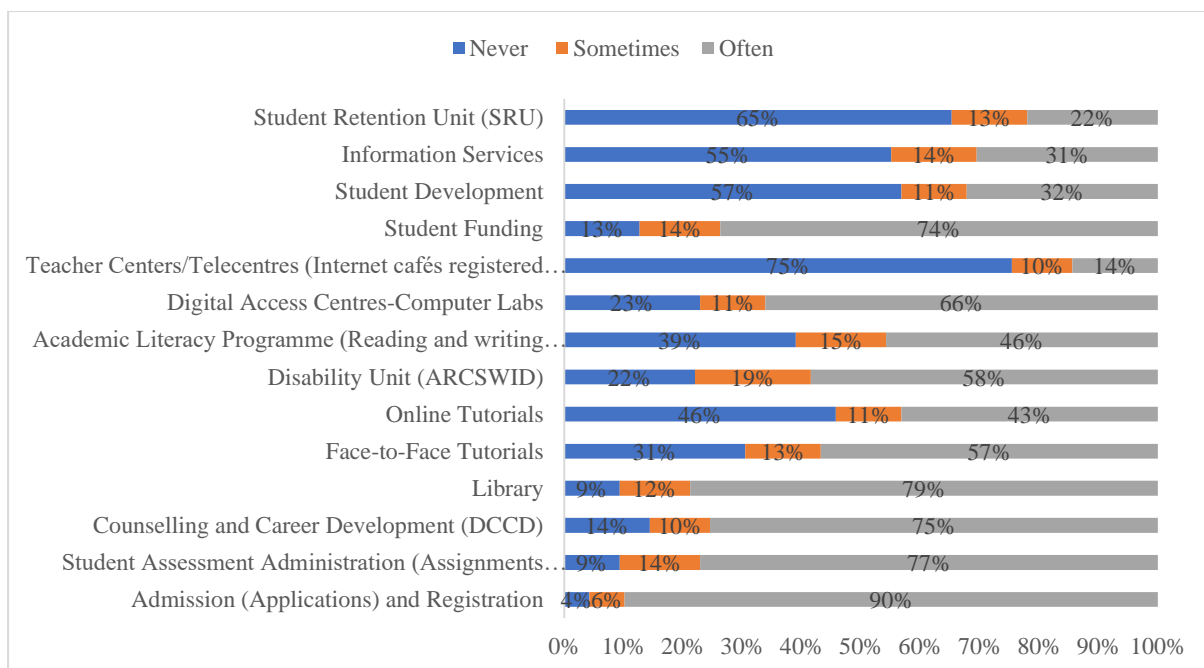
Figure 5.27: Liaison and Referral of Students who are Deaf and Hard of Hearing to Student Support Services

The t-test results presented in table 5.27 below show that there was *no significant difference* between online tutorials and academic literacy programmes (reading and writing skills) among participants that have liaised or have not liaised with these SSS. However, results show that the majority of participants have often liaised with admission (application) and registration; student assessment administration (assignments & exams); DCCD; the library; face-to-face tutorials; ARCSWID; digital access centres – computer labs; and student funding, since the mean of these support services were higher than 3 and the p-values less than 0.05.

	N	Mean	Std. Devia-tion	Std. Error Mean	t	df	Two-Sided p
Admission (application) and registration	118	4.47	0.854	0.079	18.645	117	0.000
Student assessment administra-tion (assignments & exams)	118	4.06	0.998	0.092	11.528	117	0.000
DCCD	118	4.02	1.205	0.111	9.165	117	0.000
Library	117	4.15	0.988	0.091	12.632	116	0.000
Face-to-face tutorials	116	3.39	1.485	0.138	2.814	115	0.006
Online tutorials	116	2.78	1.609	0.149	-1.443	115	0.152
ARCSWID	118	3.50	1.239	0.114	4.385	117	0.000
Academic literacy programme (reading and writing skills)	118	3.08	1.442	0.133	0.639	117	0.524

	N	Mean	Std. Deviation	Std. Error Mean	t	df	Two-Sided p
Digital access centres – computer labs	118	3.67	1.372	0.126	5.302	117	0.000
Teacher centres/telecentres (internet cafés registered with UNISA)	118	1.82	1.217	0.112	-10.515	117	0.000
Student funding	118	3.98	1.177	0.108	9.076	117	0.000
Student development	118	2.57	1.465	0.135	-3.206	117	0.002
Information services	118	2.55	1.483	0.136	-3.291	117	0.001
SRU	118	2.22	1.334	0.123	-6.348	117	0.000

Table 5.26: T-test Results on Liaison and Referral of Students who are Deaf and Hard of Hearing to Student Support Services

5.4.4 Level of the Effectiveness of Student Support Services for SDHH

The t-test results show that there is a significant difference between participants' opinions of the effectiveness of ARCSWID services *versus* all other SSS.

	N	Mean	Std. Deviation	Std. Error Mean	t	df	Two-Sided p
Admission (application) and registration	117	2.97	1.086	0.100	-0.255	116	0.799
Student assessment administration (assignments & exams)	117	2.96	1.070	0.099	-0.432	116	0.667
DCCD	117	3.01	1.079	0.100	0.086	116	0.932
Library	117	2.98	1.075	0.099	-0.172	116	0.864
Face-to-face tutorials	117	2.33	1.059	0.098	-6.812	116	0.000
Online tutorials	117	2.60	1.153	0.107	-3.770	116	0.000
ARCSWID	116	3.73	1.137	0.106	6.940	115	0.000
Academic literacy programme (reading and writing skills)	116	2.61	1.078	0.100	-3.877	115	0.000
Digital access centres – computer labs	116	2.72	1.125	0.104	-2.723	115	0.007
Teacher centres/telecentres (internet cafés registered with UNISA)	116	2.32	0.983	0.091	-7.459	115	0.000
Student funding	115	2.98	1.139	0.106	-0.164	114	0.870
Student development	115	2.52	1.095	0.102	-4.684	114	0.000
Information services	115	2.57	1.124	0.105	-4.064	114	0.000

	N	Mean	Std. Deviation	Std. Error Mean	t	df	Two-Sided p
SRU	116	2.49	1.099	0.102	-4.983	115	0.000

Table 5.27: T-test Results on the Level of the Effectiveness of Student Support Services

5.4.5 Level of Satisfaction with Student Support Services

	Strongly Dissatisfied		Somewhat Dissatisfied		No Opinion		Satisfied		Strongly Satisfied		Missing		Total	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Admission (application) and registration	31	26	38	32	25	21	20	17	3	3	1	1	118	100
Student assessment administration (assignments & exams)	28	24	35	30	30	25	21	18	3	3	1	1	118	100
DCCD	23	19	39	33	24	20	26	22	5	4	1	1	118	100
Library	25	21	38	32	25	21	24	20	5	4	1	1	118	100
Face-to-face tutorials	47	40	27	23	34	29	7	6	2	2	1	1	118	100
Online tutorials	39	33	22	19	41	35	9	8	5	4	2	2	118	100
ARCSWID	18	15	14	12	23	19	43	36	19	16	1	1	118	100
Academic literacy programme (reading and writing skills)	34	29	39	33	32	27	10	8	2	2	1	1	118	100
Digital access centres – computer labs	33	28	35	30	31	26	12	10	5	4	2	2	118	100
Teacher Centres/Telecentres (internet cafés registered with Unisa)	41	35	16	14	53	45	5	4	1	1	2	2	118	100
Student funding	29	25	31	26	29	25	21	18	6	5	2	2	118	100
Student development	32	27	34	29	40	34	6	5	5	4	1	1	118	100
Information services	31	26	34	29	39	33	8	7	4	3	2	2	118	100
SRU	31	26	31	26	43	36	9	8	2	2	2	2	118	100

Table 5.2818: Levels of Satisfaction

Results show that the *majority of the staff were dissatisfied with the level of satisfaction* with the services provided to SDHH by SSS. The graphical representation is further shown in figure 5.20 below.
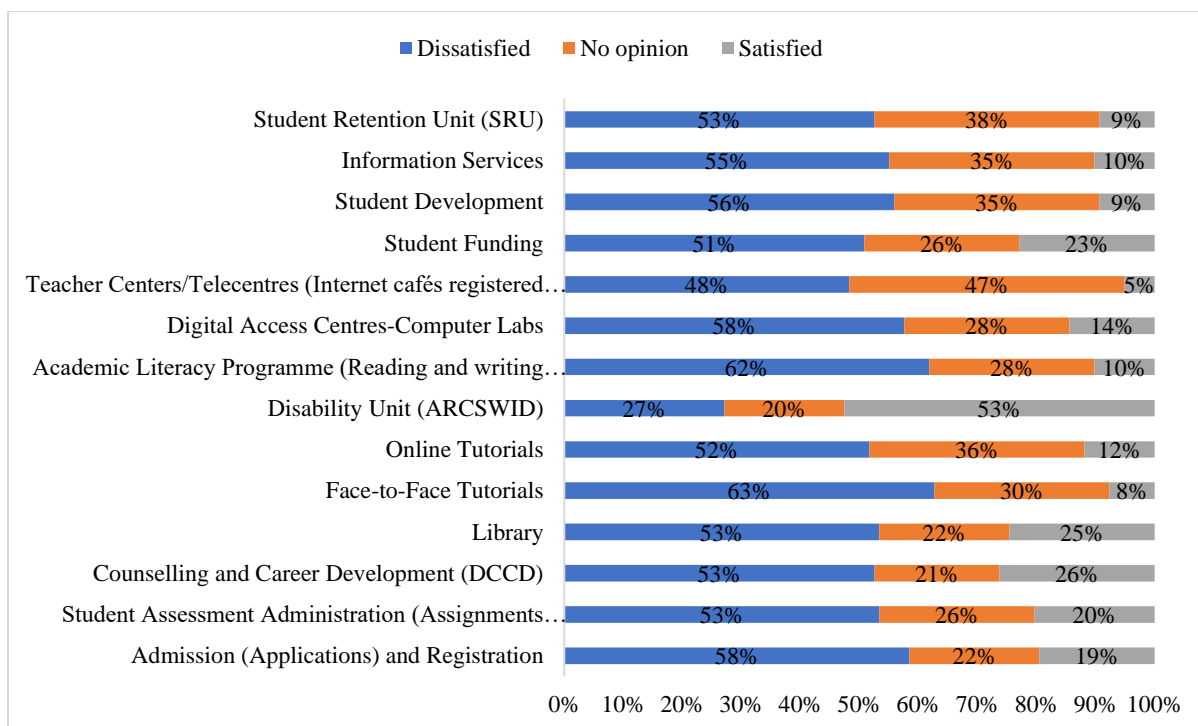
Figure 5.28: Levels of Satisfaction

The t-test results support the majority of participants' dissatisfaction with the SSS departments' inclusion of SDHH (mean 3; p-values 0.05).

	N	Mean	Std. Deviation	Std. Error Mean	t	df	Two-Sided p
Admission (application) and registration	117	2.37	1.126	0.104	-6.073	116	0.000
Student assessment administration (assignments & exams)	117	2.45	1.118	0.103	-5.292	116	0.000
DCCD	117	2.58	1.161	0.107	-3.900	116	0.000
Library	117	2.54	1.164	0.108	-4.290	116	0.000
Face-to-face tutorials	117	2.06	1.045	0.097	-9.735	116	0.000
Online tutorials	116	2.30	1.144	0.106	-6.575	115	0.000
ARCSWID	117	3.26	1.302	0.120	2.200	116	0.030
Academic literacy programme (reading and writing skills)	117	2.21	1.013	0.094	-8.486	116	0.000
Digital access centres – computer labs	116	2.32	1.124	0.104	-6.528	115	0.000
Teacher centres/telecentres (internet cafés registered with UNISA)	116	2.22	1.011	0.094	-8.355	115	0.000
Student funding	116	2.52	1.198	0.111	-4.341	115	0.000
Student development	117	2.30	1.061	0.098	-7.147	116	0.000

	N	Mean	Std. Deviation	Std. Error Mean	t	df	Two-Sided p
Information services	116	2.31	1.050	0.098	-7.073	115	0.000
SRU	116	2.31	1.008	0.094	-7.369	115	0.000

Table 5.29: Levels of Satisfaction

5.4.6 Chi-Square Test Staff Results

The results of the Chi-square test show the degree of correlation between the demographic data of the staff participants and the levels of awareness, liaison and support referrals, effectiveness, and satisfaction with SDHH SSS.

5.4.6.1 *Gender by Levels of Awareness and Supported Referral*

Results indicate that SSS liaison was significantly related to gender (female) in terms of knowledge of face-to-face tutorials. Liaison was made with the library, ARCSWID, and digital access centres – computer labs for SDHH, where Chi-square was higher than expected and the p-value less than 0.05.

Variable	Description	Services	Chi-square	df	p-value
Gender	Awareness	Face-to-face tutorials	18.225a	6	0.0057
	Support referred	Library	27.008a	12	0.0077
		ARCSWID	21.881a	12	0.0389
		Digital access centres – computer labs	35.777a	12	0.0004

Table 5.190: Gender

5.4.6.2 *Designation by Levels of Awareness, Effectiveness, and Satisfaction*

Results show that the majority of participants (admin and professional staff) were aware of the SSS for SDHH in the department. The majority found admission (application) and registration; student assessment administration (assignments and exams); and information services ineffective and dissatisfied with face-to-face tutorials; teacher centres/telecentres (internet cafés registered with UNISA); and information services where the Chi-square was higher than expected and the p-value less than 0.05.

Variable	Description	Services	Chi-square	df	p-value
Designation	Awareness	Admission (application) and registration	118.116a	8	0.0000
		DCCD	64.274a	8	0.0000
		Face-to-face tutorials	25.344a	8	0.0014
		ARCSWID	36.972a	8	0.0000

Variable	Description	Services	Chi-square	df	p-value
		Academic literacy programme (reading and writing skills)	21.080a	8	0.0069
		Student funding	38.939a	8	0.0000
	Liaison	Admission (application) and registration	81.513a	16	0.0000
		Student assessment administration (assign-ments exams)	73.210a	16	0.0000
		DCCD	34.240a	16	0.0050
		Library	130.759a	16	0.0000
		Student funding	31.884a	16	0.0104
	Effective-ness	Admission (application) and Registration	62.483a	16	0.0040
		Student assessment administration (assign-ments & exams)	39.623a	16	0.0009
		Information services	42.487a	16	0.0003
	Satisfaction	Face-to-face tutorials	44.996a	16	0.0001
		Teacher centres/telecentres (internet cafés registered with UNISA)	30.156a	16	0.0172
		Information services	28.696a	16	0.0261

Table 5.31: Designation

5.4.6.3   *Race by Levels of Awareness, Support Referrals, and Effectiveness*

The findings indicate a strong correlation between race and staff knowledge of SSS (admission [application] and registration), referral and liaison with other SSS (admission [application] and registration]; DCCD; and student funding), as well as their perception of an online tutorial's efficacy. Africans made up the bulk of the population group, where the Chi-square was higher than anticipated and the p-value less than 0.05.

Variable	Description	Services	Chi-square	df	p-value
Race	Awareness	Admission (application) and registration	22.052a	8	0.0048
	Support referred	Admission (application) and registration	31.008a	16	0.0134
		DCCD	30.660a	16	0.0149
		Student funding	31.446a	16	0.0118
	Effectiveness	Online tutorials	39.468a	16	0.0009

Table 5.32: Race

Results show a *significant association* between the position held by participants at work and their level of awareness. The majority of advisors or level P8 personnel (38.1 percent) and supervisors or level 7 personnel (22 percent) were aware of admission (application) and registration; DCCD; ARCSWID; and student funding where the Chi-square was higher than expected and the p-value less than 0.05.

Another *level of significant association* existed between positions held by participants at work and referring or liaison support of services to students i.e., admission (application) and registration; student assessment administration (assignments and exams); DCCD; the library; face-to-face tutorials; online tutorials; and ARCSWID. Chi-square was higher than expected and the p-value less than 0.05.

Teacher centres/telecentres (internet cafés registered with UNISA): Most of the participants who referred or liaised a support service to students were level 8 advisors (38.1 percent), followed by supervisors at level 7 (22 percent). Administrative officers on level P9 were represented by 16.9 percent of the sample, while management on levels P6-P4 was at 9.9 percent.

The participants have declared effectiveness in the student funding and information services, where the Chi-square was higher than expected and the p-value less than 0.05. They also showed satisfaction with face-to-face tutorials; online tutorials; and teacher centres/ telecentres (internet cafés registered with UNISA) where the Chi-square was higher than expected and the p-value less than 0.05.

Variable	Description	Services	Chi-square	df	p-value
Role	Awareness	Admission (application) and registration	119.628a	24	0.0000
		DCCD	48.965a	24	0.0019
		ARCSWID	43.225a	24	0.0094
		Student funding	42.444a	24	0.0115
	Support referred	Admission (application) and registration	105.230a	48	0.0000
		Student assessment administration (assignments & exams)	102.282a	48	0.0000
		DCCD	103.191a	48	0.0000
		Library	158.303a	48	0.0000
		Face-to-face tutorials	65.857a	48	0.0444
		Online tutorials	73.727a	48	0.0099
		ARCSWID	66.357a	48	0.0407

Variable	Description	Services	Chi-square	df	p-value
		Teacher centres/telecentres (internet cafés registered with UNISA)	68.893a	48	0.0256
	Effectiveness	Student funding	67.663a	48	0.0321
		Information services	76.786a	48	0.0052
	Satisfaction	Face-to-face tutorials	71.850a	48	0.0145
		Online tutorials	66.608a	48	0.0389
		Teacher centres/telecentres (internet cafés registered with UNISA)	73.817a	48	0.0097

Table 5.33: Position at Work

5.4.6.5 *Department by levels of Support Referrals, Effectiveness, and Satisfaction*

Results found an *association between departments and support rendered*: Admission (application) and registration; student assessment administration (assignments and exams); DCCD; the library; face-to-face tutorials; online tutorials; ARCSWID; academic literacy programme (reading and writing skills); digital access centres – computer labs; teacher centres/telecentres (internet cafés registered with UNISA); student funding; student development; and the SRU). *This means that participants' responses were associated with the departments they come from.*

Most of the participants were from admission and registration (20.3 percent), followed by counselling and career development (19.5 percent) and the library (16.1 percent) where the Chi-square was higher than expected and the p-value less than 0.05. Results found an association between the department and effectiveness concerning admission (application) and registration; face-to-face tutorials; online tutorials; digital access centres – computer labs. Participants finding these support services ineffective were associated with the following departments: Admission and registration (20.3 percent); counselling and career development (19.5 percent); and the library (16.1 percent), where the Chi-square was higher than expected and the p-value less than 0.05.

Results found an association between the department and satisfaction, concerning admission (application) and registration; student assessment administration (assignments and exams); DCCD; the library; face-to-face tutorials; online tutorials; ARCSWID; digital access centres – computer labs; teacher centres/telecentres (internet cafés registered with UNISA); student funding, and the SRU. The majority of participants were not satisfied with the inclusion of SDHH by the SSS departments. Most of these dissatisfied participants were in admission and registration (20.3 percent), followed by counselling and career development (19.5 percent),

and the library (16.1 percent), where the Chi-square was higher than expected and the p-value less than 0.05.

Variable	Description	Services	Chi-square	df	p-value
Department	Support services referred or liaise	Admission (application) and registration	86.915a	44	0.0001
		Student assessment administration (assignments & exams)	62.047a	44	0.0376
		DCCD	112.539a	44	0.0000
		Library	73.846a	44	0.0032
		Face-to-face tutorials	76.484a	44	0.0017
		Online tutorials	74.660a	44	0.0027
		ARCSWID	75.258a	44	0.0023
		Academic literacy programme (reading and writing skills)	84.572a	44	0.0002
		Digital access centres – computer labs	68.888a	44	0.0096
		Teacher centres/telecentres (internet cafés registered with UNISA)	67.461a	44	0.0130
		Student funding	82.475a	44	0.0004
		Student development	65.878a	44	0.0179
		SRU	88.459a	44	0.0001
	Effectiveness	Admission (application) and registration	66.957a	44	0.0144
		Face-to-face tutorials	61.472a	33	0.0019
		Online tutorials	72.060a	44	0.0048
		Digital access centres – computer labs	70.310a	44	0.0071
	Satisfaction	Admission (application) and registration	78.796a	44	0.0010
		Student assessment administration (assignments & exams)	80.425a	44	0.0007
		DCCD	82.559a	44	0.0004
		Library	78.555a	44	0.0010
		Face-to-face tutorials	60.617a	44	0.0488
		Online tutorials	75.609a	44	0.0021
		ARCSWID	60.974a	44	0.0458
		Digital access centres – computer labs	67.282a	44	0.0135
		Teacher centres/telecentres (internet cafés registered with UNISA)	60.631a	44	0.0487
		Student funding	66.492a	44	0.0159
		SRU	78.904a	44	0.0010

Table 5.204: Department

5.4.6.6   *Overall Experience of Staff by Levels of Awareness Effectiveness and Satisfaction*

There was a *significant association* between staff experience and their level of awareness of SSS. The majority of staff with over five years of experience with emphasis on those over 15 years of experience, were aware of all the SSS, where the Chi-square was higher than expected and the p-value less than 0.05.

Results further show an association between experience and the level of the ineffectiveness of digital access centres – computer labs and dissatisfaction with the inclusion in information services. The association is from the majority of participants with more than 5 years of experience, where the Chi-square was higher than expected and the p-value less than 0.05.

Variable	Description	Services	Chi-square	df	p-value
Overall experience	Awareness	Admission (application) and registration	30.307a	10	0.0008
		Student assessment administration (assignments & exams)	43.405a	20	0.0018
		DCCD	32.357a	20	0.0396
		Library	55.356a	20	0.0000
		Face-to-face tutorials	47.829a	20	0.0004
		Online tutorials	35.092a	20	0.0196
		ARCSWID	36.812a	20	0.0123
		Academic literacy programme (reading and writing skills)	31.963a	20	0.0437
	Effectiveness	Digital access centres – computer labs	32.236a	20	0.0408
	Satisfaction	Information services	35.089a	20	0.0196

Table 5.215: Overall Experience of Staff

5.4.6.7   *Preferred Mode to Support Students who are Deaf and Hard of Hearing by levels of Awareness, Liaison, Effectiveness, and Satisfaction*

There is a *significant association* between the preferred mode of supporting SDHH with a staff level of awareness of the SSS, concerning admission (application) and registration; DCCD; face-to-face tutorials; ARCSWID; and student funding. Results show that participants preferred a dual mode of supporting students (50.8 percent) while 24.6 percent preferred face-to-face, and 22 percent preferred online, where the Chi-square was higher than expected and the p-value less than 0.05.

Furthermore, there is a *significant association* between preferred modes of supporting students with having liaising or referring support services to students, concerning admission (application) and registration; student assessment administration (assignments and exams);

DCCD; the library; and student funding. Results show that participants preferred the dual mode of supporting students (50.8 percent) where the Chi-square was higher than expected and the p-value less than 0.05.

There was a *significant association* between preferred modes of supporting students' participants, finding the following services ineffective: DCCD; the library; ARCSWID; digital access centres – computer labs; student funding; and the SRU. Results show that at participants who found these services ineffective and preferred dual-mode supporting (50.8 percent), the Chi-square was higher than expected and the p-value less than 0.05.

A significant association also existed between the dual mode of supporting students as a preferred mode, and feeling dissatisfied with the inclusion of SDHH in face-to-face tutorials, where the Chi-square was higher than expected and the p-value less than 0.05.

Variable	Description	Services	Chi-square	df	p-value
Mode preferred	Awareness	Admission (application) and registration	119.000a	10	0.0000
		DCCD	40.580a	10	0.0000
		Face-to-face tutorials	20.299a	10	0.0265
		ARCSWID	87.635a	10	0.0000
		Student funding	40.357a	10	0.0000
	Liaise	Admission (application) and registration	69.080a	20	0.0000
		Student assessment administration (assignments & exams)	72.869a	20	0.0000
		DCCD	45.576a	20	0.0009
		Library	125.661a	20	0.0000
		Student funding	44.179a	20	0.0014
	Effectiveness	DCCD	58.051a	20	0.0000
		Library	48.957a	20	0.0003
		ARCSWID	37.319a	20	0.0107
		Digital access centres – computer labs	39.835a	20	0.0052
		Student funding	41.151a	20	0.0036
		SRU	40.827a	20	0.0039
	Satisfaction	Face-to-face tutorials	47.788a	20	0.0005

Table 5.36: Preferred Mode of Supporting Students who are Deaf and Hard of Hearing

5.5 REGRESSION ANALYSIS AND ANOVA RESULTS FROM STAFF AND STUDENTS

To ascertain the disparity in response and the relation between the responses of staff and students, regression analysis and analysis of variance (ANOVA) were performed. To ascertain the

degree of correlation between students' responses regarding awareness, effectiveness, access, inclusion, and satisfaction, correlation analysis was also conducted.

5.5.1 Awareness of Student Support Services

The level of student awareness of SSS was evaluated with staff (dependent variable) and students (independent variable), using regression analysis. The findings indicate a significant correlation between staff awareness of SSS and student awareness of these services.

Groups	Count	Sum	Average	Variance
Student	13	11.43	0.879231	0.012108
Staff	13	7.55	0.580769	0.044658

Table 5.37: Difference in Awareness of Support Services between Staff and Students

Results show that there is a *significant difference* between students and staff who were aware of the support services. Most of the students (87 percent) were aware of the SSS, compared to the staff (58 percent) – f-test = 20.4; p-0.0001 < 0.05).

Regression Statistics	
Multiple R	0.823219
R Square	0.67769
Adjusted R Square	0.648389
Standard Error	0.125308
Observations	13

ANOVA				
	df	SS	MS	F	Significance F
Regression	1	0.363169	0.363169	23.12861	0.000545
Residual	11	0.172724	0.015702		
Total	12	0.535892			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	-0.8093	0.291124	-2.77991	0.017907	-1.45006	-0.16854
Student awareness	1.581004	0.328744	4.809221	0.000545	0.857443	2.304565

Table 5.3822: Regression Results in Awareness

These results conclude that the relational impact of student awareness on staff is 1.5810 and has a p-value of 0.0005 < 0.05. Thus, there is a risk if staff are not aware of SSS. This may

directly or indirectly affect the students' awareness of these support services. Correlation is at 82 percent and student variance explained by staff is 67 percent, which shows how well the fit is in the following regression equation:

$Staff\ awarenss = 1.5810\ student\ awareness - 0.8093$ ………Equation (1)

5.5.2 Access to Student Support Services and Referrals

Results show that there is a *significant difference* between students accessing the support services and staff who had to liaise or refer support services to students. Most of the students (mean = 1.84 < 3) did not access support services, compared to most staff who have liaised or referred support services (3.24 > 3); (f-test = 24.4; p-0.0001 < 0.05).

Groups	Count	Sum	Average	Variance	
Access to support services	13	24.0100833	1.84692948	0.3614014	
Support referred	13	42.2499888	3.24999914	0.67026875	
ANOVA					
Source of Variation	**SS**	**df**	**MS**	**F**	**P-Value**	**F Crit**
Between groups	12.7959289	1	12.7959289	24.8062404	4.36652E-05	4.25967727
Within groups	12.3800418	24	0.51583508			
Total	25.1759707	25				

Table 5.39: Accessing the Support Services and Liaising of Referrals

Regression assesses the relation between staff (dependent variable) and students (independent variable) with regards to a student accessing support services and staff liaising or referring the support services. Results show that there is a strong relation between staff liaison or referring to other SSS and students accessing those services.

Regression Statistics	
Multiple R	0.6571893
R Square	0.4318977
Adjusted R Square	0.3802521
Standard Error	0.6445135
Observations	13

ANOVA					
	df	SS	MS	F	Significance F
Regression	1	3.4738505	3.4738505	8.3627105	0.0146576
Residual	11	4.5693745	0.4153977		
Total	12	8.043225			
	Coefficients	Standard Error	t Stat	P-Value	Lower 95%	Upper 95%
Intercept	1.5970087	0.5989049	2.6665479	0.0219288	0.2788278	2.9151896
Access to support services	0.8949938	0.3094899	2.8918351	0.0146576	0.2138111	1.5761765

Table 5.40: Access, Referral, or Liaison with other Student Support Services

Results show that the relational impact of a student accessing these services to staff having liaised or referred the services to students is 0.8949 with a p-value of 0.014 < 0.05. Thus, there is a risk if staff do not refer or liaise student services to students. It may directly or indirectly affect the students' access to these support services. Correlation is at 65 percent and student variance explained by staff is 43 percent with a p-value of 0.01 < 0.05 which shows how well the fit is in the following regression equation:

$Staff\ referal\ or\ liaise = 0.8949\ student\ accessing\ the\ support\ service +$
1.5970 ………Equation (2)

5.5.3 Effectiveness of Student Support Services

Regression assesses the relation between staff (dependent variable) and students (independent variable) regarding the effectiveness of SSS. Results show that there *is a strong relation* between staff and students finding the services ineffective.

Groups	Count	Sum	Average	Variance	
Student effectiveness	13	37.334491	2.8718839	0.0347749	
Staff effectiveness	13	35.795104	2.7534696	0.1433276	
ANOVA					
Source of Variation	SS	df	MS	F	P-value	F crit
Between groups	0.0911427	1	0.0911427	1.0234856	0.321785	4.2596773
Within groups	2.137231	24	0.0890513			

Total	2.2283737	25				

Table 5.41: ANOVA Results for Effectiveness

Results show that there is *no significant difference* between the majority of students and staff who found the support services ineffective. Most of the students' mean = 2.8 < 3) and the staff's mean = 2.75 < 3 (f-test = 1.02; p-0.32 > 0.05).

Regression Statistics	
Multiple R	0.5651013
R Square	0.3193394
Adjusted R Square	0.2574612
Standard Error	0.3262305
Observations	13

ANOVA					
	df	SS	MS	F	Significance F
Regression	1	0.549242	0.549242	5.1607719	0.0441729
Residual	11	1.1706896	0.1064263		
Total	12	1.7199316			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	-0.541299	1.4531521	-0.3724999	0.716598	-3.7396653	2.6570672
Effectiveness	1.1472499	0.5050108	2.2717332	0.0441729	0.0357285	2.2587713

Table 5.232: Regression Results: Effectiveness

Results show that the relational impact of a student finding these services ineffective is 11.1472 with a p-value of 0.044 < 0.05. Thus, there is a risk that SSS are not effective to support the services' proper functioning. The correlation is at 56 percent and student variance explained by staff is 36 percent with a p-value of 0.044 < 0.05, which shows how well the fit is in the following regression equation:

$Staff\ ineffective = 1.1472\ student\ services\ ineffective - 0.5412$ ………Equation (3)

5.5.4 Level of Satisfaction

The results show that there is a *significant difference* between students who are dissatisfied with the level of SSS compared to staff being dissatisfied with the inclusion of SDHH in SSS. Most of the staff (2.39 < 3) were dissatisfied with the inclusion of SDHH, compared to most of the students (2.80 < 3) who were dissatisfied with SSS.

Groups	Count	Sum	Average	Variance		
Satisfaction	13	36.512872	2.8086825	0.0265341		
Inclusion satisfaction	13	31.162172	2.3970902	0.0845849		
ANOVA						
Source of Variation	**SS**	**df**	**MS**	**F**	**P-value**	**F crit**
Between groups	1.1011535	1	1.1011535	19.81935	0.0001674	4.2596773
Within groups	1.3334285	24	0.0555595			
Total	2.434582	25				

Table 5.243: ANOVA Results regarding Satisfaction with Support Services

Regression assesses the relation between staff (dependent variable) and students (independent variable) regarding the level of satisfaction with SSS. Results show that there is a *weaker relation* between staff and students being both dissatisfied with the support services and inclusion of SDHH. The relational impact of the students being dissatisfied with the services is 0.8216 with a p-value of 0.1135 > 0.05 which is *not significant* to staff being dissatisfied with the inclusion level of SDHH to these support services. The correlation is at 46 percent and student variance explained by staff is 21 percent with a p-value of 0.1135 > 0.05 which shows that the fit is not good.

Regression Statistics	
Multiple R	0.4601712
R Square	0.2117576
Adjusted R Square	0.1400992
Standard Error	0.2696936
Observations	13
ANOVA	

	df	SS	MS	F	Significance F
Regression	1	0.2149379	0.2149379	2.9550976	0.1135839

Residual	11	0.8000809	0.0727346		
Total	12	1.0150188			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	0.089461	1.3444766	0.0665397	0.9481422	-2.8697121	3.0486341
Satisfaction	0.8216056	0.4779445	1.7190397	0.1135839	-0.2303432	1.8735543

Table 5.254: Regression Results

5.5.5 Correlation Analysis

Results show that there is a *significant association* between the SDHH accessing SSS and staff liaison and referrals of SDHH by staff (r = 66 percent; p-0.015 < 0.05). Comparable results were observed with student effectiveness and staff liaison, as well as referrals of SDHH by staff (r = 59 percent; p-0.03 < 0.05).

The students finding SSS ineffective *positively correlated* with the majority of staff who found support services ineffective (r = 56.5 percent; p-0.04 < 0.05). Results show that the majority of students who were dissatisfied with SSS had a *positive correlation* with the majority of staff that indicated that support services were ineffective (r = 61 percent; p-0.026 < 0.05).

5.5.6 Recommendations from Survey's Open-Ended Questions

The survey had two open-ended questions and recommendations concerning communication and dissemination of information/channels for communication/awareness, as well as additional comments to be added.

5.5.6.1 Recommendations from SDHH

5.5.6.1.1 Awareness of Student Support Services

There seems to be a lack of awareness of SSS and how inclusive they are for SDHH:

➢ *As a fellow PhD student, with sudden hearing impairment since November 2019, I am not sure what services are available to me. I am currently using a hearing aid in one ear to assist me.*

Though ARCSWID supports SDHH, it seems difficult to access services in other departments, since the services are not decentralised:

> *Not everything can be done at the disability centre which still leaves you with people that do not understand if you cannot hear properly.*

The SDHH indicated that the services should be user-friendly so that they could access them without asking for help. This is in line with the social model of disability, expressed in the theoretical framework of the study in chapter 2.

> *Helping those who use hearing impairment to be able to get access by themselves without having to ask for help, especially when it comes to having to make such as phone calls whenever they need help.*

One participant seemed shocked to learn about telecentres through the survey, stating that if they knew about it, they would have utilised the services which would have contributed positively to their academic progression:

> *I'm struggling with my studies as we speak, as I do not know where to ask for help. I need assistance in retrieving sources for my study, but I don't know how to access support. It's for the first time I heard of an internet café working with UNISA. Making copies is expensive.*

5.5.6.1.2   Enhanced Communication

Though the medium of instruction was in English, there seemed to be an expectation from the SDHH to be accommodated in SASL. This is what they have indicated on the application and registration forms, expecting the services to be available. One student indicated the struggle of communicating in English rather than SASL since it was their home language:

> *I struggle with communicating in English with everyone. UNISA should have SASL for students and educators.*

Some SDHH prefer lip-reading and with the observation of Covid-19 protocols wearing masks, it became a communication barrier for them.

> *I communicate orally by means of lip-reading, so other types of communication affect me as a result.*

Part of the open-ended question was to also observe the differences between SASL and English as per the reviewed literature review. The staff members had ontological assumptions that

SDHH need basic English writing skills, whereas they were expressing themselves in their home language as admitted by the university.

5.5.6.1.3 Improved Response and Feedback

Since most SDHH are not able to contact the university *via* phone, due to the obvious limitations, e-mail then becomes the preferred mode of communication. However, the turnaround time for responding seems to be too long. In one instance, one participant got feedback after a year:

➢ *UNISA needs to re-evaluate its communication with students. It needs to happen on a more frequent basis. For example, I send an e-mail of enquiry in May 2020, and they only responded in April 2021. That is nearly a year later.*

➢ *I have on a few occasions called and e-mailed UNISA for assistance regarding funding and library services and to date have received no response.*

5.5.6.1.4 Need for Specialised Support

There seems to be a need to provide specialised and tailored support in accommodating SDHH:

➢ *I have been asking all students with disabilities to be given special time at NSFAS and we are stuck because they don't care about students with disability.*

➢ *I may misunderstand and this could be improved by using a proper assistive device.*

➢ *The invigilators get irritated when asked to come to the hearing side of the ear.*

➢ *Need for an interpreter in some branches where Deaf registered.*

➢ *Information as glass in front of desks. Even before the pandemic, it was difficult to hear through the glass.*

➢ *Deaf and hard-of-hearing students are always neglected, and our needs are not met.*

5.5.6.1.5 Association

The university needs to make opportunities for SDHH to engage with each other.

➢ *Most time I used to hang out with deaf people, but in UNISA, there are few deaf people.*

The SDHH hardly interact with each other due to the ODL nature of the university, and assisting SDHH to connect may decrease and address loneliness in ODL spaces.

➢ *How can I be involved in deaf communities? Helping other students with hearing problems to improve their academics.*

5.5.6.1.6   Career Guidance

There seems to be a need to empower and capacitate SDHH during career development drives. One engineering student seemed unsure about the career path they have embarked on and whether they would be accommodated as a graduate:

➢ *As a person with a hearing impairment, do I have a bright future in the Engineering field? Jobs for people with disabilities are scarce and almost unheard of. The simple facade of BBBEE does not do justice to the population of individuals with disabilities.*

5.5.6.1.7   Transitional Assistance and Adjustment

Some SDHH acquired deafhood during the phase of their studies and there seemed to be no interventions to assist with adjustments and transitions.

➢ *I have become hearing impaired at the age of 21. I was previously considered "normal." There is a huge bridge in communication and knowledge available for support systems especially careerwise, as I am not knowledgeable about the sign.*

5.5.6.1.8   Funding

Though some SDHH were funded through NSFAS, there seems to be a lack of awareness of bursaries for students with disabilities. If this is not the case, then there are SDHH who are not using those bursaries, since they do not perceive Deafhood as a disability, but a language issue. The challenge for NSFAS funding then is to accommodate extra funding for assistive devices, but some SDHH do not get the bursaries due to non-disclosure. Covid-19 came with extra costs for some SDHH and there was no provision to accommodate the expressed needs.

➢ *I have maintained a relatively good average with my marks and hoped that it would assist me with some sort of bursary for this year. Unfortunately there has been no guidance if this is even possible. This year, I have registered for 10 modules, and I am really concerned about how I will pay for them.*

➢ *Due to Covid-19, my hearing aids have problems and I have no more access to hospital – like before. I was hoping that NSFAS can assist me as it was indicated, and I tried asking this several times – no answers, so saying how disability students are funded differently from other students.*

Those who are older than 35 years, also expressed the need to be funded. Employed SDHH showed the need to be funded by the bursary, since their salaries do cover all tuition costs.

> *Help students with disabilities with funding to continue studying, even those who are older than 35. Though I am employed, I find it difficult to fund my studies. I applied for a bursary, but no response.*

5.5.6.1.9   Preferred Mode of Accessing Student Support Services

Due to frustration and not being accommodated in online spaces, some SDHH felt that the face-to-face way of teaching may be better, despite a lot of alluded challenges.

> *Face-to-face helps with immediate feedback/assistance – not e-mail responses.*

5.5.6.1.10   Curriculum

There is a perception that academic staff are not aware of SDHH, and some believe that an awareness may assist with the provision of reasonable accommodations. Since most SDHH have disclosed their deafhood on the registration form, there is an expectation that that information will be made available to all staff members in all SSS:

> *Lecturers and teaching assistants, etc. should be made aware of students with disabilities before students have to point out their disability as it is made available and indicated in UNISA registrations.*

> *When it comes to e-learning and online school room sessions, educators should have notes available for individuals, as in most cases we are unable to see the educator, and sessions are based solely on sound. Also in some modules the use of voice notes are used for example AFK2602. These modules that include phonetic and phonology frustrate hearing-impaired individuals.*

> *A sign language module should be built into all curriculums, showing inclusivity among all professions. It won't only assist hearing-impaired individuals and the deaf individual becoming advanced in sign language, but it also allows for the societal bridge in communication.*

> *I would appreciate it if UNISA's online tutorials or discussions could also be done in writing instead of the live discussions whereby we cannot participate, due to our impairment.*

5.5.6.1.11   Reasonable Accommodations in Online Learning Spaces

With the challenges brought by Covid-19 and the lockdowns, there seemed to be a shift to support students in online environments. However, there seemed to be a lack of accommodations in MS Teams meetings:

> *Can't communicate over Teams – prefer written materials for extra lessons.*

With the online exams, there needs to be training on the invigilator apps to fully accommodate SDHH.

➤ *Can't use the invigilator app.*

Due to these new developments, others felt that face-to-face education was still a better mode of accessing the services.

➤ *Online tutors are not suitable for hearing impairment students. We will be happy to have face-to-face classes.*

➤ *More tutors that can communicate with SASL. Online discussions are the most stressful as we never get to engage due to the fact we do not hear.*

Where there are videos for students to access, there should be subtitles and other considerations outlined in section 3.8:

➤ *Include subtitles/closed captioning on videos.*

➤ *Get people with clear accents.*

5.5.6.1.12 Reasonable Accommodations in Tutorials Classes

The face-to-face tutorial classes seemed to exclude SDHH due to a lack of SASL support. The SDHH continued to feel discriminated against and lost out on some of the SSS as a result.

➤ *It must be clearly stated what will be done to facilitate the hearing impaired in face-to-face tutorials. That is why (myself) I am always neglecting to attend a face-to-face tutorial presentation because there is less facilitation for hearing-impaired students.*

Due to the nature of deafhood, some SDHH found it difficult to be in a crowd of people who are all talking at the same time.

➤ *I fail to be in a crowd where everyone is talking. My hearing aids make a lot of noise trying to get information.*

Some SDHH felt that the ODeL university is doing its best to reasonably accommodate them. It seems some campuses or regional service centres have accessible services in place or can accommodate some types of deafhood:

➤ *In overall I'm very happy with the systems and processes of UNISA as my university of choice. The lectures, staff, and all management have been very helpful even now during the*

stringent times of Covid-19 and its negative impact on our communities and societies, but UNISA made sure that we progress and do well in our studies.

5.5.6.2   Recommendations from Staff

5.5.6.2.1   Advocacy Programme on Deafhood

The advocacy project is regarded as a function of the disability unit, which is not happening according to one academic staff.

➢ *Going back to ARCSWID, they too do not regularly send any reminders to the department to monitor our student list and check for updates/stats of disabled students. Unfortunately, academics are overloaded with the demands of their work, and if ARCSWID is not prioritising constant communication, then disabled students do not necessarily receive the attention that they deserve! The only time I had a notification from ARCSWID was during the venue-based exam and at that time receiving a large exam script of a student having a visual impairment.*

Most staff expressed that they are aware of the SDHH population and will appreciate awareness campaigns in learning about deafhood.

➢ *Awareness training (especially admin and support staff) should be sensitive to the needs of hearing-impaired people.*

One staff member who had more than 30 years of working experience at an ODeL university, only encountered one student who is deaf and hard of hearing. Though the students in this survey did not know SASL, the staff's willingness to assist the students through empathy, led to the discussion on the text between them and the students which the latter appreciated and did not find it to be discriminating. On reflection, the staff felt they could have been better prepared by the university.

➢ *I have worked at UNISA for 30 years and only once had a student living with a hearing impairment, approaching me face-to-face for assistance. He was so gracious towards my shortcomings, and we communicated on paper in the end, and he received the information he needed. It taught me a lot about what I did not know that I was completely unprepared, although most willing to assist, and that I had no one knowledgeable to turn to, and that students may be staying away on account of our poor capacity to serve them, given that I, as only one example, have so rarely encountered students living with a hearing impairment.*

The staff seemed to be conscious that acquiring SASL is a specialised skill, as awareness campaigns will assist them to appreciate the programme. Most staff indicated that they directly and immediately refer students to the disability unit and somehow do not think that this is part of their work. Others have an idea of what SASL entails, but only get training once in a while without follow-ups.

➢ *ARCSWID unit should be empowered fully by the university to deal with all forms of disability. More resources should be allocated to this unit.*

There were cases where SDHH were discriminated against by staff members. The awareness campaign may therefore address and alleviate negative attitudes among staff.

➢ *Most UNISA staff have an attitude towards students with a disability. They do not provide good services to them, and they treat them differently.*

Some academic staff feel that the disability unit should be leading an awareness campaign in sensitising academic staff on how to accommodate SDHH.

➢ *I am a lecturer, and to be honest, I think the university needs to raise more awareness on how to deal with students facing hearing impairments. I know ARCSWID provides student support to the disabled. However, the personnel of ARCSWID need to make an appointment with departments (CoD) to educate staff about forms and types of disabilities and how academics can best support students, particularly those who have hearing challenges.*

While academic staff have been informed on how to check whether they have SDHH registered on their modules, some do it only once per year or semester:

➢ *I know that I can check the student list on the myUnisa module site and request for identification of disabled students, but I do that only once, and normally at the beginning of a semester.*

Some educators have fully supported SDHH, even in engineering courses, by following guidelines to check if they have SDHH on their course list and to have alternative assessments in place.

➢ *I have taught mathematics to several students with hearing impairments successfully over the years.*

One staff member indicated the importance of SDHH, disclosing their deafhood, so that the department can be aware of how to accommodate them.

➤ *The university should create awareness of the importance of disclosure so that students with hearing impairments can benefit from support services. When they register, they must be identified, so that information can be made available to them.*

One staff member shared the implications of not appreciating SASL which may lead to disastrous or catastrophic events:

➤ *I wonder if UNISA's disaster management plan considers the needs of hearing-impaired staff and students who might need visual cues that there is an emergency?*

Though some educators have no experience or limited knowledge, they have been exposed to an event where a Deaf person was struggling to communicate with an English-speaking community:

➤ *I have also witnessed colleagues who are hard of hearing, struggle in meetings, even when wearing a hearing aid. So, there is a real need for your research and any recommendations you can make to be given serious consideration by the university.*

Other educators have witnessed how some SDHH struggled in communicating with staff, but felt helpless as they had no idea how to assist their colleagues facing these challenges:

➤ *Students are always taken from pillar to post whenever they seek help. Methods of communication also need improvement when dealing with such students with special care. Enough resources should be made available to accommodate students with special needs. Staff must also get training on the use of assistive tools for students with special needs.*

There seems to be staff members who are interested in the awareness programme and continue to assist SDHH voluntarily, but departments are often caught off guard when those colleagues resign or retire:

➤ *Much of the assistance available by the department seems to be voluntary, and these support teams easily fall apart when key figures with passion and knowledge retire or resign.*

While some members are interested in promoting awareness campaigns, there seems to be less involvement by their line managers who have the powers to implement such programmes:

> *The fact that I have no opinion for so many departments, indicates that they do not internally market the support they offer to students with hearing impairments.*

5.5.6.2.2   Employing South African Sign Language Interpreters

There are suggestions that the university should consider employing professional SASL interpreters, otherwise that each department should have its own interpreter. There are also expressions that SDHH should be employed to assist other SDHH, especially in administrative departments during peak periods.

> *Attract and employ sign language competent students/temporary workers to assist during peak periods, especially at admission and registration, including assessment centres.*

5.5.6.2.3   Accommodating Online Support

With the migration to online support, some measures were proposed like staff being aware of the available resources used on the daily platform:

> *Free programmes on google should be used for transcriptions as well as on MS Teams when there are virtual classes or meetings.*

> *Adopt digital tools to the level of impaired people to facilitate communication. Display information on screen for the visually impaired at the same time. Raise awareness among the whole university community.*

The new invigilator app during exams was found to be not accommodating by some staff members, but the university has not put alternative measures in place to accommodate SDHH on the new technologies.

> *We also have the invigilator app which needs to be loaded by third-year students to monitor plagiarism. However, in one of our meetings for online exams, the app was found to be discriminating to some degree, particularly when it comes to disabled students. Some of them have to take oral exams to accommodate their disability. For example, if students have scribers during their exams, the app might pick the sounds like plagiarism. I am not sure whether the invigilation app has any negative effect on students having hearing impairments.*

An academic staff member shared the assumptions they have about SDHH and acknowledge that they sometimes share online material without thinking about reasonably accommodating

SDHH and that awareness programmes will train them to include measures addressing the shortcomings of their materials:

> *I am assuming that we normally communicate via text, so they might beat the odds of reading and writing, however, sometimes I share YouTube videos with my students, and I rarely think about someone having hearing impairments.*

5.5.6.2.4   Distribution of Resources

There seems to be units in the departments where adequate resources are allocated and training offered to support SDHH, like the library department.

> *I currently work at the library but am not directly involved with students. This is a good opportunity for the library to investigate different ways of serving clients with hearing impairments.*

Another staff member indicated the need for an awareness campaign programme, as the library department was considering accommodating SDHH during Covid-19.

> *ARCSWID and the library have considerable resources. Training ought to be updated and additional support instruments must be made available in this regard.*

5.5.6.2.5   Policies

Section 3.11.4.1 has indicated some of the policies in place. However, some staff members seem to be unaware of it, but know the importance of policies to address these critical issues:

> *Disclosure and provision of services are critically important. UNISA does not have a student support policy provision in any of its major policies for students with hearing impairments. All tuition policies and related initiatives should have a specific provision of consultation and sign-off by ARCSWID.*

5.6   MIXING OF DATA FOR EXPLANATORY SEQUENTIAL DESIGN STUDY

5.6.1   Connecting Quantitative to Qualitative Phase

Section 4.5.1, where the timing, weighing, and mixing took place, outlined the fundamentals of the transformative explanatory sequential design. The connection between the quantitative and qualitative phases was made possible by using the guidelines and principles provided by Ivankova, Creswell, and Stick (2006) as well as Fetters, Curry, and Creswell (2013).

The first manner in which the two phases were connected, was through the sampling frame where some surveyed participants agreed to take part in the follow-up study. From the population of participants who completed the surveys: SDHH and staff at the ODeL university were invited to participate in the qualitative phase of the study.

Second, the link came about as a result of the limitations and outliers from the quantitative results being used to develop the qualitative data collection protocol that addressed the primary research question of the study.

Third, according to the principles of the TMMR, the inputs from the surveyed population that were gathered through open-ended questions, were considered and incorporated to direct the subsequent qualitative phase (Humphries *et al.*, 2020).

5.6.2 Developing Interview Protocol

Section 4.9.5 captured the reliability of the data. One of the measures and strategies to increase the credibility of the study was identified as the interview schedule or protocol. The interview protocol for SDHH and staff members was developed, considering the factors in the preceding section. The protocol also responds to the study's research questions and objectives, which are both listed in section 1.6.

Additionally, the aforementioned factors are in line with the four foundational elements of the Interview Protocol Refinement (IPR) framework for methodically creating and improving an interview protocol (Castillo-Montoya, 2016).

Finally, they addressed the application of dependability and created an audit trail that was made available to the reader as proof of the choices and decisions that guided the creation of the interview protocol. Annexures F and G contain the developed interview protocol for SDHH and staff.

5.7 CONCLUSION

The chapter presented quantitative data from the SDHH who received support services and staff who provided these services. The t-test and Chi-square test provided rigour and validated the theoretical perspective of the study and measures used to collect quantitative data.

The results reveal that the SDHH were aware of some of the SSS. However, they found the services to be inaccessible and ineffective. Thus, the services were not inclusive. While staff members were relatively aware of the SSS rendered to SDHH, their response was associated with the department they came from. Thus, there is a risk if staff do not refer or liaise

student services to students, as it may directly or indirectly affect the student's access to these support services.

There was a provision of open-ended questions on the questionnaires, while recommendations from the SDHH and staff were discussed in ensuring that reasonable accommodations for the SDHH are realised.

The mixing of data occurred where the quantitative and qualitative phases connected the development of the qualitative data collection protocol, addressing the main research question of the study through the limitations and outliers from the quantitative results. The next chapter presents the qualitative data findings from the SDHH and staff. The qualitative responses from the measure provided some recommendations and areas to explore in the next phase of qualitative data collection.

CHAPTER 6

QUALITATIVE DATA PRESENTATION,

ANALYSIS, AND DISCUSSION

6.1   INTRODUCTION

The analysis of the qualitative findings from the explanatory sequential design study is presented in this chapter. Reflective thematic analysis was used to produce definitive conclusions, as indicated under the data analysis plan in section 4.83. The SDHH and employees at the ODeL university who were the units of analysis, declared and consented to the survey, as their readiness to engage in the interviews were the sources of the qualitative data.

Interviews were conducted on MS Teams with the sign language interpreter when interviewing the SDHH. Raw data were transcribed, and the researcher familiarised himself with the data to generate codes and themes, using the ATLAS.ti qualitative data analysis software. The next section discusses rigour for the applied trustworthiness of data.

6.2   TRUSTWORTHINESS OF DATA

In promoting rigour, credibility was applied by developing an interview protocol with semi-structured questions, responding to the objectives of the study. The standard protocol for the SDHH and staff ensured that respondents were asked similar questions. Furthermore, consent forms ensured that participants committed to being honest throughout the interview. The protocol and consent forms are in Annexures F and G.

The theoretical underpinning for the study was based on the transformative research paradigm within the context of ODeL and deafhood. Transferability was supported by the findings provided in the following section, supported by the selection and justification of theories, TMMR data-gathering procedures using semi-structured interviews, and observations, as well as a reflective thematic analysis.

Dependability was achieved by establishing and maintaining an audit trail where the recordings of raw data, fieldnotes, and transcripts were stored safely in an online folder as stipulated in section 4.10 on axiological evaluation and ethical considerations. Significant notes on non-verbal cues are included in the findings to show the reader the atmosphere around the conversations with respondents.

Section 4.2 and figure 4.1 demonstrated the researcher's philosophical assumptions and beliefs and how to minimise bias, following that awareness. The decision undertaken by the

researcher, inclusive of the theoretical framework and TMMR, was justified by the research problem and objectives of the study. The process of analysing qualitative data was discussed in section 4.8.3 on qualitative data analysis – reflective thematic data analysis. Promoting the trustworthiness of data was also achieved through piloting the study, a process unpacked in the next section.

6.2.1   Pilot Testing

Piloting was done with African male SDHH and two staff members, one academic and one administrative. The interview was further refined to align some questions with the objectives of the study. Furthermore, this was followed by the inclusion of the respondent's views and recommendations on SASL being the potential twelfth official language of SA, an aspect which developed around SASL after the study commenced.

Lessons learned from the piloting process ensured that the researcher and SASL interpreter managed their expectations on the online platform, including the background and lighting which were critical for the SDHH, since sign language is visual through the use of hands. Also, adequate time was budgeted to allow the SDHH to log in and make follow-ups via e-mail to check if they are managing.

6.3   FINDINGS: STUDENTS

6.3.1   Demographical Information of Participants

Five SDHH who were interviewed, met the inclusion criteria set in section 4.6.2.1.1. Three were African males, one was a foreign national residing in Zimbabwe, and there was only one African female. The majority of the respondents were in the age group between 30 and 40, with one female between 20 and 30 and one male between 40 and 50.

Apropos deafhood, two of the respondents were Deaf since birth and associated with a deaf culture, where they are proud to be Deaf and use SASL as their first/home language. The other three respondents acquired deafness in their teens and one while he was a toddler. One did not use a SASL interpreter, but relied on live caption software and lip-reading, while the other respondent was lip-reading. He was not fully independent and relied on his SASL interpreter and assistive devices with which he was experimenting. As a result, he experienced challenges where there were heightened sound stimuli in his surroundings and not necessarily in the interview setup.

The first respondent needed a SASL interpreter, and the interview unfolded, employing two interpreters, one for the researcher and one for the participant. He acquired deafness and could only lip-read in his home language, Tshivenda, in which both the researcher and his sign language interpreter were not fluent. The respondents were registered students in different disciplines and levels up to PhD level. The table below shows the demographics of the SDHH respondents.

Respondents	Gender	Race	Age Group	Deafhood	Sign Language Interpreter Support	Academic Status	Field of Study
R1-SDHH	Male	African	30-40	Hard of hearing acquired	Yes – two interpreters for respondents and researchers. Only lip-read in vernacular.	Registered for bachelor's degree (NQF 7)	Engineering
R2-SDHH	Male	African	30-40	Deaf since birth	Yes – fluent in SASL	Registered for an honours degree (NQF 8)	Commence
R3-SDHH	Female	African	20-30	Deaf since birth	Yes – fluent in SASL	Registered for bachelor's degree (NQF 7)	Education
R4-SDHH	Male	African	30-40	Hard of hearing acquired	Yes – can lip-read; not fluent in SASL; uses an assistive device for hearing and needs limited sound stimuli	Registered for bachelor's degree (NQF 7)	Commerce
R5-SDHH	Male	Foreign national	40-49	Hard of hearing – cannot hear, but can talk	No – uses text-recognising software for live captions	Registered for PhD (NQF 10)	Social Sciences

Table 6.1: Demographic Profile – Students

6.3.2 Presentation of Findings

Raw data were recorded and transcribed verbatim and member checking was done where transcripts were sent to respondents to confirm the contents of the interview, making sure that no data were lost due to translation – especially where translation was done. Where the context

was different, it was amended with inputs from the participants and was supported by the researcher's field notes. The ATLAS.ti qualitative data analysis software was used to develop codes from the transcript. Six themes emerged through conceptual similarities as per the figure below and are presented in the next section.

Awareness of student support services	Accessibility of student support services	Effectiveness of student support services
Inclusivity in student support services	ODeL lived experiences	Recommendations for reasonable accommodations
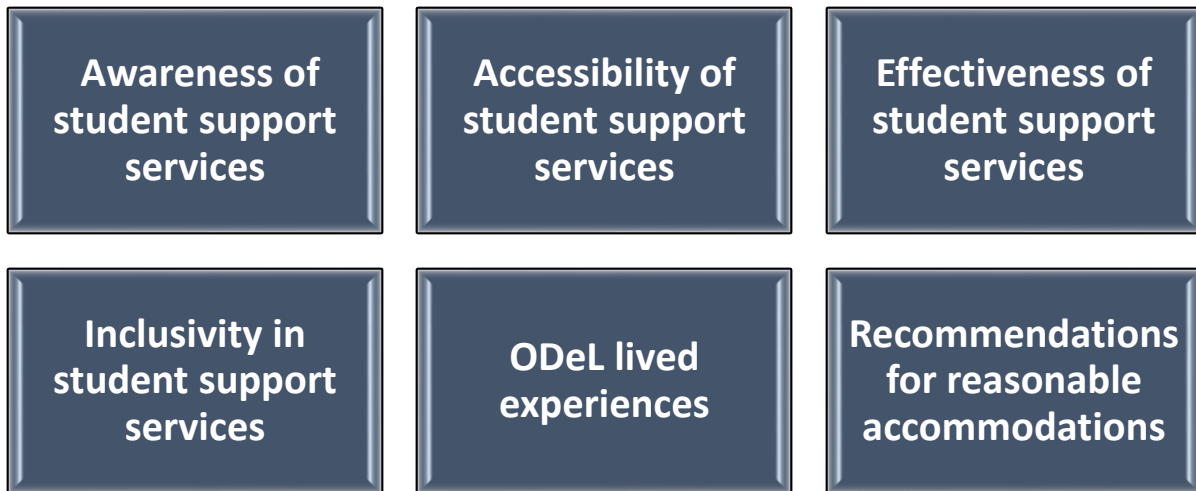
Figure 6.1: Emerging Themes from Qualitative Raw Data – Students who are Deaf and Hard of Hearing

6.3.2.1   Theme 1: Awareness of Student Support Services

Themes	Categories
Awareness of SSS	• Orientation interventions
	• Presence of staff
	• Awareness campaigns

Table 6.2: Theme 1 – Students who are Deaf and Hard of Hearing

One of the study's objective was to find out if the SDHH were aware of the available SSS. Except for admission and registration, which are the key points of entry, the majority of SDHH were largely unaware of SSS. Determining the causes of these trends was the goal of the qualitative phase of this study. Orientation interventions, the presence of staff, and an awareness campaigns evolved as sub-themes and codes.

Orientation interventions

The university has orientation days to promote SSS. However, the communication channels do not favour the SDHH. While the general student population can follow through, it is a challenge for the SDHH where SASL interpretation services are not in place.

➢ Respondent#6-SDHH: *My communication is not the same for example, you are moderating something. They tend to understand everything quickly. They will be able to hear what you say faster.*

The lack of appropriate accommodations for the SDHH could be the cause of their inability to attend physical events. This was corroborated by another respondent, who claimed that, despite announcing their attendance, the university was still unable to secure interpreters for the day.

➢ Respondent#3-SDHH: *To dedicate the relevant people who will be interacting and promoting those services. People who qualify for those services. The use of online services and engaging with the relevant department and doing the research.*

When the SDHH attend these events and are not linked with their peers, especially those doing similar courses and modules, it becomes much more frustrating.

➢ Respondent#6-SDHH: *I can't say I am aware because of the first thing I have been trying to find the people in my situation, I meditate on people who are studying in the seminar field, but I cannot find one.* Long pause. *My communication is not the same.*

The response also demonstrates that there is a greater degree of ignorance regarding student assistance services. The university is thought to be unable to adequately describe the service they provide.

➢ Respondent#1-SDHH: *We don't get anything in the university – and the other services, they cannot explain.*

There was a respondent who has been a student before the merger and highlighted that even before the merger, the SDHH were not aware of the services, and he was not surprised at all.

➢ Respondent#4-SDHH: *I am not aware, though I started studying at UNISA while it was a Technikon.* Shaking his head. *I have been struggling, most of my e-mails were not answered. I went to other institutions like Rosebank College but due to work, I have to come back.*

Presence of staff

Another contributing factor to the lack of awareness is the physical instructors who are not visible at events or on campus.

➢ Respondent#2-SDHH: *I think this is because the structures in the first university are not giving enough to this ability. You need to have visible physical instructors.*

Awareness campaigns

Although SDHH are aware of the nature of the ODeL university, they still prefer face-to-face modalities.

➢ Respondent#3-SDHH: *Online is a challenge. It does not give the same purpose for people like us. No motivation. It would be great to go back to face-to-face.*

The differences between online and face-to-face modalities correspond with the results from the quantitative phase as illustrated in figure 5.14.

➢ Respondent#4-SDHH: *It's going to be easy for me to do it online. I prefer online.*

Sometimes the SDHH wanted to attend tutorial classes, but it was difficult for them to find relevant information regarding the scheduled times for particular modules.

➢ Respondent#6-SDHH: *But if I need to attend classes, for example, where do I get that information? Because I've been trying in some way.*

6.3.2.2   Theme 2: Accessibility of Student Support Services

Themes	Categories
Access to support services from the department	• Communication barriers
	• Lack of interpreters
	• Educating the university about Deaf culture
	Sub-Theme: Attitude towards lack of access to support services

Table 6.3: Theme 2 – Students who are Deaf and Hard of Hearing

Access to SSS is the second theme. Sub-themes and codes related to this theme have been generated, including communication barriers, a lack of SASL interpreters, and the necessity of educating the larger university population about the deaf culture to promote the accessibility of services. Determining the degree of service accessibility was also one of the study's goals. The interviews revealed the causes of the services' accessibility issues.

Communication barriers

The communication difficulties where the SDHH experienced limited help with SASL inter-pretation services, are one of the barriers to appropriate accommodation for SDHH with access to SSS. One participant said that if they were consulted, they might suggest solutions to the SASL problems for SDHH to be accommodated throughout all SSS.

➢ Respondent#5-SDHH: *The university doesn't care about the deaf people because they don't engage with the community of the deaf people. Interpreting cannot be done as if you are reading a newspaper. Interpreters must be divided into sections, and they must also have schedules so that they can deliver the work in the right way. Sign language should be developed in universities. We deaf people don't get that. They do not consider us.*

Lack of interpreters

The university has an advantage in that it can use its SDHH to make sure that all of them are appropriately accommodated where there are human capital challenges.

➢ Respondent#5-SDHH: *Request other people to come and help, more interpreters to help us in the university. Advisors – the deaf cannot communicate with the advisors. The interpreter who helps is the only one; we need more people to be appointed. No facilitators to cater for us in our sign language.*

Additionally, the SDHH feel ignored in online spaces where they are not considered. In contrast to the face-to-face platforms, they are unable to communicate their problems to receive assistance when there are online challenges.

➢ Respondent#1-SDHH: *The internet is having a problem, and sometimes the intervals are not okay and then we don't get anyone to support us. There are no interpreters there.*

The SDHH feel neglected because they are not included in the planning stages and are therefore not represented.

➢ Respondent#5-SDHH: *The university doesn't care about deaf people or find out about their challenges. And be kind to them. They only plan for hearing people. It is challenging for us.*

➢ Respondent#3-SDHH: *Please help us and talk to the university, we need more interpreters. I am being helped by ****; she is the only interpreter helping us and is not available all the time.* (I took notes while there was a temptation of responding. I remember that although transformative research allows engagement, I opted to focus on the interview and did not distort the respondent's views on this issue, to minimise the bias.)

Deaf culture

One respondent alluded that to encourage inclusivity for SDHH, the university must first comprehend the Deaf culture (discussed at length in section 3.4). I did my best to find out as much as possible about the Deaf culture. That is why I indicated to one respondent that, though it was not on the interview schedule, I needed to find her view on the Deaf culture.

➢ Respondent#3-SDHH: *I am perfectly Deaf and went to a deaf school.* (The respondent is smiling and feeling happy to talk about this topic. The interpreter changes her voice tone to align with the smooth signing of the participant.) *I'm so proud of myself. I try my yes and yes to finish my schooling. When I finished schooling, I develop myself by myself with different, you know we are different people and then we accept ourselves the way we are. We always pursue our goals. We don't give up in life, we want to be equal to other people and then we want to solve our problems. We must be able to prove the sort of problems on our own, and then we push fast to get whatever we want.*

Another respondent also elaborated on it.

➢ Respondent#1-SDHH: *They are communicating okay but here in the university, there is no team that is helping us to learn, and then the university doesn't go into details into deaf culture, deaf society, reporting all the stuff to the deaf people, considering us, communicating with us with respect. They don't do those things, not even the support services.*

6.3.2.2.1   Sub-theme 2: Attitude towards Lack of Access to Support Services

Theme	Categories
Attitude towards lack of access to support services	• Lack of dedicated team
	• Pessimism
	• False advertisement and tick box exercises

Table 6.4: Sub-theme 2 – Students who are Deaf and Hard of Hearing

Lack of team dedicated to the support of deaf

The respondents believed that the disability unit, which is in charge of helping the SDHH with their academic needs, lacks a committed team of staff members to effectively support them.

➢ Respondent#1-SDHH: *There is no team that is helping us to learn, and then the university doesn't go into details with the deaf culture, deaf society, reporting all the stuff to the deaf people, considering us, communicating with us with respect. They don't do those things.*

Pessimism

After receiving some complaints and giving the university some advice, the SDHH seemed to be feeling generally pessimistic. They believed that they were on their own and had to take care of their advancement with little to no help.

➢ Respondent#6-SDHH: *I just feel like sometimes I lose hope, you see that I will ever pass.*

➢ Respondent#3-SDHH: *I am alone and do everything by myself, no support from the university* (showing a frustrated face. I also feel sad to realise how the respondent is feeling.)

False advertisement and tick box exercises

One respondent thought that, once in the system, the university did not care to support the claimed services and assistance on the university websites and information supplied by advisers during application and admission.

➢ Respondent#1-SDHH: *They don't do those things, not giving us support.*

Another respondent continued by asking whether student help is available or if the SDHH are being singled out because of their unique requirements.

➢ Respondent#3-SDHH: *It depends on nature. Am I being denied or is it me who is not approaching them for assistance*?

6.3.2.3   Theme 3: Effectiveness of Student Support Services

Category	Themes
Effectiveness of student support services	• Lack of referral systems
	• Online workshops
	• Discussion classes

Table 6.5: Theme 3 – Students who are Deaf and Hard of Hearing

One of the goals of this study was to determine the effectiveness of student support programmes. The quantitative findings indicated that the services were ineffective, and the interviews wanted to determine why. Section 6.3.2.2 unpacked challenges to accessibility where many respondents indicated that services were not accessible. It was difficult to get responses on effectiveness when the services could not be accessed.

Lack of referral systems

SDHH are occasionally dispatched from pillar to post before they receive assistance. Even if the services are supposed to be offered at all campuses and regional service centres, the SDHH are sometimes sent from one campus to another to get help.

➢ Respondent#4-SDHH: *I went to Florida, and they sent me to Pretoria, but they didn't tell me where the offices are. It is not effective. I went there several times and never got any help.*

Online workshops

When visiting online platforms, SDHH prefer that announcements be done *via* text because if done only verbally, some may miss the provided information, rendering the online workshops to be ineffective.

➢ Respondent#3-SDHH: *Another challenge: When an announcement has been made verbally without any writing or description, I won't get that announcement. If announcements are conveyed verbally, they should send an e-mail, text, or WhatsApp. I prefer communication face-to-face, and tutors so I can engage with them face-to-face.*

One of the participants indicated that online spaces are not a problem and can be accessible, provided the facilitators are aware of the presence of SDHH and make arrangements for them to be accommodated.

➢ Respondent#5-SDHH: *People who hear, have everything they need. We depend on the in-terpreters, we are not catered to, and it is lonely.*

Discussion classes

While most SDHH inform the coordinators of their attendance and sit in the front of the class to get their attention, there are times when they are disregarded, and the coordinators go about their business as usual without engaging or accommodating them.

➢ Respondent#6-SDHH: *I was in front of the class, and it was counting for our memory amount when they do that. I did not hear anything. I did not hear what was mentioned.*

Category	Themes
Inclusiveness of the student support services	• Online assessments
	• Online presentations
	• Group assignments
	• SASL interpretation services

Table 6.6: Theme 4 – Students who are Deaf and Hard of Hearing

The level of inclusion was one of the study's objectives and the results showed that it is lower throughout all SSS, including application and registration which are the first points of entry to the ODeL university.

The majority of SDHH were unhappy with the inclusiveness of the services. The respondents agreed that the services were not inclusive and that they want the institution to do more in this area.

➢ Respondent#5-SDHH: *It is challenging for us. They are not inclusive. They are not inclusive. It's the responsibility of the university to include us, they exclude us.*

Online assessments

Although there is a shift towards online platforms, SDHH felt left behind because they were uninformed and not trained for it.

➢ Respondent#1-SDHH: *The people are referring us to the internet. It doesn't work for us. It doesn't have equality for us. Maybe for other people, but for us it is not working.*

When students are given group assignments, they frequently need to communicate to exchange ideas and finish the task at hand. Having a language barrier, makes it difficult for SDHH to participate in brainstorming sessions, which gives the impression that they are not interested or did not study, and are therefore reliant on others to earn group points.

➢ Respondent#6-SDHH: *That system, especially if I'm communicating with someone who is English, it feels like you have not studied.*

Online presentations

While online presentations are ideal in ODeL, in that they reach all students from all over the world in real-time, SDHH feel excluded from this.

➢ Respondent#5-SDHH: *They know that they have deaf people in society, but they don't plan for them so that deaf people can have that communication other people are having. We deaf people depend on interpreters. Whenever there is no interpreter, we cannot access the services. Deaf is not inclusive. It's the responsibility of the university to include us, but they exclude us. There is a fight about hearing people. We are not catered for. We just see the slides going up and down and no one is explaining that for us.*

From their side, all they see are presentations, but no audio or subtitles, no captions to follow up with the presenter. It also becomes a challenge to raise questions or enquiries to be assisted with follow-up.

➢ Respondent#3-SDHH: *Subtitles…Yes, it would help when they send the slides before the lecture so that you can relate to what they've been reading. Interacting on time.*

South African sign language interpretation services

While there is a disability unit with limited SASL interpretation services, it is found not to be fully inclusive. There is seemingly also a challenge when interpreting academic subjects.

➢ Respondent#5-SDHH: *I want the university to include deaf people and hard of hearing and help them with their studies, so that they can study sign language as the speaking people can do so and develop like other people. They should know our needs as deaf people. The university doesn't care about Deaf people because they don't engage with the community of Deaf people. Interpreting cannot be done as if you are reading a newspaper.*

SASL interpretation services play a huge role in the academic progression of SDHH, since they learn through visualisation. Thus, there seems to be more than one way to do interpretation, in order to accommodate SDHH.

➢ Respondent#1-SDHH: *The interpreters must be hired by the university because we the people learn by visualising, having one interpreter. It makes everything difficult for us and then we cannot learn every piece of information.*

6.3.2.5   Theme 5: Open Distance and e-Learning Lived Experiences

Themes	Categories
ODeL lived experiences	Sub-Theme 1: Deafhood disclosure
	- Minimal assistance - Lack of funding - Inefficient support - Inequality and stigma
	Sub-Theme 2: Open distance learning experiences
	- Peer support - Social support - Limited awareness of SSS for SDHH
	Sub-Theme 3: Impact on academic achievement
	- Online support - Training needs - Isolation challenges

Table 6.7: Theme 5 – Students who are Deaf and Hard of Hearing

Respondents described the challenges of distance learning as being more closely tied to the sharing of information about their deafhood status when registering. Interview questions assisted in unpacking the way in which they understood the importance of disclosing in the case at hand. Codes such as general required assistance, funding, and inequality formed the building blocks of this theme.

6.3.2.5.1   Sub-theme 1: Deafhood Disclosure

The findings show that respondents declared their deafness to receive help and effective SSS to meet their specific needs. The planned assistance includes paying for tuition and other required costs associated with their academic requirements. The assistance they received, did not seem to be contingent, acknowledging their deafness, even when the institution was aware of their particular needs.

Disclosure seems to be a difficult subject. When asked if they disclosed their deafness, some of the participants gave a simple "yes" or "no."

➢ Respondent#3-SDHH: *Yes.* (The sign language interpreter indicated that the respondent only said "yes." I only looked at the facial expression, as the respondent did not allow me

to probe further. From the straight face, I had to move to the next question. This made me wonder if she indeed disclosed.)

Assistance required

The declaration of one's deafness increases expectations for specialised and appropriate accommodations. Respondents alleged they did not receive the support they needed, despite declaring upon registration.

➢ Respondent#3-SDHH: *I have many challenges.* Silence. (However, there is communication between the sign language interpreter and the respondent.) Sign language interpreter: *I can't hear her anymore; she is so fast and I can't see her hands…wait, wait, wait*! (The sign language interpreter raises her clenched fist, which in sign language implies to stop. The network is affecting picture quality and the respondent tries again. This time the facial expression is not friendly anymore and I sense frustration from the nonverbal cues.) The respondent is questioning the skills of the interpreter and this does not sit well with the interpreter. I had to intervene and reassure her that she is a professional and that the network and background lighting disrupted our conversation. (We work on the right positioning so that the hands are fully visible. We take a moment to reassure the respondent that everything is on track and double-check if she is okay to proceed. The interview starts again after a two-minute recess to sort out the network and background issues.) *I have many challenges*. (The speed and the intensity of the signing increase, which convinces me that these are real challenges for her.)

➢ Respondent#1-SDHH: *I did have challenges with them mainly because we don't get assisted. I don't have bursaries; I just try for myself and then everything is very difficult for me.*

One of the postgraduate respondents preferred to reveal to their supervisor rather than at registration. He believed the supervisor's affiliation with the unit for people with disabilities to assist him with all of his academic needs was a successful strategy, but the reality was quite to the contrary.

➢ Respondent#6-SDHH: *I disclosed to my supervisor. The programme coordinator linked me to the disability unit to indicate that I do sign language. So, in that case, sign language is a problem that I don't have that knowledge. So, I just said I rely on transcription.*

Although this process seems effective to an extent, at times the supervisor does not refer or follow up on all issues needing reasonable accommodation, and they had to improvise where there is no sign language interpreter and rely on assistive technology like live captions available on MS Teams.

Lack of funding

One benefit of declaring is related to having access to grants and bursaries, which are essential for enrolling as a student and for purchasing the required textbooks. However, having disclosed one's deafhood, does not guarantee access to funding, according to the institution's raised expectations.

➢ Respondent#1-SDHH: *I don't have bursaries; I just try for myself and then everything is very difficult for me. I'm planning for myself and am even stressed. Even teamwork is not there. Support is not there, but I am trying my level best to pass and I'm reading my books.*

Financial assistance has a big role in completing the registered courses timeously. One respondent explained how they were forced to discontinue their studies due to a lack of financial support.

➢ Respondent#4-SDHH: *I started registering at UNISA in 2009, and quit because I could not get any help. I registered again in 2020, but could not get assistance with the bursary. My challenges are data, language, and a bursary.*

Inefficient support

Exclusive support to satisfy special requirements was one of the often-used codes for disclosing one's deafhood, and it appears that the university has not made any provisions for exclusive support for SDHH. Despite the university's recognition of SASL, SDHH are not given any further support in the curriculum.

➢ Participant#1-SDHH: *Support is not there, but I am trying my level best to pass and I'm reading my books. When I wanted to get a full explanation, no one was explaining in full that every piece of information is just going down because my focus is on my eyes more than on my ears. So, in the books, I'm just reading the different books; challenges are many. Even when we pass, we just pass and there is no programme that we fit. I mean, sometimes we fade because we only focus on the books that are the only resource that supports us in interpreting people.*

Support also extends to campus signs that make navigation simpler. This lessens the need to ask for directions, which is accompanied by communication difficulties because most staff and students do not communicate in SASL.

➢ Respondent#2-SDHH: *We rely on looking for signs when we go to the library. What is it I wanted to post, I do not support what is written earlier to look for directions.*

Inequality and stigma concerns

The equality concerns of SDHH are not addressed, despite having disclosed their deafhood. The inequalities worsened during Covid-19 when the university was fully online.

➢ Respondent#1-SDHH: *Uh, what they are giving us on the internet, doesn't work for us. It doesn't have equality for us, maybe for other people, but for us it is not working.*

One of the postgraduate respondents claimed that he failed many modules during his under-graduate studies and had to repeat many of them because he did not disclose and use resources to support SDHH, such as asking for an extension during the exam. He informed the university about his deafness and particular needs while registering for a post-graduate degree, and having additional time during the tests makes this easier for him.

➢ Respondent#2-SDHH: *I did BCom in Accounting science, postgraduate accounting, but un-fortunately, I could not finish the postgraduate course. Also, one thing which I will share we have realised that time, not being away for every hour, if I can talk about every paper is two hours for all those who have exams. You might not have planned, or you might not even have applied to be put in so that you can have access to that 15 minutes or 30 minutes. Later, I was able to make use of those. After I finished my undergraduate studies, I realised that I should have used that opportunity.*

6.3.2.5.2 Sub-Theme 2: Open Distance Learning Experiences

The focus on general learning experiences was one component of the semi-structured inter-view, while a recurring issue that emerged, was the difficulties that students at an ODeL uni-versity faced when trying to learn. The following codes gave rise to this sub-theme: A lack of friends and peer support, little knowledge of the resources that might help students, including data allocation, and a lack of soft skills like motivation and time management.

Peer support

Peer support is essential to the effectiveness of SDHH in the ODeL setting.

➢ Respondent#1-SDHH: *Sometimes we need other people that will work with us and help us to grow together.*

To address the issues that SDHH have with attrition and retention, one respondent mentioned the necessity of peer assistance in addition to general student support.

➢ Respondent#2-SDHH: *I also had to leave, I didn't get any help when I was doing my degree – undergraduate degree and postgraduate degree.*

Another respondent suggested that the SDHH should be in charge of ensuring that they create real peer support networks and help one another.

➢ Respondent#3-SDHH: *We are not organised in terms of knowing each other, like knowing forums and organisations because we can transfer some information if we know each other. We don't necessarily talk about it.*

Social support

Friends appear to be important in the academic career of SDHH. They help where the university offers just a little assistance and so develop into a significant support system.

➢ Respondent#2-SDHH: *I relied on my friends who were willing to assist me with my studies or with some notes because I wasn't good at it.*

The lack of note-takers to assist SDHH during discussion sessions, was the cause of this difficulty, and a friend's assistance was beneficial because the responder was aware that they would struggle to take notes quickly during lectures and workshops.

➢ Respondent#6-SDHH: *I was with them the whole day, my friends, I'm with them at school and after school. So, I wanted to do that study group. Something like a study group.*

One respondent acknowledged that this arrangement, while advantageous, could not endure and that peer support would be the best option. At times, assignments were difficult to comprehend, due to English being a second language.

➢ Respondent#4-SDHH: *I sometimes ask my children to assist with spelling. I always get feedback on spelling errors.* (Respondent is smiling, though the gesture is not congruent to the

content being shared. I feel he was trying to hide the pain and focus on the interview. I nod in agreement and did not ask questions.) *Time constraints are also a problem, it is not easy. You disclose but you still don't get help. They are aware very much so.* (This time he is raising his voice showing frustration. I nod to show my understanding and empathy. He has been a UNISA student since the early 2000s and things have not changed.)

Limited awareness of student support services for students who are deaf and hard of hearing

Most SDHH suffer from a lack of soft skills, such as motivation and time management, which are necessary to establish peer support, because of a lack of service awareness.

➢ Respondent#6-SDHH: *I'm expected to manage my time and give my best, but unfortunately due to time constraints I can't.*

The lack of appropriate accommodations and the language barrier make SDHH feel alone and make it difficult for them to interact with their peers during the sessions. This isolation is exacerbated by the workshops' lack of reasonable accommodations.

➢ Respondent#6-SDHH: *I was just sitting here, feeling isolated when people were working in groups, which they chose themselves because they have, they're able to talk. Everyone was able to talk, and I was studying and just doing that on my own. We don't want to feel isolated at all. We want to be part of that…It's demotivating.*

6.3.2.5.3   Sub-Theme 3: Impact on Academic Achievements

The subthemes and codes emanating from this theme are online support, training needs, and isolation challenges.

Online support

Attrition factors impacting SDHH academic achievements were discussed in the transition of the university, going fully online where extra resources like a stable internet and data bundles are needed and should be provided by the university.

➢ Respondent#1-SDHH: *The internet might be having a problem and sometimes the intervals are not okay and then we don't get anyone to support us. No one is helping you and the internet is very bad. We fail on the internet as deaf people…They are giving us the internet, not the people. It doesn't work for us. It doesn't have equality for us and maybe for other people, but for us it is not working.*

The same respondent explained that SDHH learn by visualising, something that lacks when on online platforms.

➢ Respondent#1-SDHH: *We can learn by visualising and then it will make things simple and then the phones again, we will learn by having all the tests and then it will develop our language better. It will make us better people and then we as a culture, want face-to-face education. We don't want this thing of being on the internet or only being connected. We want support and then the educators must be slow and they must remember that we are special needs people.*

The lack of online support has been discussed as worse than being on campus where staff may compromise to communicate to SDHH. There seems to be no online support for SDHH, despite the challenges raised above.

➢ Respondent#4-SDHH: *My challenges are data, language, and bursaries. Subtitles help me a lot. I print the study materials online. I should collect them from the office instead. I have been struggling with Accounting and fail so many times. I don't have any assistance. Send me corrections so that I can know where I am wrong.* (Discussing with a straight face and strong tone. The sign language interpreter is also shaking her head in disbelief.)

➢ Respondent#3-SDHH: *The internet is a problem: Sometimes the intervals are not okay and there is no one to assist. No one is helping you. The internet is very bad and we fail. It is better to have face-to-face. Today it was bad, but there is an interpreter and we can assist each other.*

Training needs

One respondent felt that the university should invest in training SDHH on MS Teams and other online applications for familiarity and exploring ways to accommodate them.

➢ Respondent#6-SDHH: *My job is with this software, the Microsoft application. I'm familiar with the internet, but if we get that, they are unable to use it.*

Isolation

Literature shows the difference between face-to-face and distance education. Students in ODeL may experience isolation due to the transactional distance, and if the considerations discussed in sections 3.6 to 3.9 are not attended to, this feeling may heighten, which may negatively impact the academic achievements of the SDHH.

> Respondent#6-SDHH: *But somewhere I feel like I'm being taken back to the challenge of isolation.*

6.3.2.6   Theme 6: Recommendations for Reasonable Accommodations

Theme	Category
Reasonable accommodations for SDHH	• Collaboration
	• Policies
	• Independent disability unit
	• SASL advocacy programmes
	• Benchmarking

Table 6.8: Theme 6 – Students who are Deaf and Hard of Hearing

The respondents were asked to consider the steps that the ODeL university should take to provide acceptable accommodations for SDHH. Collaboration, policies, the independence of the disability unit, and SASL advocacy programmes were the subthemes and codes that were developed.

Collaboration

There is a recommendation that the university should collaborate with the SDHH for matters relating to SASL and deafhood, to resolve the existing challenges.

> Respondent#5-SDHH: *There should be collaboration. The problem will be solved. Now the problem is not solved.*

Policies

The respondents noted a need for progressive policies that would encourage involvement with the larger SDHH community, even if they were unable to mention existing regulations that support accessibility and inclusivity.

> Respondent#5-SDHH: *When the university policy engages us in sign language, we will learn a lot of it and come together with the language people.*

Independent disability unit

The disability unit should be given more autonomy so that it may offer specialised support for the SDHH on its own. By doing this, the SDHH will be encouraged to be independent and not reliant on hearing people for help when needed.

➤ Respondent#5-SDHH: *The university must help the centre for the disabled, so we the deaf community can access it. It would be just like a library for the deaf. Involve the deaf in everything.*

➤ Respondent#2-SDHH: *This disability unit should be given enough space to be independent, to show that it is there to help; to help students with a disability, and other students because in such cases we are living as a community. Those people who are somehow affected by my condition, understand that we need to interact to communicate.*

South African sign language advocacy programmes

One of the recommendations is for SDHH to be included in the SASL advocacy programmes. One respondent who is hard of hearing, indicated the need for him to learn SASL so that he may communicate with his peers who are Deaf.

➤ Respondent#5-SDHH: *It is also important for us who are hard of hearing to be put in such programmes so we can learn.*

Another hard of hearing respondent described his difficulties, including the fact that he can only lip-read in Venda. He would benefit much from learning SASL in this regard.

➤ Respondent#4-SDHH: *If they can offer me sign language, it would be great. The university can help me by getting someone who can translate the sign language for me. Do you get the chance to interact with the lecturer? I speak Venda to the lecturer, and they do understand me.*

Benchmarking

The university is encouraged to visit schools for the deaf and see how they are supportive, to learn from them in developing reasonable accommodations for SDHH.

➤ Respondent#3-SDHH: *Being Deaf was not seen as a problem. We were capable like other children and the teachers always motivated us and helped us.*

Social support interventions need to be considered as a measure to support the SDHH in their academic journey. One respondent indicated that the content and curriculum, compared to other

institutions, are on a higher level and if only extra support could be made available, they would succeed like their counterparts.

➢ Respondent#4-SDHH: *I have been in other colleges and they just give you true or false questions.* (Laughing out loud.) *You don't learn anything, yet you will pass at *** college but with this university, you can learn and develop a programme from start to finish. That's what I like. You can use the skills at work if only they can support us to pass and respond to our e-mails.*

6.4   FINDINGS: STAFF

6.4.1   Demographical Information of Respondents

Staff respondents met the inclusion criteria discussed in section 4.6.2.1.2. The majority were female Africans with years of working experience, ranging from three to more than 20 years in an ODeL university. The researcher relied on responses from the questionnaires regarding a willingness to participate in the qualitative study.

Two respondents (both African females and academic staff) committed, but did not honour the interview invites, despite numerous reminders. One African female did not permit to record, and the interview was cancelled, since this was going to compromise the dependability aspect of the study. The table below highlights the demographic profiles of the staff being interviewed.

Respondents	Gender	Race	Designation	Portfolio/Department/College	Years of Employment
R1-Staff	Female	African	Manager	Library	3+
R2-Staff	Female	White	Manager	Tuition support and facilitation of learning	20+
R3-Staff	Female	African	Librarian	Library	20+
R4-Staff	Female	African	Lecturer	College of education	
R5-Staff	Female	White	Communication specialist	Department of institutional advancement	20+
R6-Staff	Male	African	Systems developer	ICT	5+
R7-Staff	Female	African	Supervisor	library	10+
R8-Staff	Female	African	Student counsellor	Career counselling development	10+

Table 6.9: Demographic Profile – Staff

6.4.2   Presentation of Findings

Similarly, the process was followed where raw data were recorded and transcribed verbatim, while member checking was done where transcripts were sent to respondents to confirm the contents of their interview. The ATLAS.ti qualitative data analysis software was used to develop codes from the transcript, while linking transcripts where there were similar codes. Five themes emerged through conceptual similarities like those of the SDHH, and are presented in the next section.

| Awareness of student support services | Accessibility of student support services | Effectiveness of student support services |

| Inclusivity in student support services | Recommendations for reasonable accommodations |
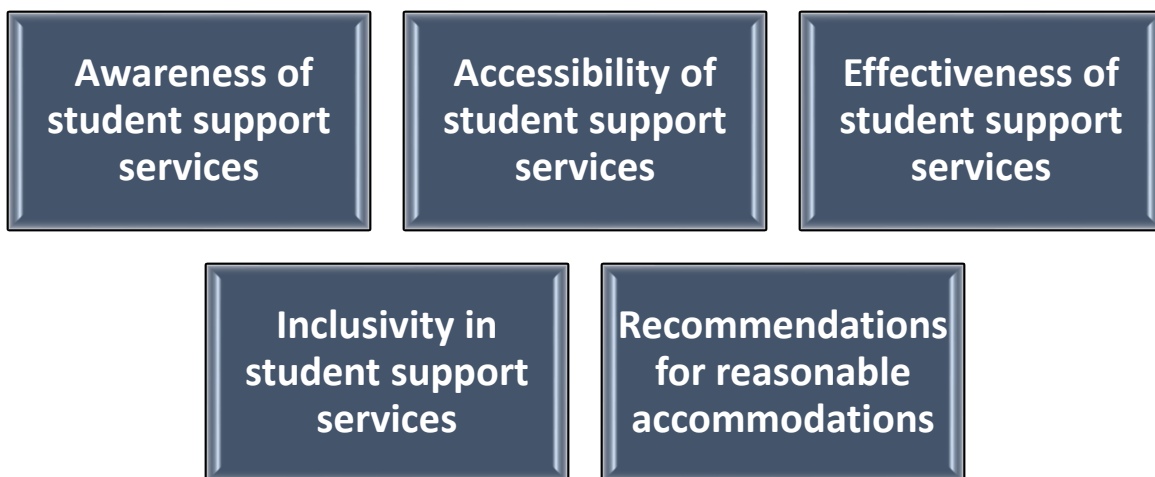
Figure 6.2: Emerging Themes: Staff

6.4.2.1   Awareness of Student Support Services

Themes	Categories
Awareness of the student support services	• Collaborations
	• Sharing SDHH database
	• Marketing campaigns

Table 6.10: Theme 1 – Staff

When asked to unpack possible reasons or causes for the lack of SSS, some respondents were not sure how to respond to this.

➢ Respondent#R7-Staff: *You know, it's difficult to tell in terms of what could be the cause. Could it be that we as the university will perhaps not be presenting? Or are we not advocating this awareness in a language that the students could understand that that would be my first point that perhaps the university could look at how to capacitate staff more to be*

able to reach out to the students, and perhaps there's also a lack of capacity in terms of staff.

➢ Respondent#R4-Staff: *Staff are not aware and I don't blame them. The university is not celebrating the Deaf culture. It must be celebrated like a deaf awareness week, or death. It must be celebrated at the university. Everybody must be aware of that.*

Collaborations

There seems to be a lack of collaboration between student support services and consultation on how the services should be integrated. At times, all SDHH are being referred to the disability unit for all enquiries related to special needs, without engaging the students or informing colleagues where the students are being referred to. This is a result of a lack of expertise or information to assist SDHH. The collaboration will ensure that departments are not working in silos.

➢ Respondent#R8-Staff: *We always shift the blame and expect the disability unit to take all the responsibilities. As regions, we are not doing much to promote awareness because we don't know how to help the students who are deaf.* (Long silence due to a weak internet connection. Connection is restored and the interview proceeds.) *What I think needs to be done, as regions, we are truly struggling to access the students even though we can do an awareness programme. But it seems it is not enough because the students who are hard of hearing do not come to our events and workshops. They really do not come, and some of the challenges could be because we do not have sign language interpreters within our midst who can be able to assist them.*

This response is congruent with student responses that they often do not attend orientation services due to a lack of sign language interpretation services.

➢ Respondent#R8-Staff: *So that those people who are hard of hearing or rather deaf, they will be able to know that when they struggle with ABCD talking from the counselling perspective, when they struggle with issues of mental health, issues of anxieties, issues of career choice, we are available to help them. So, I believe that the collaborations might assist when they have their orientation day. They should be inclusive, inviting us to talk about our services.*

Despite these shortcomings, staff are eager to promote their services, so that the SDHH may be aware of and access them.

➢ Respondent#R8-Staff: *What we can do to promote our awareness as regional services as administrative staff, is that we need to form strong bonds, and strong collaborations with colleges, so that whenever they have got such workshops, we need to come on board and talk about our services as administrative staff.*

It seems that there has been groundwork done to promote the services in making the SDHH aware of the services provided by the university. However, the information is not reaching the targeted audience.

➢ Respondent#R3-Staff: *There are library pages that we developed and the SDHH are supposed to be aware of them so that they may access our services. I think this page should be made prominent enough. I'm not sure how. This page is not well-marketed – to advertise…to advertise the page and we should actually be doing it every year at the beginning or after every registration period. This page should be made prominent.*

Liaising with other departments that are good in student support provision, may help those struggling, to learn better through peer support and learning.

➢ Respondent#R2-Staff: *The regions can help a lot if consulted. Also, the information may be put on tutorial letters so that the SDHH become aware of the services in the time immediately after registration if they are not aware when applying. There are pockets of excellence. Departments should learn from each other and that is how our students will be aware of services.*

Sharing the students who are deaf and hard of hearing database

There is a concern that if the SDHH are disclosing their deafhood status, then why are staff members not receiving that list?

➢ Respondent#R1-Staff: *The registration department has the list of SDHH and it should be shared with the colleges where the students are registered at. If we don't have the stats, it will be difficult to know our students.*

Marketing campaigns

With the university going online, awareness should move more to websites and online platforms.

➢ Respondent#R5-Staff: *Then you had to do like a marketing campaign and…and…and… and…really to guide the SDHH into that specific section.*

There is a need to make SDHH aware of these online platforms and also for staff to update and make information to be easily available.

➢ Respondent#R5-Staff: *You know the major communication point with students for the website. I mean that's very urgent that information on the website must be updated. Do a presentation or whatever, then you know the software needs to be created or something needs to be bought for automatic transcription for students to read it.*

6.4.2.2   Accessibility of Student Support Services

Themes	Categories
Access to support services from the department	• Ontological assumptions
	• Lack of training for SDHH
	• Transformation

Table 6.11: Theme 2 – Staff

Ontological assumptions

The staff members must be aware of their assumptions and objective experiences while designing accessible accommodations for SDHH. This was stressed by one respondent, citing the need for research to inform practical interventions that should be done with the SDHH for the university, to design accessible platforms suitable for SDHH in ODeL spaces.

➢ Respondent#R8-Staff: *It has to be researched intensely. It might just be one student and I am afraid to, I'm afraid, to comment much by saying, "Yes, let's do it!" or "Let's not do it." If it is one student who has said that we can just after completion of this study – maybe as an article – try to find more students who are hard of hearing, so that we are not doing it on their behalf actually in Sesotho **are ba nahanele** …(we do not think for them)* (Laughter, and I nod to indicate that I will translate during my transcription.) *Yeah, we should not think for them. We just want to hear what they say because, in some of the workshops that we have, they feel like we are imposing some structure, some information for them and yet they don't believe in that. So, I believe that we need to research it further and if they do agree on that.*

Accessibility seems to be a challenge not only for SDHH, but it generally concerns students with disabilities or special needs.

➢ Respondent#R1-Staff: *Yeah, we should not think for them. We just want to hear what they say because, in some of the workshops that we have, they feel like we are imposing some structure, some information for them and yet they don't believe in that. So, I believe that we need to research it further and if they do agree on that.*

Lack of training for students who are deaf and hard of hearing

Some staff are aware of the assistance devices and technologies that the university may invest in to accelerate and promote accessibility of services, but there should be training in interventions for SDHH to be aware of it.

➢ Respondent#R3-Staff: *I don't know how we can go about it – assistive technology because you can convert any readable information. I am so disappointed that we have all these nice things that are not being used.* (Sombre mood.) **** has left us and she was responsible for those pieces of training. We had a lot of students coming in before Covid, but now there is nothing. When we do these training sessions, there's always, you know, we can mention in the introduction that if you are hard of hearing or if you are, you have a challenge, you are dyslexic. This is the link that you're going to follow to be able to be assisted. This is as far as a library request or any request that you may need from the library. And we say it when the students have just registered. They're still currently busy with their proposals, especially the postgraduate students.*

Transformation

One aspect of functioning on a higher level of accessible SSS is to acknowledge that there is a change which should be embraced. One respondent alluded that the university has a change management and transformation agenda which needs to include aspects of ensuring that services are accessible to all students.

➢ Respondent#R8-Staff: *Our university talks about a transformation agenda and that's where it comes in. We need to, we need to be transforming and accepting everyone with their challenges.* (Pause.) *So, if we are still doing things the olden way, we are going to find ourselves wanting. So, hence I feel like we staff need to be inclusive, and we need also to embrace sign language. We always talk about diversity, but it seems we are talking about diversity there to other people, not talking about ourselves. So, addressing and also accommodating people with a disability, is a responsibility of every individual.*

6.4.2.3   Effectiveness of Student Support Services

Category	Themes
Effectiveness of SSS	• Demarcations
	• Understanding of special needs

Table 6.12: Theme 3 – Staff

Demarcation of services

How departments and the provision of services are demarcated through portfolios, make it difficult for realising an effective provision of SSS. While the ODeL university prides itself in having regional service centres that are a one-stop shop for SSS, this is at times a challenge for regional staff members.

➢ Respondent#R5-Staff: *We are not consulted by academic staff, but on the ground, we are dealing with their enquiries and students expect to be assisted. You must also remember that learner support must actually come from the academics. The academics will say this is my course and in this course, I will need to actually implement X, Y, and Z and then that plan must be communicated to the service departments.*

The regions are at times overloaded with accommodating students not necessarily in their demarcated areas, for the provision of services to be effective. One respondent was sharing how they accommodate students from all the regions, including international students, and this brings pressure on the already overloaded system to support the SDHH.

➢ Respondent#R2-Staff: *It depends on how they demarcate the students to the regions. If they demarcate the students according to the postal codes, we will not get the international students, then those international students can then be serviced from us quickly themselves because what I also would like to add here, is it will then also give to them a bit of a feeling how it feels on the ground.*

Understanding of special needs

Some respondents were surprised to learn that SDHH feel the services are not accessible. At the time, it was felt in the tone of staff respondents.

➢ Respondent#R7-Staff: *If the students say the services are there, but they're not effective, then I don't know because the services are there for them to access.* (Long pause, judging by the comments to follow, I believe she was addressing her assumptions and defensive

responses. I kept quiet. Judging by her nonverbal cue, she was not done and needed to speak again.) *Yes…the services…but then they do not cater to them and I wish I could get more in terms of why are they not effective because the students are getting service. People should tell us why are they saying the services are not effective. Could it be that we provide services that are not relevant to the students? You know, that could be one thing or it could be that perhaps the services and the products that we provide, are not relevant at all.* (Long pause, respondent looked upwards and I could see she is deeply reflecting on this. She perhaps took it as a personal attack, thinking she is not doing her job to provide services. She was thinking deeply and realised that it is an interview that is meant to get responses to help better the system. These were my thoughts, while I was waiting for her to resume.) *I think it speaks to the issue of relevance – there was alluding to that. Yes, a lecturer may send me a video clip, but it may not be relevant to me in terms of the format that you're sending to me. It's not going to work for me. I think this is the firm point of mistake we may make as a university.*

6.4.2.4 Inclusivity in Student Support Services

Category	Themes
Inclusiveness of the SSS	• Disclosure
	• Sensitivity sessions

Table 6.13: Theme 4 – Staff

Disclosure

Respondents somehow agreed that the services are not inclusive to accommodate the needs of SDHH. However, they emphasise the need for the SDHH to disclose their status and special needs, indicating that the university may try to develop reasonable accommodations.

➤ Respondent#R1-Staff: *Sometimes we can even say, "OK, we know you're coming today." As you say, we've got one person who knows sign language. We ask him to come to their level and interpret for this person who needs service. So is the issue of also communicating to say, "I'm coming to the library, I'm deaf." Then we see how we can assist.*

One respondent made a practical example of SDHH arriving at an event without disclosing, and expressed the frustration of finding out during or after the event that some students were not accommodated. She indicated that if she knew beforehand, she believes they could have organised the front-row seat for the student to follow through.

> Respondent#R4-Staff: *Because they are lip-reading and then they must be catered to, it will be better if we organise them to sit in front near the speaker so that they can engage.*

The responsibility of SDHH to disclose has been emphasised and it is only through that information that the university may try to improve inclusive services.

> Respondent#R1-Staff: *Disclosure – they must take responsibility or ownership because it's them when they apply – that no one understands their situation. So, in their application form, they must indicate. They must check if they say, "Do you have any disability?" and if their form doesn't have the need to indicate that, that's where the challenges are. Because when the student comes here, let's say it's an orientation or open day and there's no information to say, let's say maybe the university in 2023, they accept, and the student didn't indicate in their application to say, "I've got this challenge."*

I believe that this is reactive, and the university should be proactive and apply a universal design for learning strategies that no one has to disclose, but find the services to be ready as indicated in section 2.5.3.3. Data from students show that at times they disclose, only to realise that their needs are not met, and this discourages them to disclose if they are not being accommodated. Despite this knowledge, some staff have their assumptions on why SDHH do not disclose.

> Respondent#R5-Staff: *Some maybe still feel shy to expose their disabilities and some we might not know. Listen. Maybe somebody whose hearing is not well. It's not easier if the person doesn't make you aware to say, "Speak louder," or show you by a sign to say, "I've got this challenge. Accept me as I am," and then we will be able to plan to know what we can do. Maybe we can assist them. The university assists us because sometimes we don't know. Maybe that's why you find that they think the service is not provided. And because there are not many and they are not known, it becomes a challenge for the university to assist. But if they are known and they raise their voice to say, "We need to be recognised" – not in bad faith.*

Sensitivity sessions

The sensitivity programmes do promote and sensitise staff on the issue of inclusivity. One respondent from the library shared how retired members used to take staff through disability-sensitive programmes in responding to students with special needs.

➢ Respondent#R5-Staff: *Staff used not to be scared when a student with special needs arrives and has to be assisted. These colleagues were good and we learned to deal with blind and deaf students, but they have retired now and we are back to square one.*

6.4.2.5   Recommendations for Reasonable Accommodations

Theme	Category
Reasonable accommodations for SDHH	• Human capital
	• Policies
	• Decentralised disability unit
	• SASL training and advocacy programmes

Table 6.14: Theme 5 – Staff

Human capital

There were recommendations for the university to invest in knowledge and skills among staff to ensure that they reach their potential in the areas of deafhood and SASL interpretation. One respondent showed disappointment in narrating the number of interpreters volunteering their services to assist the SDHH.

➢ Respondent#R5-Staff: *There are probably five people in the whole university [who are in-terpreters], so the university should hire qualified interpreters and empower those already in the system.* (Silence. I indicate to her that her microphone is muted.) *Sorry about that, I don't know what happened.* (I assured her that she was clearer and that I could hear her properly.) *I was saying the university must make sure that it hires more staff and when you depend on a part-time staff and the pattern staff has its works, sometimes they will disap-point you.*" (I nod in agreement, noting that it is not a good idea for the university to depend on volunteers who have their workload which should be prioritised.) *Working conditions of SASL interpreters are not good. Also, first-hand information and then the information must have the full meaning of what other people are getting. Because sometimes if they are tired, it's just like giving a speech for four hours. You cannot give a speech for four hours like an interpreter. An interpreter cannot talk or interpret for more than 30 minutes without a rest, so the university must make sure that they make them rest and recognise extra work they are doing.*

She referred to her conversations with some interpreters who complained of poor working conditions, due to an extra workload which was not recognised during their performance appraisal because it did not form part of their job descriptions.

➢ Respondent#R1-Staff: *There must be people like maybe I'm saying the qualified people who know sign language must be hired in the university.*

Despite the recommended appointment of permanent staff, others discussed the need for all staff members to know basic sign language.

➢ Respondent#R4-Staff: *The staff members learn the basics of sign language. There should be short courses or the basics of sign language for the staff members in other departments. I cannot say it must be mandatory. It must come from the heart.*

➢ Respondent#R3-Staff: *They must find the champion who deals with queries on disability, any kind of disability.*

There were staff members who were redundant, due to the merger and online transitioning where their job descriptions were not relevant anymore. They found themselves not knowing what to do at times, and the university was not helping to address this issue. One respondent wished for the university to utilise this cohort of staff for the SDHH projects, should there still be of them.

➢ Participant 2: *There are some staff members who are redundant in the system.*

One respondent cautioned the university of excluding security and cleaning staff when providing short courses, since these are people who interact a lot with students, often being asked where departments are, whenever SDHH are lost at the campus.

➢ Respondent#R7-Staff: *I would say you know the sign language. I think for me, I would start with the basics, you know, for them to understand. O, you need to do academics and other admin stuff and not exclude colleagues, such as protection services. It would be a futile exercise. So my suggestion would be, whatever form of training that you want to embark on, we should involve all the other stakeholders and protection services included.*

From a management perspective, it makes sense to employ SASL permanently for interpreters or practitioners, embed this task in their job descriptions, and manage them through performance appraisal to follow up on challenges and ways to support them.

➢ Respondent#R2-Staff: *If you leave it as a voluntary service or you put it up for volunteers – people who would like to do it – you're never gonna get it right. It must be embedded in the job description. We need to work on management information to see who are those students, and we need to allocate a student to a staff member and that staff member must report monthly back who they contacted when they contact the person, and what support they gave, so that we can test their support to that student. That annual service must even be linked to their performance management. So I want to see when I do their performance management if they indeed assisted these students and they (the students) are happy with the support.*

The humans relations drive may indirectly expose SDHH to working experiences, thus creating an employment addressing alumni support.

➢ Respondent#R8-Staff: *The second option can be the students themselves. They can be used so that it will be job creation that we are talking about. Employability will be promoted to our students.*

Policies

The policy was found to be one of the vehicles that the university may make use of to accelerate awareness campaigns on deafhood and the provision of reasonable accommodations for SDHH.

➢ Respondent#R1-Staff: *The university should enforce the policy and bring more awareness, but who's going to read that policy? How will it be implemented? So we must make sure that we have an understanding of what it needs to cover and at what level for it to be effective.* (Silence, followed by a long deep breath while digesting what she is proposing.) *One policy cannot just cover all the disabilities, and you'll find that the content doesn't talk to that loss of all the disabilities. So that's why I say it has the "yes" and "no." We need to be very careful because we need to identify the types of disabilities.*

There is also a realisation that there cannot only be one policy for all disabilities or special needs to provide SSS. One respondent was hopeful that the university would take a cue from the national government policies, while drafting institutional policies that would address challenges relating to proving inclusive services to SDHH.

➢ Respondent#R3-Staff: *They'll have to come up with a policy. I wonder how are they going to address this…and then this will also depend on whether we have a plan or not. I'm sure there will be pointers in other countries.*

This may be a way to go, in order for the institutional efforts to contribute to the national government's efforts in responding to SDG 4. Additionally, policies may assist in providing a common way of doing things in an institution and being accountable.

➢ Respondent#R2-Staff: *We must work in a structured way, so you must not shoot in the air. You must exactly know what your profile of students is. We must do the analysis and then we must focus. Specifically, we must have a programme where we can assist these people and reach out to them continuously. So yes, to answer you, I think we need to adjust policies. I think we need to look at job descriptions.*

Decentralised Disability Unit

While most of the student respondents share the view of centralising the SASL translation services, some staff members feel decentralising the services will better assist the students. One respondent suggested that SASL interpretation services should be located in the portfolio managers' offices (vice principals) and each portfolio should be responsible for the student support departments they are serving. He believed that if there is a buy-in from the top structures, there may be a commitment from the ground.

➢ Respondent#R1-Staff: *If I had powers in the university, I would not specifically use departments. I will place people in each portfolio. So, I will make it a task of the portfolio manager or the vice principal to have at least two people for each portfolio.*

This was supported by a response where a picture was painted on how the library services were decentralised from main campuses to regional service centres and the structure of staff where there is a college, departmental, and personal librarian, thus making library services available in all support structures.

➢ Respondent#R1-Staff: *It should be decentralised and follow the library model where we are available in all campuses and regional centres.*

The decentralisation should be supported by the regions where many students visit daily to access the services. However, there was a caution that resources and support should be in place for the region to provide excellent services to SDHH.

➢ Respondent#R2-Staff: *I think it must come to the regions, but the regions must be well equipped and have a structured programme. And I think the most important thing that we implement so many times, but we don't control it, is that we don't close the feedback loop.*

So, that person, if it is you and you are responsible for X, Y, and Z every month, you must prove to us that you helped that student, and there must be an annual survey.

The decentralisation process could start as an informal process through committees in sharing experiences.

➢ Respondent#R1-Staff: *The disability unit must come together with all the departments, more specifically the inclusive department. They must come together; they must be a committee that is being selected from each section and then they form a committee whereby every section or department has a representative on that committee and everything will be shared within the committee.*

South African sign language training and advocacy programmes

While SASL campaigns are being advocated by most of the students and staff respondents, some feel enthusiasm towards this move, noting that they have not learned other official languages of the country and it may be the same with SASL, as long as English is the main language used in the university.

➢ Respondent#R1-Staff: I *know my mother tongue; I also know English because it's a communication we use in a working environment and whatever. So, there was no need for me to learn other languages.* (Silence while waiting for my response or comment. I indicate that I am fluent in Setswana which is my mother tongue and English and have a fair knowledge of Afrikaans, isiZulu, Sepedi, and Sesotho. Laughter, we laugh, and she shares how she needs to upskill herself.) *We then have to upskill our staff: There are language classes. I have seen the adverts, but have not attended any basic courses that are offered by African language departments.*

6.5   SIMILARITIES

The common theme coming up from respondents, is the need for the university to understand the deaf culture and involve the SDHH in all planning phases. Where there are human resources challenges, SDHH are ready to step in and assist the university during peak times to ensure that reasonable accommodations are in place for all SDHH in the ODeL university. This is in line with recommendations from literature in understanding the deaf culture, as indicated in sections 3.4 and 3.11.1.

For employees who, for the most part, are not aware that there are appropriate accommodations in place to accommodate SDHH, when they get enquiries from SDHH, they refer

them to ARCSWID, hoping that they will get help. They do not regard it as their duty to help SDHH, they rather perceive it as a case for the disability unit.

SASL interpreters must be permanently employed, according to staff respondents. This was stated because recruiting individuals who fit the job description to support SDHH, will enhance the services. Staff who volunteer, already have a heavy workload and compromise SSS whenever they are unavailable. Additionally, it was discovered that staff members were more likely to favour decentralised SASL services than students, who perceived a need for services to be centralised in the disability unit.

The staff believe that decentralising the services will allow all support services to serve SDHH through smaller units, rather than relying just on the central unit, which is located on the main campus. This contributes to the disparity in responses from staff and students about the centralisation *versus* decentralisation of SASL services.

6.6   DIFFERENCES

One of the biggest disparities is that the majority of student respondents associated disability with deafness and identified as students with disabilities, whereas a small minority did not. Those who identified as students with disabilities, do so to access the support and funding reserved for the student population with disabilities.

For those who are hard of hearing, some are still in the process of identifying as hard of hearing and their lives may be easier when learning SASL, unlike hoping to recover their hearing loss and finding it difficult to navigate within deafhood environments. Having access to counselling services at the university, may assist some who are transitioning from hearing to dealing with the loss thereof.

Also, regarding the modality to access SSS, the results from the quantitative study are supported by the qualitative responses. 59 percent of the SDHH preferred both face-to-face and online SSS access and only 12.4 percent preferred face-to-face communication, while 28.6 percent preferred online communication.

While there is a call for a move towards an inclusive disability unit as discussed in section 3.7.2, there are some SDHH who believe they will benefit from the integration setting that seems to be ineffective, judging by the results and findings. If the disability unit works independently from other SSS, this will not bring about the envisioned inclusion that will contribute to SDG 4.

By being inclusive, SDHH will find all SSS to be inclusive and not rely on the disability unit for interpretation services, since there will be reasonable accommodations throughout the departments.

6.7   REPETITIONS

Most respondents repeatedly argued that the university does not care about them. They were left to fend for themselves, even after exposing their necessities. Additionally, a common problem that should be considered while supporting the SDHH in ODeL spaces, is a lack of time management skills. SDHH frequently require SASL services, either on-campus or online.

From the perspective of staff, the continued training by the university will enable them to fully assist SDHH by enabling them to comprehend deafhood.

6.8   CONTRADICTIONS

The first incongruity from the findings of this study relates to the archetypes of deafness as well as contemporary approaches to deafhood, as discussed in sections 3.2 to 3.3, where the upper case "Deaf" relates to a community of students who are Deaf, and who view themselves as not necessarily part of students with disabilities. Their challenge is that of language and communication and, according to the socio-cultural model of disability (section 2.5.3.2), if SASL interpretation services are fully provided, then the challenge will cease to exist.

The inconsistencies come when the said population does not disclose their deafhood, but expects to access services, while being disabled, designed or allocated for the general population of students. This demonstrates the need for the institution to comprehend the requirements and categories of Deaf students as well as the specialised services they must be able to access without being labelled as having a disability.

While the majority of the SDHH were not aware of SSS, it is expected that they would be aware of admission and registration services, since this is the first point of entry to the university. It was contradictory that some of the respondents and participants (about 10 percent) were not aware of these services, despite having used them due to meeting the inclusion criteria to participate in the study. It may be that, due to the inaccessibility, the 10 percent were assisted by their peers or friends.

The staff stated that disclosure by SDHH was crucial and would make it simpler for the university to implement reasonable accommodations that they were unaware of or were not familiar with. For instance, the SDHH mentioned that they disclosed the need for SASL interpretation services on orientation days, while, on those days, staff employees realised that the

university does not have SASL, leaving the SDHH feeling alone and missing out on the workshops and information sessions.

6.9   MISSING INFORMATION

When the level of awareness was probed, most respondents were not able to state directly whether they were aware or not. The qualitative phase was aimed at unpacking the reasons behind the unawareness. Some like respondent#6 indicated that they made the university aware that they are Deaf, so that the university was aware of their shortcomings.

When discussing accessibility, more staff respondents related to accessibility concerning ramps for students using wheelchairs and braille support for those who are blind. This on its own indicated that the majority of staff members were not aware of reasonable accommodations specifically for SDHH in ODeL spaces.

6.10   USE OF LANGUAGE

SASL is a visual language and at times, the respondents, when expressing frustration, will sign very fast, to such an extent that the SASL interpreter has to stop them to allow easy translation. The movement of the hand forms part of the non-verbal cues where one may have an idea of the feeling towards the particular subject that is being discussed.

The staff are utilising words and language to blame other student support departments and seem to not take accountability for their department to support SDHH, showing that they are not sufficiently supporting the students.

6.11   CONCLUSION

The findings show that the majority of the SDHH disclosed their deafness at registration in the hope that the university would make reasonable accommodations. Although the ODeL university offers orientation days and interventions, there are no staff members specifically assigned to helping the SDHH grasp the information offered, which is typically in inaccessible formats.

The SDHH perceived the services as elitist and felt left out, particularly from the disability unit, which appears to be lacking sign language interpreting services. Collaboration on the creation and implementation of policies on student support, particularly the capacity building of the SASL within the disability unit, is encouraged.

The majority of staff members are unaware of these developments, despite the institution now taking steps to ensure that information about SSS for SDHH is available. There should be marketing initiatives, so that all departments are aware of them and can easily direct both

staff and SDHH to access them. A summary of the study and integration of the two stages is provided in the following chapter. Recommendations are given along with the study's strengths and weaknesses.

CHAPTER 7
LOG OUT AND CONCLUSION

7.1   INTRODUCTION

The purpose of this study was to evaluate the SSS at an ODeL university by determining 1) the awareness of SSS, 2) the level of accessibility of provided services, 3) effectiveness, 4) level of inclusion, and lastly 5) establishing the contribution of student support provision in line with the SDG.

The study's transformative and emancipatory standpoint recommended taking a practical approach to address the issue of inadequate or non-existent SSS for SDHH in IHEs, particularly in the context of ODeL.

This sequential explanatory study was deductively in nature and informed by a theoretical framework consisting of three theories, summarised in the following section. It was hypothesised that the SDHH would experience lower inclusion rates throughout the SSS programmes. It further hypothesised that there is no relation between the degree of inclusion and student support for SDHH in an ODeL university. The main research question was: How does the provision of SSS contribute to the inclusion of SDHH in an ODeL university?

The significance of the study was threefold, in that it 1) intended to inform policy where it is misaligned with the practice for the provision of support to SDHH; 2) promoted coordination and collaboration across the PSET framework, and 3) advocate dimensions on SASL concerning the provision of student support in an ODeL environment.

7.2   SUMMARY

7.2.1   Theoretical Framework

The selection of the three theories that grounded this study was justified by the realisation of the aims and objectives of the study. The TDT addressed the ODeL context of the study and gave guidelines on how SSS should be developed and practised. The CDT provided the context for understanding Deafhood through the clinical-pathological as well as the socio-cultural models of disability. Lastly, the theory of change was instrumental in the development of the logic model to manage and effect the changes that may be implemented to amend the current student support framework. Furthermore, it assisted with the project management of the research

project in responding to the audit trail as part of the trustworthiness of the study as discussed in section 4.9.5.3.1.

7.2.2 Literature Review

The literature was reviewed to objectively report on the current knowledge on a topic, based on a summary and synthesis of previously published accredited scholarly resources. The archetypes of Deafness, as well as contemporary approaches, provided insights into understanding the disability of SDHH. For some SDHH, being Deaf means belonging to a community of those using sign language, and does not equate to being a person with a disability. While this does not hold for every SDHH, it gave an understanding of how to understand labels and disability categories used by the ODeL university.

The background on ODeL, as well as guidelines on how to develop a student support framework were discussed. These included the online teaching and learning considerations for SDHH, where tools like plain language, advanced organisers, text features, summarisation skills, as well as glossaries were some of the tools explored.

Communication considerations, as well as the implications to implement those in the ODeL space, were discussed, especially the implementation of SASL, which is supported through the existing policies and legislature. Several assistive devices used by hard of hearing communities were also explored. The challenges of implementing the proposed framework in the 4IR era with Covid-19 and lockdowns were explored, including the predictable opportunities and challenges.

In line with the objectives of the study, Deafhood was reviewed concerning SDG 2030, AU 2063, and how the ODeL responds to SDG 2030. The review concluded by outlining the research gaps in the literature which were addressed in the statement problem on 1) concepts related to SDHH, 2) theories and a lack in several studies, 3) methodologies of SDHH studies, and lastly 4) models and frameworks supporting SDHH in ODeL.

7.2.3 Research Design

The study adopted the transformative research paradigm which suggested the usage of the TMMR. The philosophical foundations and assumptions were unpacked to understand the application of 1) ontology, 2) epistemology, 3) axiology, and 4) methodology.

The purpose, appropriateness, and context of using and applying the TMMR were addressed as well as steps on how the explanatory sequential design was applied. Population and sampling for both approaches were discussed as well as inclusion and exclusion criteria.

Research tools and the development thereof were discussed: Quantitative data were collected through electronic questionnaires from SDHH and staff at an ODeL university, and semi-structured interviews were used for qualitative data collection.

The data analysis section discussed the descriptive design used to make sense of the quantitative data and thematic analysis for the qualitative data. The research design was evaluated to showcase the quality and rigour of the reliability, validity, and objectivity in the first phase of the study, inclusive of the pre-test and pilot testing. The trustworthiness of data was unpacked for the second phase of the study, meeting the usage and application of four criteria, namely credibility, transferability, dependability, and conformability.

Lastly, ethical considerations for this study were discussed and aligned with the basic principles of 1) respect for individuals, 2) beneficence, and 3) justice. In line with the policy and legislation framework, axiology was also unpacked through the POPIA. Since the context of the study was on Deafhood, ethical considerations on research ethics in sign language communities were outlined and discussed in line with the sign language communities' terms of reference principles.

The following section provides a summary of how the five objectives of this were realised in responding to the main aim of evaluating SSS rendered to SDHH at an ODeL university.

7.3   SYNTHESIS OF RESEARCH RESULTS AND FINDINGS

This section provides an overview of the quantitative and qualitative conclusions of the study in relation to the hypothesis and research question, before moving on to the detailed summary.

7.3.1   Response to the Hypothesis of the Study

Using sample data, hypothesis testing was performed to determine whether a claim was plausible. The test gave proof that the hypothesis was plausible in light of the available facts. By measuring and analysing a sample of the population being studied, which is SDHH, using the services supplied and the people who are providing the services, statistical analysts evaluated a hypothesis. The study hypothesised that

- SDHH will experience lower inclusion rates throughout SSS programmes in an ODeL university; and
- there is no relation between the degree of inclusion and SSS programmes for SDHH in an ODeL university.

Evidence provided by the quantitative data showed that the SDHH experienced lower inclusion rates throughout SSS programmes in an ODeL university. This was backed by staff members, confirming the exclusivity of the rendered services. Furthermore, the data reveal that not only the services are exclusive, but the SDHH and staff are not aware of the SSS provided to SDHH. Also, the provided services are not accessible and effective.

From the results, it can be concluded that the degree of inclusion is directly proportional to the accessibility of services and their effectiveness for SDHH. This confirms the literature review where inclusion is understood in its full context where the universal design framework is fully implemented, and when applied, will minimise segregation and/or integration.

To remove barriers faced by SDHH, inclusive SSS should incorporate systemic reform improvements that include adjustments to teaching methodologies, approaches, and proce-dures. The findings imply that the disability unit, offering specialised services to SDHH oper-ates separately from other SSS, but on a degree of integration as described in the literature review in section 3.7.2.

7.3.2 Response to the Research Question of the Study

The second phase of the study made an effort to address the following research questions:

- How does the provision of SSS contribute to the inclusion of SDHH in an ODeL uni-versity?
- How are the SSS in an ODeL university rendered to SDHH?
- To what degree are the student support programmes contributing to the inclusion of SDHH in an ODeL university?

The findings are indicating that the current and general provision of SSS at an ODeL university do not contribute to the inclusion of SDHH. Staff members also indicated how they refer SDHH to the disability unit, whenever they encountered inquiries related to deafhood. The centralised provision of sign language interpretation, among other services, does not contribute to inclu-sion, and this calls for decentralised SSS where every department will provide the services and not only one central department.

When there are communicational concerns considering the educational considerations found in sections 3.8 to 3.9, the provision of SSS may contribute to inclusion. Consideration should be given to the advantages and drawbacks of online learning in the 4IR era as described in section 3.10. Also, the framework of P21 for 21st-century learning as depicted in figure 3.17, cautions and provides guidelines on how to go about inclusive support relevant also to online

contexts, taking into account the equipping of staff with skills to assist students in online platforms.

In addition to decentralised services in the regional service centres, there are many SSS programmes that provide general support. The regional centres do not offer the specialised services needed to support SDHH, though. The regional centre employees are open to receiving training in order to meet SDHH needs. Consequently, a response unit must guarantee that services are centrally located, like those of other departments.

The current student support framework promotes segregation and integration, rather than inclusion. The disability unit seems to be integrated into the main campus' SSS, where SDHH are referred to conscientiously. Segregation is where regional office centres or satellite offices, far away from the main campus are not able to refer their students, thus promoting exclusion. Therefore, the findings show that SSS are not contributing to inclusion whatsoever. This level or degree of services really means nothing for SDHH.

7.3.3   Summary of Quantitative Results

Two questionnaires were developed to collect information from participants (SDHH and staff) on evaluated variables, including reliability and validity issues as indicated in section 4.9.2. The subsections below provide a summary of the variables tested.

7.3.3.1   *Biography*

The descriptive statistics provided and presented demographic data of 105 SDHH as frequencies and percentages in section 5.3.1 and for staff in section 5.4.1. The following SSS were evaluated concerning awareness, access, effectiveness, and satisfaction: Admission (application) and registration; student counselling and career guidance; the library; face-to-face tutorials; online tutorials; the disability unit (ARCSWID); the academic literacy programme (reading and writing skills); computer labs – TEL; telecentres (internet cafés registered with UNISA); student funding; student development; information services; and the SRU.

7.3.3.2   *Awareness*

The majority of SDHH were significantly aware of the SSS as indicated in table 5.3 and figure 5.15. However, the academic literacy programme, telecentres, and student retention were support services that most SDHH were not aware of. Similarly, the staff members were aware of support services with lower levels correlating to that of SDHH on the academic literacy

programme, telecentres, information services, and student retention as indicated in figure 5.27 and table 5.26.

7.3.3.3 Access

Despite having higher levels of awareness, SDHH do not frequently use student counselling and career guidance, libraries, face-to-face tutorials, online tutorials, or ARCSWID. More than 90 percent of the SDHH have never used a SRU and 92 percent of the students have never used telecentres. The majority of SDHH frequently used admission (application) and registration. These findings are supported by t-test results, which show that the majority of participants frequently used and had access to these SSS, as shown in table 5.4, figure 5.16, and table 5.5. The mean was $3.35 > 3$, and the p-value was $0.01 < 0.05$.

Results show that the majority of staff have often consulted with admission (application) and registration; student assessment administration (assignments and exams); DCCD; the library; face-to-face tutorials; ARCSWID; digital access centres – computer labs; and student funding, since the mean of these support services were higher than 3 and the p-values less than 0.05, as indicated in table 5.29.

7.3.3.4 Effectiveness

Most SDHH thought the SSS were ineffective, while only 47 percent expressed the effectiveness of admission and registration support services. The t-test results show that there is a significant difference between staff opinions concerning the effectiveness of ARCSWID *versus* all other SSS, since they refer SDHH to the disability unit. However, this does not correlate with the perception of the SDHH about the effectiveness of the disability unit.

7.3.3.5 Satisfaction on Inclusiveness

The majority of the SDHH were not satisfied with student counselling and career guidance, face-to-face tutorials, the academic literacy programme (reading and writing skills), computer labs – TEL, telecentres (internet cafés registered with UNISA), student development, and the SRU, since the mean was less than 3 and p-values were less than 0.05 in these support services, according to the t-test results in table 5.9. The satisfaction of the SDHH with admission (application and registration), the library, online tutorials, ARCSWID, student funding, or information services did not differ significantly from each other, since the p-values to the mean were higher than 0.05 in these areas.

Results show that the majority of staff were dissatisfied with the level of satisfaction with the services provided by the SSS to the SDHH. The graphical representation can be found in figure 5.28.

7.3.3.6   Chi-Square Test

The degree of correlation between the demographic data and the levels of awareness, access, effectiveness, and satisfaction with SSS are discussed in section 5.3.6 for the SDHH, and section 5.4.6 for staff.

7.3.3.7   Regression Analysis

Regression analysis and ANOVA were performed to ascertain the disparity in response and the relation between the responses of staff and students. The findings indicate a significant correlation between staff awareness of SSS and student awareness of these services. Results show that there is a significant difference between students and staff who were aware of the support services. Most of the students (87 percent) were aware of the SSS, compared to the staff (58 percent; f-test = 20.4; p-0.0001 < 0.05).

These results conclude that the relational impact of student awareness on staff is 1.5810 and has a p-value of 0.0005 < 0.05. Thus, there is a risk if staff are not aware of SSS, as this may directly or indirectly affect the student's awareness of these support services.

With regards to access, the results show that there is a significant difference between students accessing the support service and staff who have to liaise or refer these services to students. Most of the students (mean = 1.84 < 3) did not access some support services, compared to most staff who have liaised or referred support services (3.24 > 3); (f-test = 24.4; p-0.0001 < 0.05).

Results conclude that there is a strong relation between staff liaison or referrals to other SSS and students accessing those services. Thus, there is a risk if staff do not refer or liaise student services to students, as it may directly or indirectly affect the student's access to these support services.

On the effectiveness of services, results show that there is a strong relation between staff and students, finding the services ineffective. Furthermore, there is no significant difference between the majority of students and staff who found the support services ineffective. Thus, there is a risk if SSS are not effective to support the services' proper functioning.

7.3.3.8   Inclusion

There is a significant difference between students being dissatisfied with the level of SSS, compared to staff being dissatisfied with the inclusion of SDHH in these services. Results show that there is a weaker relation between staff and students being both dissatisfied with the support services and inclusion of the SDHH.

7.3.3.9   Correlation Analysis

Results show that there is a significant association between SDHH accessing SSS and staff liaison or referrals to SDHH. Correspondingly, comparable results appear with student effectiveness and staff liaison or referrals of SDHH by staff.

The quantitative results conclusively lead to the following decisions in response to the hypothesis:

- The SDHH experience lower inclusion rates throughout SSS programmes in the ODeL university.
- There seems to be no relation between the degree of inclusion and SSS programmes for SDHH in the ODeL university.

The satisfaction levels on inclusion were lower than 30 percent on all SSS, except for admission (application) and registration at 42 percent. Similarly, staff levels were also below 30 percent, except for the disability unit, where they refer most SDHH to, at 53 percent *versus* the SDHH who were at 27 percent.

7.3.3.10   Mixing of Data

The quantitative phase connected to the qualitative phase through the sampling frame, where some surveyed participants consented to take part in the follow-up study. Also, the link between the two phases came about as a result of the limitations and outliers from the quantitative results, which were instrumental in developing the qualitative data collection protocol that addressed the primary research question of the study, in line with the principles of the TMMR.

Annexures F and G contain the developed interview protocol for SDHH and staff. The following sections provide a summary of the second phase of the study.

7.3.4   Summary of Qualitative Findings

In the sections that follow, the findings from respondents, SDHH, and staff members are compiled. Three respondents, an African male student with hearing loss, a member of the administrative staff, and an academic staff member, participated in the pilot project. The pilot was carried out to promote the rigour and quality of research, as expressed in section 4.9.4. Additionally, this was done to guarantee that the interview questions addressed the main research topic in section 1.7.

7.3.4.1   Summary of Qualitative Findings: Students who are Deaf and Hard of Hearing

According to table 6.1, five SDHH participated in the study's qualitative phase and the majority of the respondents were men between the ages of 30 and 40 who most frequently required sign language interpreters to communicate. The summary of findings correlates to the themes that emerged, which are shown in figure 6.1.

7.3.4.1.1   Awareness of Student Support Services

The majority of respondents were aware of the registration and admission offices as the primary points of entry for the ODeL university. Because acceptable accommodations like SASL interpretation services were not available, those who participated in awareness programmes like orientation days reported that they did not learn anything. Despite these drawbacks, face-to-face awareness interventions were favoured over the online version in the hope that staff would be present and able to help on the day, as opposed to online where it is challenging to seek help.

7.3.4.1.2   Accessibility of Student Support Services

According to the findings, the inaccessibility of SSS was primarily caused by pre-existing communication barriers and a lack of interpretation services. The respondents believed that these issues could be resolved by deaf culture education programmes that would help the university to better understand the communication needs of the SDHH and lessen negative attitudes toward the lack of access to support services.

7.3.4.1.3   Effectiveness of Student Support Services

The fact that the services did not operate according to the wishes of the SDHH, was due to the poor referral systems in place, as well as the absence of accommodations in online platforms like workshops and discussion classes. It was found that SASL interpretation services are

playing a huge role in the academic progression of SDHH, since they learn through visualisation. Thus, face-to-face services were preferred.

7.3.4.1.4 Inclusivity in Student Support Services

The SSS were deemed to have a lower overall level of inclusion. This included online assessments and presentations that did not provide live captioning or subtitles for SDHH. In addition, several respondents thought that group assignments made it difficult for the students to develop significant arguments because of communication problems that fuelled stereotypes and assumptions about SDHH as dependent students.

7.3.4.1.5 Open Distance and e-Learning Lived Experiences

Respondents discussed their personal stories of studying in an ODeL environment, which were marked by meagre support, a lack of financial opportunities, ineffective help, inequality, and stigma. Their academic performance was negatively impacted by these, and remedial measures could include peer and social assistance, as well as education to encourage SSS. One of the subthemes that arose, was the disclosure of deafhood. Respondents discussed their personal experiences with how expectations were raised to accommodate their unique requirements. Some of them stated that they were no longer revealed as a result of failure to provide reasonable adjustments.

7.3.4.1.6 Recommendations for Reasonable Accommodations

Respondents pushed for partnerships, inclusive policies, a stand-alone disability unit, SASL advocacy programmes, and ongoing benchmarking studies as part of their recommendations for inclusive SSS for SDHH in ODeL. These recommendations form part of the study recommendations unpacked in section 7.7.

7.3.4.2 Summary of Qualitative Findings: Staff

According to table 6.9, eight staff members participated in the study's qualitative phase, while the majority of the respondents were females working in administrative and professional departments. The summary of findings is in accordance with the themes that emerged, which are indicated in figure 6.2.

7.3.4.2.1   Awareness of Student Support Services

Most employees were unaware of the variety of services that are provided to SDHH. They believed that the mentioned difficulty was exacerbated by a lack of departmental cooperation. When registering, SDHH disclose information, and most of the time, other support departments are not informed of this.

7.3.4.2.2   Accessibility of Student Support Services

Nearly all of the staff did not have any factors or causes influencing the availability of SSS. The way things are done at the institution, including the traditional methods of supporting students with special needs, are expected to change with the execution of the transformation agenda.

7.3.4.2.3   Effectiveness of Student Support Services

The major causes of ineffective services are the demarcation of services and a lack of understanding. Nearly all SSS, including some college operations, are provided by regional centres, but the academic staff seem not to be on board with how regions should serve their SDHH. Additionally, the services they offer to SDHH are not specialised, making them ineffective. As a result, it is necessary to comprehend distinct demands and how to meet them.

7.3.4.2.4   Inclusivity in Student Support Services

Staff members generally concurred that the services are not inclusive. Contrary to the students, the majority of staff members thought that SDHH disclosing their deafness would enable the university to be ready and provide inclusive services. However, the SDHH only occasionally disclosed their statuses, therefore being excluded from events since there are not any interpreters available, as staff respondents verified. This is a reactive method of operating, necessitating the adoption of a proactive strategy for universal design for learning.

7.3.4.2.5   Recommendations for Reasonable Accommodations

Staff members made various proposals for encouraging fair accommodations for SDHH, such as hiring SASL interpreters and other SDHH, that could address the employability of SDHH graduates. It was suggested that services be decentralised so that they could be accessed through all service departments, rather than just the disability unit, which is located on the main campus. The staff suggested training and advocacy programmes as part of their proposals.

7.3.5 Integration of Quantitative Results and Qualitative Findings

The first phase of the sequential design study addressed the hypothesis, that SDHH will have lower inclusion rates across all SSS programmes in the ODeL university, moreover, to reiterate that there is no relation between the degree of inclusiveness and the SDHH SSS programmes at the ODeL university. The results show that SDHH experienced lower inclusion rates across all SSS, according to the quantitative summary of results unpacked in section 7.3.1. Interviews have supported this concept and offered information on the causes of the lack of inclusivity as stated in section 7.3.2.1.4.

The live captions and subtitles for online interventions like workshops and classes that were available, was considered a reasonable accommodation that promoted inclusivity to communication challenges. The same is also true during face-to-face interactions where SASL interpretation is offered by the university. There seems to be a relation between the degree of inclusion and SSS for SDHH. Inclusion is absent on online platforms, in contrast to in-person interactions where people can ask for help when services are not readily available. Thus, it may be concluded that the lesser the level of inclusion, the lesser accessible and effective the services will be.

Staff members who provide the services have also affirmed that they are not inclusive as pointed out in figure 5.28, supporting this claim. The correlation analysis presented in section 7.3.1.9, supports the findings that SSS as a whole had lower levels of satisfaction with inclusion. With the exception of the disability unit, where they attend to the majority of SDHH, staff numbers were similarly below 30 percent. Although there are generally available student support programmes, the majority of SDHH are unaware of them. Although there is some awareness of registration and library services, the fact that a portion of the SDHH are unaware of these services while being registered students, raises concerns.

In response to the main research question of the study, *How do student support services assist in the inclusion of SDHH in an ODeL university?*, it can be concluded that SSS do not assist in the inclusion interventions. The interviews show that most SDHH do not attend the awareness programmes in interventions, organised by the university, due to the absence of reasonable accommodation, especially language and communication barriers mostly on the online platforms, which seemed to be the preferred mode in the past years due to Covid-19.

Some respondents claimed that there were only a few SASL interpretation services available, and that they were unable to use them because of the unit's lack of staff. It was strongly advised that the disability unit be independent, so that it could handle the issues of inclusion and access that were brought up. Although this may appear to be a solution, it does

not address the issue of the general inclusion of services, which should be decentralised to all student support departments in the university and will only benefit those who live close to the two campuses, and not those in regional centres or those who live outside the country's borders.

The two sub-questions aimed to shed light on how SSS are offered in ODeL universities, as well as the degree to which the aforementioned support programmes contribute to the inclusion of SDHH. According to the findings, SSS are provided broadly and do not consider the universal design learning model, which is presented in the theoretical framework in section 2.5.3.3, to encourage more access.

Accordingly, it was discovered that the current SSS for SDHH did not address the issues raised in sections 3.8 and 3.9, regarding online teaching and learning, communication issues, and the educational consequences for SDHH. These are required since the majority of employees thought that inclusive services could only be realised if SDHH disclose their deafhood status, which is a reactive action that goes against the ideals of UDL.

7.4   REALISATION OF RESEARCH OBJECTIVES

7.4.1   Objective 1: To Determine if Students who are Deaf and Hard of Hearing are aware of the Student Support Services

The first objective was realised through the regression analysis and ANOVA, performed to ascertain the disparity in response and the relation between the responses of the SDHH and staff members at the ODeL university. Subsequently, the SDHH were not fully aware of the range of support services that the ODeL university is providing. While most staff are only aware of services provided in their departments, the level of awareness of SSS provision is generally lower than expected.

7.4.2   Objective 2: To Determine the Level of Accessibility of the Student Support Services by Students who are Deaf and Hard of Hearing

The second objective was realised. Despite having higher levels of awareness, the SDHH did not frequently use SSS. Although the disability unit was seemingly accessible, 63 percent of the SDHH felt it was inaccessible.

7.4.3 Objective 3: To Determine the Effectiveness of Student Support Services

The third objective was realised. The t-test results indicate that the SDHH did not find the SSS to be effective. Similarly, the level of satisfaction among staff regarding the effectiveness of SSS was low.

7.4.4 Objective 4: To Determine the Level of Inclusion of Student Support Services

The fourth objective was realised. The level of inclusion is lower throughout all SSS, including application and registration which are the first points of entry to the ODeL university. The majority of SDHH were not satisfied with the inclusiveness of the services.

7.4.5 Objective 5: To Establish if the Current Student Support Provision is in Line and Contributes to the Legislature as well as the Sustainable Development Goals

The fifth objective was partially realised. The current student support framework seems to be in line with the SDG goals, specifically SDG 4 and all its targets. It is a national imperative to achieve SDG 4. The SDGs and targets are connected. The five other SDGs with direct reference to education are the following:

- Health and wellbeing (SDG 3, target 3.7).
- Gender equality (SDG 5, target 5.6).
- Decent work and sustainable growth (SDG 8, target 8.6).
- Responsible consumption and production (SDG 12, target 12.8).
- Climate change mitigation (SDG 13, target 13.3).

It is therefore imperative to realise SDG 4 to ensure that the SDHH not only benefit education- ally, but also in other domains of their lives. The following discussion shows per target the levels of contributions and areas to improve in realising SDG 4.

- *Target 4.3: Ensuring equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university.*

There seems to be progress towards the ODeL university contributing to this target on access to HE. Though there are no specific indicators for admitting SDHH, the sampling frame is evidence that SDHH were admitted at the university. The challenge starts with accessing the SSS and equal access to service needs to be addressed to meet this target.

- *Target 4.4: Substantially increasing the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship.*

Limitations to equitable access to curricula put SDHH at risk of not being competent alumni, compared with their counterparts. Benefits enjoyed by other students on online platforms should also apply to SDHH.

- *Target 4.5: Eliminating gender disparities in education and ensuring equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations.*

This target responds to inclusion and equity. Though the sample for the qualitative phase mostly consisted of males, the database reveals a balance in gender for admitted SDHH, according to figure 5.1, showing 60 percent of the female SDHH as active SDHH at the ODeL university.

- *Target 4b: By 2020, substantially expand globally the number of scholarships available to developing countries, in particular, least developed countries, small island developing states and African countries, for enrolment in HE, including vocational training and information and communications technology, technical, engineering and scientific programmes, in developed countries and other developing countries.*

Concerning the SDGs, only this goal has a 2020 completion date. Funding is an essential tool for SDHH to finish their education. Despite not considering themselves to be students with impairments, some of the SDHH disclosed their deafness to receive financing. A funding strategy for SDHH in an ODeL settings still has to be developed.

- *Target 4c: Substantially increasing the supply of qualified teachers, including through international cooperation for teacher training in developing countries, especially least developed countries and small island developing states.*

Judging by the lack of skilled staff to support SDHH, there is a need for the ODeL university to channel more resources into upskilling staff to reasonably accommodate SDHH, including through SASL. This assertion from part of the recommendations is to be unpacked in the subsequent section 7.7 below.

7.5   CONTRIBUTIONS OF THE STUDY

7.5.1   Theoretical Contribution

One of the research gaps identified in section 3.12 was on the application of theories in an interdisciplinary and transdisciplinary context. The selected theoretical framework was justified and shown by the selected theories, grounded in the study in section 2.3. Furthermore, the theories contributed to the interdisciplinarity of three disciplines, Psychology, DE, and Deaf Studies.

The theoretical framework of this study promoted interdisciplinarity in evaluating the student support framework. The transactional distance theory provided context on how services should be rendered in an ODeL institution. This was further unpacked in the literature review by locating the 4IR in the fifth generation of distance education in section 3.10, to promote instructional dialogue, programme structures, and SDHH autonomy.

The CDT assisted in understanding disability and deafhood, concerning language and communication through disability models. This was expanded in the literature review in unpacking archetypes of deafness, contemporary approaches, and identity construction on deafhood. The theory of change assisted and gave guidelines in evaluating the current framework through elements discussed in section 2.6. The elements, with the use of logic models assisted in developing the inclusive framework to accommodate SDHH.

7.5.2   Empirical Contribution

The study aimed to address the correct terminology in Deaf studies in line with the current literature. This was also emphasised by respondents who are proudly Deaf and do not identify as students with disabilities, but as students who are denied the right to communicate in their home language, which is SASL. Also, identity formation related to Deafhood was explored to indicate how disability is constructed by non-members of the Deaf community.

Second, there is a lack of student support models in ODeL in the era of the 4IR, as well as in the context of Covid-19. Through the fifth generation of DE and the application of the TDT, there is a realisation for accessible models to be developed in line with a universal design for learning platforms, consistent with the socio-cultural model of disability.

7.5.3   Research Design Contribution

The study demonstrated the application of TMMR in line with the adopted and applied transformative research paradigm in closing the methodological gaps. The strength of this study lies

in the pragmatic nature of combining both quantitative and qualitative approaches to solve the research problem. Furthermore, the application of the transformative research paradigm guided the identification of the adopted three theories and explanatory research design, in responding to the hypothesis and research questions.

Second, the study provided the application of the IPR framework. This framework provides the reader with the procedures and processes entailing the mixing of data in the explanatory sequential design. It also applies dependability, practically with audit trail and evidence contributing to the trustworthiness of data. The guidelines applied, relate to the principles of TMMR where considerations involved the following:

- Addressing the population and sampling gap:
  - o Consideration and incorporation of the surveyed population's inputs in this study were done through the provision of open-ended questions, due to limitations expressed in the following section. This is an important element of the TMMR where vulnerable populations' inputs are valued, which will contribute to emancipation.
- Connecting quantitative and qualitative phases by linking the two phases *via* the sampling frame where interviewed participants consented to participate in the follow-up study.
- Developing a qualitative data collection protocol to address the main research question of the study through the limitations and outliers from the quantitative results.

Added to this, output in the form of a conference proceeding was published in an open source as a pre-print after a blind peer review process. This publication confirmed the relevance of the employed research paradigm to respond to the research questions. The title of the paper is *Transformative research paradigm: A response to SDG 4 by intensifying support scholarships for deaf and hard-of-hearing students at an open distance and e-learning university* (Matjila & Van der Merwe, 2021). This empirical contribution may be transferable to similar contexts, and either research or practical-based interventions with similar objectives.

7.5.4 Practical Contribution

The study made several noteworthy contributions to praxeology where research meets the practice and cocreation of knowledge along with the provision of student support to SDHH in an ODeL environment, to serve as a base for future studies.

Furthermore, it offered an inclusive student support framework for the exploration of reasonable accommodations for SDHH. The study was done at the time when the SASL was

in the process of being recognised and anticipated as the twelfth official language in SA. This will form a foundation for future studies in providing support to SDHH in HE and specifically in an ODeL environment.

To some extent, the study brought forth an awareness and advocacy of SSS at an ODeL university. Some participants from both the SDHH and staff heard for the first time about a range of SSS, available at the university for SDHH.

7.6   LIMITATIONS OF THE STUDY

7.6.1   Limitation of Literature Review

There are adequate literature on disability studies on deaf and hard of hearing students. However, most of the studies are focused on inclusive education in the context of lower primary education. With the lockdowns and Covid-19, the HE sector was embracing online learning. However, limited data were showing only a reasonable accommodation for SDHH in the fifth generation model (Taylor 2001), outlined in the literature review chapter. Also, the implications of SASL as an official language have not been explored fully to address student support and pedagogical transition.

7.6.2   Limitation of Sample Frame

The population of registered SDHH at the ODeL university was anticipated to be over 2,000. However, the database for SDHH showed less than 600 during the current year that the study was undertaken, compared to when it was enquired during the proposal stage of the study. The sampling technique was amended from simple random to census as indicated in section 4.6.3. Though the sample frame was lower than anticipated, the results were statistically sufficient to be generalised to the population of SDHH in the ODeL university.

From the questionnaire, 17 SDHH and 58 staff members indicated their willingness to be interviewed. However, only five SDHH and eight staff members responded positively when invited to participate in the second phase of the study. The qualitative data collected was sufficient to make inferences and understand the problems and recommendations toward an inclusive student support framework.

7.6.3   Limitations of Research Design

The MMR through action research seemed to be a suitable method to address the problem statement of this research in evaluating the SSS for SDHH in an ODeL institution. Due to a

lack of time and financial resources, as well as skills to coordinate a project of this magnitude, the TMMR was found to be more suitable and also feasible for the PhD level.

7.7 RECOMMENDATIONS

The survey made provision for recommendations. Consequently, the SDHH and staff provided inputs for the proposed framework as discussed in section 5.5.6.1. Additionally, the interview protocol promoted recommendations as discussed in the specific sections of the preceding chapters. The recommendations from the participants are summarily indicated in the sections below.

7.7.1 Recommendations for Practical Interventions

Currently, there is a need for a vigorous advocacy campaign to promote SASL and communication platforms to reasonably accommodate SDHH. This may form part of the institution's annual performance plans, where the campaign could receive necessary resources and be run as a special project. The project plan outcomes/outputs will provide options for

- improved and enhanced communication for SDHH in ODeL, including SASL training workshops;
- the employment of SASL interpreters;
- structures for SDHH communities of practices;
- policy reviews, specifically
  - o language policy;
  - o diversity policy; and
  - o a policy for students with disabilities and its implementation plan, addressing contradictions as outlined in section 6.9.
- Optimisation of MS Office 365 programmes on transcriptions with live captions, and a translation of the text to sign language; addressing barriers faced by SDHH in online settings as indicated in figure 3.9, and recommendations to address those, including plain language, advanced organisers, text features, summarisation skills, as well as glossaries and vocabulary support.

7.7.2 Recommendations for Future Research

- The transformative research paradigm suggests that participants should be at the forefront of the research project, meaning that it should be ideal to involve participants in

the conceptualisation stages and proposal of the research project. This goes against the policies of the research ethics committee governance, resulting in limitations for researchers to fully apply the transformative research paradigm. Research ethics policies seem to be misaligned with the recent development in methodologies, thus contributing to epistemic injustice.

- Implications of the sign language communities' terms of reference principles for research ethics committees and researchers: The first basic ethical principle is that *respect for individuals and researchers* should be culturally competent and knowledgeable to apply this principle. Researchers should demonstrate to the research ethics committee that they understand the diverse perspectives and ways of life (in sign language societies) that represent their contemporary Deaf culture and worldviews.
    - Covid-19 protocols impacting on communication with SDHH, especially those who prefer lip-reading. The usage of the mask was a barrier in this regard, which further marginalised the subpopulation of SDHH.

- The framework for the mixing/integration of data aligned to the TMMR: Planning with the surveyed population may be difficult as in the case of this study, due to first, financial implications to reasonably accommodate the SDHH, since the SASL translators' fees are very high and not covered in conventional research funding. Second, the nature of ODeL, Covid-19, and the lockdowns does not make it easier to have a handful of the population in one room. Despite the raised challenges, the voices of the said population are critical in the mixing phase to ensure that the second phase of the sequential study yields results that may address their needs.

- The experience of SASL interpreters in ODeL should be explored. This research should also find alternative and unique ways to support SDHH in the ODeL context. The research should address interpreting academic content, which needs specialised skills and a certain level of subject knowledge.

7.7.3 Proposed Inclusive Student Support Framework for Students who are Deaf and Hard of Hearing in Open Distance and e-Learning

The proposed inclusive student support framework was developed, considering Tait's perspectives on developing student support in ODeL, as discussed in section 3.6. The first point of departure was to understand the SDHH profiles and characteristics achieved by this study. The primary functions of student support on cognitive and affective elements, as well as systems are also included in the proposed framework (figure 3.4).

Second, the framework considers the online teaching considerations due to the shift to the fifth generation model of DE and rapid migration to 4IR. The SDHH unpacked practical consideration during the semi-structured interviews, confirming the barriers faced by SDHH in an online setting, as per figure 3.9.

The following subsections unpack the framework that was designed, using a logic model influenced by the theory of change – a component of the theoretical framework of the study, found in section 2.6 and table 2.1.

7.7.3.1   *Assumptions*

In this context, assumptions relate to the fundamental ideas, principles, and concepts, as well as the stakeholders who were involved in the framework. Assumptions also address the experiences that shape how the framework is understood by the institutions.

The survey revealed that SDHH were not sufficiently aware of the services provided, despite the institution's perception that having SSS in place would make them more accessible, inclusive, and effective. The assumptions should be thoroughly investigated because they will deal with the problems of stigma and isolating SDHH. This will be included in the programmes indicated under the outputs section. This section is provided since programmes are frequently created without considering SDHH.

Although deafness is frequently included in the category of disabilities, the literature review, theoretical framework, and models of disabilities, the results and findings indicate that this is not always the best approach to these classifications and categorisations. Sign language is a different language with its grammar, syntax, sentence construction, and structure, different to spoken languages. The transformative research paradigm may be ideal in promoting research around this niche area, since the philosophical assumptions on ontology, epistemology, axiology, and methodologies will address strategies to deal with any assumptions.

ODeL institutions may start with unpacking the ontological assumptions, by conducting a situational analysis to identify the needs of SDHH for the suggested framework to be implemented, as summarised in the figure below. The framework proposes an all-encompassing strategy in which the demands of all student populations may be partially, if not entirely, met.

In addition, MMR research through action research may be a good design because it will incorporate SDHH throughout the study process to improve the issues of the university with the lack of adequate accommodations for SDHH. The sociocultural model of disability prescribes that identity creation in deafhood takes into consideration the archetypes of deafness. The CDT is another theory that has been presented. Inputs are described in the section below.

7.7.3.2 Inputs

The inputs are concentrated on the investment that the ODeL university will make in examining the units or departments that will be in charge of assisting SDHH and putting policies and procedures in place, that will encourage the provision of student support. One of the proposals, and one that should be taken into consideration, is the use of a sign language interpreter.

To inform curriculum and student support methods, the responsible unit should also be regularly interacting with stakeholders like the Deaf Federation of SA and academics through community engagement and engaged scholarship. The following table contrasts tangible and intangible resources that are required to support the suggested framework.

Tangible Resources	Intangible Resources
Scholarships and funding	Partnerships
SASL interpreters	Time
Study materials	Research and expertise
Adaptive technologies	Regulations, policies, and procedures

Table 7.1: Tangible *versus* Intangible Resources

7.7.3.3 Strategies and Activities

Strategies are more comprehensive methods and courses of action that can be used within this framework. SDG 4, which is the education goal, is the overarching plan. It aims to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" (United Nations, 2020). As a result, the institutions will be able to fully contribute to the SDGs. The activities will be specific approaches and actions that flow from the SDG 4 targets, being pronounced in section 7.4.5.

7.7.3.4 Outputs

Outputs, which address the questions, "Who will engage?" and "What will be generated?" are visible products and services provided, depending on the aforementioned strategies. First, attention is given to the SDHH and all student populations, including staff, who are being reached (management, academic, admin, and professional). By bridging the boundaries between academic and community practices, the engaged scholarship will reach the communities.

To ensure that the support is improved, it should be obvious what ODeL universities need to create. The advocacy programme for deafness should be a part of a larger campaign to increase knowledge and the understanding of deafness. To maintain the momentum or to follow

the international custom of honouring it on 23 September every year, this larger programme may include a SASL awareness week, workshops, seminars, and other events.

In addition, policies must be developed and modified as necessary. Similarly, the implementation plans of policies should be explicit and doable. Nevertheless, this may only be accomplished with the participation of the relevant parties.

Third, the ultimate objective ought to be an enhanced SASL and communication abilities feeding into enhanced institutional engagement on 1) transitional arrangements and support for SDHH; 2) academic support; 3) monitoring and early warning; 4) the reduction of stigma; 5) SDHH engagement on learning; 6) increased success and throughput; and 7) SDHH alumni with employability and entrepreneurial skills.

7.7.3.5   *Outcomes*

The observable results of strategies and activities are called "outcomes." Additionally, they specify who will take part and what will be created. Advocacy programmes for deaf children, SASL awareness campaigns, transitional programmes for SDHH in ODeL institutions, policies and reviews, and curriculum development are a few of the offerings.

7.7.3.5.1   Short-Term Outcomes (1 to 2 Years)

Short-term outcomes are those related to managing ontological assumptions and raising an awareness to embrace multiple realities of deafhood and programmes that are available to support the SDHH.

7.7.3.5.2   Intermediary Outcomes (3 to 4 Years)

Intermediary outcomes respond to behavioural changes as well as the environmental context. These outcomes will address issues related to stigmatisation towards SDHH, among other changes.

7.7.3.5.3   Long-Term Outcomes (5$^+$ Years)

The long-term outcomes are anticipated as ultimate objectives of the framework. These can also be considered as "impact" and can be synonymous with framework "goals." Through these, the institutions will be able to gauge the impact of their programmes and have a solid plan relative to their context.

7.7.3.6   *External Factors*

The dynamics of the external environment, whether they are present or anticipated, can influence the effectiveness of the framework. It reacts to events in the political, social, and economic spheres by defining the true, imagined, or hypothetical threats and hazards to the framework's complete implementation.

7.7.3.6.1   Politically

It is anticipated that SASL will be the twelfth official language of SA. Drafting the language policy may take some time while waiting on the results of the legislative procedures. To help the IHEs to integrate this development with their strategic objectives and annual performance plans, the DHET will also need to create green and white papers. So, to expedite this process and force institutions to conform, politics will be required.

7.7.3.6.2   Socially

Given that there are currently 11 official languages in SA and that not everyone is fluent in or interested in learning them all, citizens may show ambivalence toward SASL. Despite this, from personal experience, I have noticed that people tend to try and learn the languages of the regions or provinces where they are living. For instance, if someone moves from the Northwest Province, where Setswana is common, to KwaZulu-Natal, where isiZulu is common, they will need to learn isiZulu to communicate with the locals.

Additionally, while in academic settings, it is important to consider the various dialects that SASL, like other languages, have according to districts and regions. To increase the momentum and involvement, it will be crucial to gain support from the regional communities. Lower-level school curricula may also cover appropriate accommodations for Deaf people.

7.7.3.6.3   Economically

Section 7.4.5 indicated that SDG 4 also feeds to other SDGs, including decent work and sustainable growth (SDG 8, target 8.6) which relates to economical participation. Employers must make sure that there are enough reasonable accommodations for the overall Deaf community, so that they can participate and be employed as appropriate. This applies to business ownership and entrepreneurship as well.

7.7.3.7   Continuous Evaluation

There needs to be a continuous involvement of all stakeholders to ensure that the campaigns and support are ongoing. In cases where there are disruptions in the system, like the recent Covid-19 and lockdowns, the university will have measures in place to receive feedback, and plan with all stakeholders to ensure that quality support continues. This may be in the form of evaluations done by the hosted workshops and seminars which will lead to clear and achievable improvement and implementation plans. The developed inclusive framework is presented below.
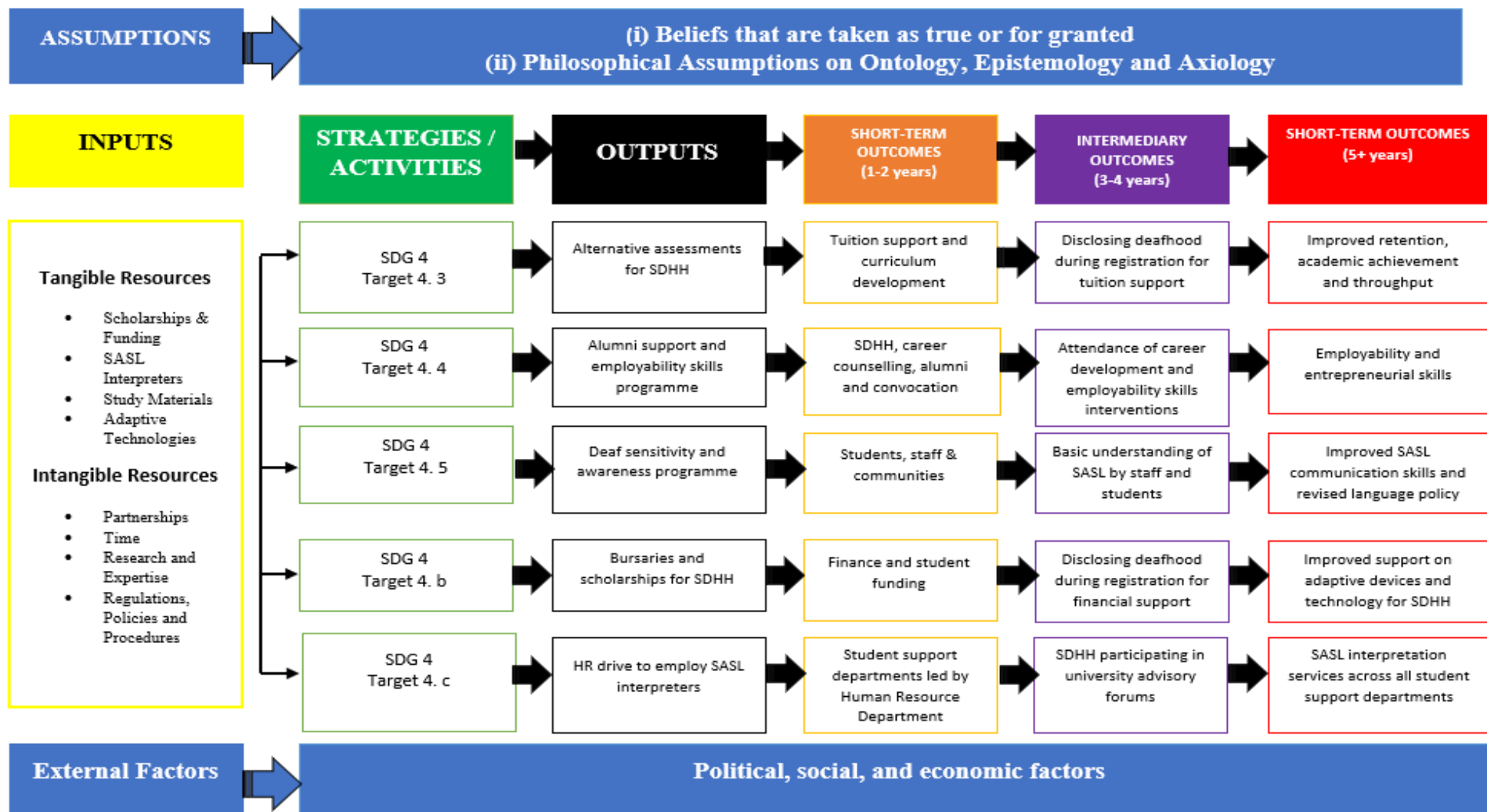
Figure 7.1: Inclusive Student Support Framework for Students who are Deaf and Hard of Hearing in Open Distance and e-Learning (Personal Archive)

7.8 PERSONAL REFLECTIONS

TMMR contributed to acquired research skills, since it entails qualitative and quantitative research skills. For a researcher, it is beneficial to have the experience of modifying a questionnaire, and further evaluating reliability and validity. Additionally, combining qualitative and quantitative data, required not only research but also critical thinking abilities. The procedure increased my appreciation for learning about the statistical package for the social sciences and ATLAS.ti for quantitative and qualitative data analysis.

The study tested both my personal and professional time management abilities, forcing me to meet deadlines and deliver the draft to the supervisors on time. I had to get up early every day because I have a full-time job, and I had to study during weekends. This situation has an impact on social interactions and induces tension and feelings of loneliness. My family, however, has always been encouraging and understanding, whenever I chose not to go with them to funerals, weddings, and other celebrations. I was fortunate to have a supervisor who is understanding and reports on time whenever I foresee a delayed reporting.

There were instances where things were out of my reach or control like the slow-paced response rate from the participants and respondents. After schedules were drawn and confirmed, some had to postpone, due to personal commitments, or some even forgot to do it. With the imposed lockdowns and numerous restrictions that went along with them, Covid-19 had an impact on timelines. Working remotely required significant systemic change because one was dependent on the office for the internet and other resources, due to a limited bursary and funding for the study.

I have developed into an emerging researcher as one output from this study was on a specific research paradigm. Co-authoring a philosophical article on a transformative research paradigm and connecting it to one of the study's goals, were difficult. Lastly, I have grown to appreciate the diversity among the staff and student population. I have learned a lot from interaction with the literature review as well as results and findings on deafhood and culture. The PhD journey was a difficult one, but it was worth it in the end.

7.9 CONCLUSION

The first chapter provided background to the study and introduced the problem statement on the lack or inadequate provision of SSS in IHEs for SDHH, particularly in the context of ODeL. To address this problem, it was imperative to evaluate the current student support framework and ascertain the following factors: 1) SDHH awareness of SSS; 2) accessibility; 3) effectiveness; 4) inclusiveness; and 5) whether the provision of services contributes to the SDG goals.

It was predicted that the SDHH would have lower inclusion rates across all SSS and that there would be no correlation between the SDHH level of inclusion and those offered by SSS. It was crucial to comprehend how and to what extent SSS were making available to SDHH and how they facilitate inclusion. A transformational and emancipatory philosophical perspective was necessary to address pertinent ontologies, epistemologies, axiology, and techniques, to adequately answer the hypothesis and research issue.

The response to the study's aim and objectives was supported by the employed tripartite theoretical framework. The ODeL setting and strategies to use in fostering communication with students were offered by the TDT. The CDT made sure that deafness is not perceived as a disability and that barriers are removed, following the social model which appeals to the majority of participants, in contrast to the medical model where they are regarded as helpless. By focusing on assumptions and working on inputs, outputs, and outcomes, the theory of change made sure that the evaluation process was managed appropriately and that an inclusive model was developed.

The review of the literature offered a synthesis of related studies with conceptual underpinnings for SDHH. First of all, it was instrumental in grasping the archetypes of deafness as well as modern perspectives on deafness and society. Identity creation was explored in response to how deafness is viewed in light of disability paradigms. The assessment of the literature gave a comprehensive foundation on ODeL and what student assistance programmes should take into account while they are being created. Legislation and the SDGs, as well as how SA and its ODeL university are responding to and advancing them, were discussed. On concepts and labelling SDHH, theories in deaf studies or their absence, and methodologies and models for supporting SDHH in ODeL, research gaps have been highlighted.

The transformative research paradigm helped to clarify how the system must change to comprehend the realities on the ground, how knowledge should be jointly created with the participants, discussing ethical considerations when conducting research with SDHH, and how data should be gathered and analysed. The TMMR was pertinent, focused, and relevant to the environment under study. When collecting quantitative data from SDHH and personnel, the research approaches related to the hypothesis and study question made sure that the explanatory sequential design was used. After analysing quantitative data, data mixing took place to make sure that the research topic was addressed and that quantitative data were understood through semi-structured interviews.

The results and findings validate and corroborate the literature in the following areas:

- SSS are exclusive to SDHH and they are not given a platform to contribute to the design of support structures.

- A lack of trained sign language interpreters to assist in classes. Though this is not fully relatable to ODeL, there are face-to-face interventions like workshops, discussion classes, orientation days, and events where the same strategies may be applicable.

- The results confirm the lack of reasonable accommodations concerning communication considerations and educational implications on retention and attrition for SDHH.

- A lack of understanding of the deaf culture where deafness is categorised as a disability. This results in many SDHH not disclosing since they view deafness as a language and communication challenge, a socially constructed barrier which should be removed in accordance with the social mode of disability. If sign language interpreters and note-takers are employed, the services will be accessible, effective, and inclusive for SDHH.

The results and findings contradict and dispute the literature in the following areas:

- Some SDHH view their deafhood or loss of hearing as a disability and they do not have a problem being classified or categorised as students with disabilities.

- DRUs not serving the purpose intended to serve especially in ODeL, create a need to develop in the ODeL context and not be like other face-to-face institutions.

- The majority can converse academically in English on formative and summative assessments. Arguments are on verbal communication where English is not doing justice and needs sign language.

Significance of the study

The study is significant in that

- the transformative standpoint of the study promoted awareness among participants, especially staff, through the survey and semi-structured interviews regarding the plight of SDHH not being supported at the ODeL university. Also, staff learned to understand inclusivity for SDHH and how referrals are excluding in nature.

- The study contributes to research gaps where students with hearing impairments concepts are often used and not in line with axiological considerations from the literature, also expressed through semi-structured interviews. Instead, the study employed SDHH and was endorsed by the participants. The theories relevant in deaf studies, making use

of the CDT, are complemented by the TDT addressing the ODeL context. The theory of change assisted with the evaluation process on a chronological level and also stipulated logistical steps to ensure that after evaluations, inputs are coherent to develop the desired frameworks in addressing the shortcomings of the evaluated system. Though TMMR mostly has mixed method principles, it stood firm to the transformative philosophical foundations of the study. Lastly, there are a lack of models for supporting SDHH in ODeL, and this study successfully designed an inclusive framework and model for supporting them in this university.

- The research is significant in that it informs policies and mostly practices in providing reasonable accommodations for SDHH at an ODeL university. This is most important in the advent of SASL possibly becoming an official language. The proposed framework made provision under strategies/activities for an ODeL university to align its policies with different SDG 4 targets.

- The recommendation for future research is also made clear for other researchers to contribute where this study was not able to, due to limitations and challenges.

The referenced material may be accessed on the next pages, including the Annexures.

REFERENCES

Abiatal, L. K. S., & Howard, G. R. (2019). Constructivist assistive technology in a mathematics classroom for the deaf: Going digital at a rural Namibian primary school. *ACM International Conference Proceeding Series*. doi:https://doi.org/10.1145/3351108.3351136

Adams, R., Adeleke, F., Anderson, D., Bawa, A., Branson, N., Christoffels, A., De Vries, J., Etheredge, H., Flack-Davison, E., Gaffley, M., Marks, M., Mdhluli, M., Mahomed, S., Molefe, M., Muthivhi, T., Ncube, C., Olckers, A., Papathanasopoulos, M., Pillay, J., Ramsay, M. (2021). POPIA Code of Conduct for Research. *South African Journal of Science*, *117*(5–6), 1–12. doi:https://doi.org/10.17159/SAJS.2021/10933

Adams, R., Veldsman, S., Ramsay, M., & Soodyall, H. (2021). Drafting a code of conduct for research under the protection of personal information act no. 4 of 2013. *South African Journal of Science*, *117*(5). doi:https://doi.org/10.17159/SAJS.2021/10935

África, D. (2020). Constitution of the Republic of South Africa, 1996. As adopted. African Union. (2015). *Agenda 2063: African Union*. African Union Commission.

Alavi, M., Archibald, M., McMaster, R., Lopez, V., & Cleary, M. (2018). Aligning theory and methodology in mixed methods research: Before design theoretical placement. *International Journal of Social Research Methodology*, *21*(5), 527–540. doi:https://doi.org/10.1080/13645579.2018.1435016

Almalki, S. (2016). Integrating quantitative and qualitative data in mixed methods research – challenges and benefits. *Journal of Education and Learning*, *5*(3), 288. doi:https://doi.org/10.5539/jel.v5n3p288

Aydemir, M., Özkeskin, E. E., & Akkurt, A. A. (2015). A theoretical framework on open and distance learning. *Procedia – Social and Behavioral Sciences*, *174*(2), 1750–1757. doi:https://doi.org/10.1016/j.sbspro.2015.01.833

Barnes, C. (1992). Qualitative research: Valuable or irrelevant? *Disability, Handicap & Society*, *7*(2), 115–124. doi:https://doi.org/10.1080/02674649266780151

Basham, J. D., Blackorby, J., & Marino, M. T. (2020). Opportunity in crisis: The role of universal design for learning in educational redesign. *Learning Disabilities: A Contemporary Journal 18*(1).

Batanero, C., De-Marcos, L., Holvikivi, J., Hilera, J. R., & Oton, S. (2019). Effects of new supportive technologies for blind and deaf engineering students in online learning. *IEEE Transactions on Education*, *62*(4), 270–277. doi:https://doi.org/10.1109/TE.2019.2899545

Bauman, H.-D. (2008). Introduction. In H.-D. Bauman (Ed.), *Open your eyes: Deaf studies talking* (pp. 1–34). Minneapolis: University of Minnesota Press.

Bell, D. (2021). South Africa has advanced the use of sign language. But there are still gaps. *The Conversation*. Retrieved from https://theconversation.com/south-africa-has-advanced-the-use-of-sign-language-but-there-are-still-gaps-168424

Benning, T. (2015). Limitations of the biopsychosocial model in psychiatry. *Advances in Medical Education and Practice*, *5*, 47–52. doi:https://doi.org/10.2147/amep.s82937

Berndsen, M., & Luckner, J. (2012). Supporting students who are deaf or hard of hearing in general education classrooms: A Washington state case study. *Communication Disorders*, *33*(2), 111–118.

Bolaños, P. A. (2013). What is critical theory? Max Horkheimer and the makings of the Frankfurt school tradition. *Mabini Review*, *2*(1), 1–19.

Bonell, C., Melendez-Torres, G. J., Viner, R. M., Rogers, M. B., Whitworth, M., Rutter, H., Rubin, G. J., & Patton, G. (2020). An evidence-based theory of change for reducing SARS-CoV-2 transmission in reopened schools. *Health and Place, 64*, 102398). 6 pages. https://doi.org/10.1016/j.health-place.2020.102398

Bozkurt, A. (2019). From distance education to open and distance learning. In S. Sisman-Ugur, & G. Kurubacak (Eds.), *Handbook of research on learning in the age of transhumanism* (pp. 252–273). Hershey: IGI Global. doi:https://doi.org/10.4018/978-1-5225-8431-5.ch016

Bozkurt, A., Koseoglu, S., & Singh, L. (2019). An analysis of peer reviewed publications on openness in education in half a century: Trends and patterns in the open hemisphere. *Australasian Journal of Educational Technology*, *35*(4), 78–97. doi:https://doi.org/10.14742/ajet.4252

Brailas, A., Koskinas, K., & Alexias, G. (2017). Teaching to emerge: Toward a bottom-up pedagogy. *Cogent Education*, *4*(1). 14 pages.

Braun, V., & Clarke, V. (2019). Reflecting on reflexive thematic analysis. *Qualitative Research in Sport, Exercise and Health*, *11*(4), 589–597. doi:https://doi.org/10.1080/2159676X.2019.1628806

Brown, A.-M. (2016). *Differences between the theory of change and the logic model*. Retrieved from https://www.annmurraybrown.com/single-post/2016/03/20/Theory-of-Change-vsThe-Logic-Model-Never-Be-Confused-Again

Brown-Martin, G. (2017). Education and the Fourth Industrial Revolution. 19 pages. Retrieved from https://cdn.lgseta.co.za/resources/research_and_reports/4IR%20Resources/Education%20and%20the%204IR_Graham%20Brown-Martin_2017.pdf

Bryman, A., & Bell, E. (2015). *Business research methods*. Oxford: Oxford University Press.

Burrell, G., & Morgan, G. (1979). *Sociological paradigms and organisational analysis*. London: Heinemann.

Butler-Adam, J. (2018). The Fourth Industrial Revolution and education. *South African Journal of Science*, *114*(5/6), 1–2.

Camacho, S. (2020). From theory to practice: Operationalizing transformative mixed methods with and for the studied population. *Journal of Mixed Methods Research*, *14*(3), 305–335. doi:https://doi.org/10.1177/1558689819872614

Carcary, M. (2020). Advancing the research audit trail: A ten year retrospective. *ECRM 2020 20th European Conference on Research Methodology for Business and Management Studies: ECRM 2020*, 56.

Cardinale, C. L. (2004). Understanding deaf culture: In search of deafhood. Disability Studies Quarterly, 24(4). doi:https://doi.org/10.18061/dsq.v24i4.907

Carey E. Andrzejewski, B. A., & Baggett, H. C. (2019). Transformative Mixed Method: A missed opportunity. In K. K. Strunk & L. A. Locke (Eds.), *Research methods for social justice and equity in education* (pp. 241–251).

Castillo-Montoya, M. (2016). Preparing for interview research: The interview protocol refinement framework. *The Qualitative Report*, *21*(5), 811–831. doi:https://doi.org/10.46743/2160-3715/2016.2337

Castleberry, A., & Nolen, A. (2018). Thematic analysis of qualitative research data: Is it as easy as it sounds? *Currents in Pharmacy Teaching and Learning 10*(6), 807–815. doi:https://doi.org/10.1016/j.cptl.2018.03.019

Center for Applied Special Technology. (2011). Universal design for learning (UDL) guidelines: Full-text representation Version 2.0.

Chilisa, B. (2012). *Indigenous research methodologies*. Thousand Oaks: Sage.

Chilisa, B. (2019). *Indigenous research methodologies* (2nd ed.). Thousand Oaks: Sage.

Chilisa, B., & Mertens, D. M. (2021). Indigenous made in Africa evaluation frameworks: Addressing epistemic violence and contributing to social transformation. *Culture American Journal of Evaluation*, *42*(2), 241–253. doi:https://doi.org/10.1177/1098214020948601

Clappison, J. (2014). *Forty-fifth report of session 2013-14-HC 83-xl*. London: The Stationery Office Limited.

Cloete, A. L. (2017). Technology and education: Challenges and opportunities. *HTS Theological Studies*, *73*(4). 7 pages. doi:https://doi.org/10.4102/HTS.V73I4.4589

Clouder, L., Cawston, J., Wimpenny, K., Khalifa, A., Mehanna, A., Hdouch, Y., Raissouni, I., & Selmaoui, K. (2019). The role of assistive technology in renegotiating the inclusion of students with disabilities in higher education in North Africa. *Studies in Higher Education*, *44*(8), 1344–1357. doi:https://doi.org/10.1080/03075079.2018.1437721

Cochrane, C. (2000). The reflections of a distance learner: 1977–1997. *Open Learning*, *15*(1), 17–34.

Cole, E. B., & Flexer, C. (2020). *Children with hearing loss: Developing listening and talking, birth to six* (4th ed.). San Diego: Plural Publishing.

Cooksey, R., & McDonald, G. (2011). *Surviving and thriving in postgraduate research*. Melbourne: Tilde University Press.

Cooper, P., & Schindler, D. R. (2014). *Business Research Methods* (12th ed.). London: Mc Graw-Hill.

Cram, F., & Mertens, D. M. (2016). Negotiating solidarity between indigenous and transformative paradigms in evaluation. *Evaluation Matters – He Take Tō Te Aromatawai 2*, 161–189. doi:https://doi.org/10.18296/em.0015

Creswell, J. W. (2007). Five qualitative approaches to inquiry. In J.W. Creswell (Ed.), *Qualitative inquiry and research design: Choosing among five approaches* (pp. 53–84). Thousand Oakes: Sage.

Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches.* (3rd ed.). Los Angeles: Sage. Retrieved from https://www.ucg.ac.me/skladiste/blog_609332/objava_105202/fajlovi/Creswell.pdf

Creswell, J. W. (2012). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research.* (4th ed.). Boston: Pearson.

Creswell, J. W. (2014). *Research design: Qualitative, quantitative and mixed approaches*. Thousand Oakes: Sage.

Creswell, J. W. (2015). Revisiting mixed methods and advancing scientific practices. In S. Hesse-Biber, & R. B. Johnson (Eds.), *The Oxford handbook of multimethod and mixed methods research inquiry* (pp. 1–26). Oxford: Oxford University Press. doi:https://doi.org/10.1093/oxfordhb/9780199933624.013.39

Creswell, J. W., & Clark, V. L. P. (2018). *Designing and conducting mixed methods research* (2nd ed.). London: Sage. doi:https://doi.org/10.1111/j.1753-6405.2007.00096.x

Creswell, J. W., & Creswell, J. D. (2019). *Research design: Qualitative, Quantitative, and mixed method approaches* (5th ed.). London: Sage.

Creswell, J. W., Vicki, L., & Piano, C. (2011). *Designing and conducting mixed methods research*. Los Angeles: Sage.

Crossley, J., & Jansen, D. (2021). Saunders' research onion: Explained simply. *Gradcoach*. Retrieved from https://gradcoach.com/saunders-research-onion/

Datta, S. (2018). Sampling methods. 8 pages. Preprint. Retrieved from https://ocd.lcwu.edu.pk/cfiles/Political%20Science/MAJ/Pol.Sc-306/Samplingmethods.pdf

DeafSA. (2009). *Deaf education*. 69 pages. Retrieved from https://static.pmg.org.za/180912Deaf_Education.pdf./

DeafSA. (2016). Portfolio Committee on Basic Education Deaf Education. https://static.pmg.org.za/180912DeafSA.pdf

Dede, C. (1996). Emerging technologies in distance education for business. Journal of education for business, 71(4), 197-204.

Dehghanpour, M., & Herrmann, T. (2021). Increasing survey response rates to improve data collection for program improvement. *Radiologic Technology*, *92*(6), 625–629. Retrieved from http://www.radiologictechnology.org/content/92/6/625.extract

DeJonckheere, M., & Vaughn, L. M. (2019). Semistructured interviewing in primary care research: A balance of relationship and rigour. *Family Medicine and Community Health*, *7*(2), e000057. 8 pages. doi:https://doi.org/10.1136/fmch-2018-000057

De Meulder, M., & Haualand, H. (2019). Sign language interpreting services: A quick fix for inclusion? *Translation and Interpreting Studies: The Journal of the American Translation and Interpreting Studies Association*, *16*(1), 19–40. doi:https://doi.org/10.1075/TIS.18008.DEM

Department of Education. (2005). *Minimum admission requirements for higher certificate, diploma and bachelor's degree programmes requiring a national senior certificate*. Pretoria: Government Gazette. Retrieved from https://www.gov.za/sites/default/files/gcis_document/201409/27961.pdf

Department of Health, Education, and Welfare; National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research. (2014). The Belmont Report: Ethical principles and guidelines for the protection of human subjects of research. *Journal of the American College of Dentists 81*(3), 4–13.

Department of Justice. (1996). The Constitution of the Republic of South Africa. Retrieved from https://www.gov.za/documents/constitution-republic-south-africa-1996

Department of Justice. (2013). *Protection of personal information act, 2013: Ensuring protection of your personal information and effective access to information*. Pretoria: Government Gazette.

DHET (Department of Higher Education and Training). (2018). Strategic policy framework on disability for the post-school education and training system. *NDP 2030*. Retrieved from https://www.dhet.gov.za/SiteAssets/Gazettes/Approved%20Strategic%20Disability%20Policy%20Framework%20Layout220518.pdf

Dhillon, L., & Vaca, S. (2018). Refining theories of change. *Journal of Multidisciplinary Evaluation*, *14*(30), 64–87. Retrieved from http://journals.sfu.ca/jmde/index.php/jmde_1/article/view/496

Downs, F. S. (1990). Handbook of research methodology. *Dimensions of Critical Care Nursing*, *9*(1), 60. doi:https://doi.org/10.1097/00003465-199001000-00018

Edyburn, D. L. (2021). Universal usability and universal design for learning. *Intervention in School and Clinic*, *56*(5), 310–315. doi:https://doi.org/10.1177/1053451220963082

Elsevier. (2021). SDG research mapping initiative. *SDG Research Mapping Initiative*. Retrieved from https://www.elsevier.com/about/partnerships/sdg-research-mapping-initiative.

Emerson, R. W. (2015). Convenience sampling, random sampling, and snowball sampling: How does sampling affect the validity of research? *Journal of Visual Impairment & Blindness, 109*(2), 164–168.

Engel, G. L. (2012). The need for a new medical model: A challenge for biomedicine. *Psychodynamic Psychiatry, 40*(3), 377–396. Retrieved from http://science.sciencemag.org/

Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics*, *5*(1), 1–4. doi:https://doi.org/10.11648/j.ajtas.20160501.11

Fajardo, I., Cañas, J. J., Salmerón, L., & Abascal, J. (2006). Improving deaf users' accessibility in hypertext information retrieval: Are graphical interfaces useful for them? *Behaviour and Information Technology*, *25*(6), 455–467. doi:https://doi.org/10.1080/01449290500331180

Fetters, M. D., Curry, L. A., & Creswell, J. W. (2013). Achieving integration in mixed methods designs – principles and practices. *Health Services Research*, *48*(6/2), 2134–2156. doi:https://doi.org/10.1111/1475-6773.12117

Finnis, J. (1980). *Natural law & natural rights*. Oxford: Clarendon Press.

Frey, B. B. (Ed.) (2018). *The Sage encyclopedia of educational research, measurement, and evaluation*. Thousand Oaks: Sage. doi:https://doi.org/10.4135/9781506326139

Garnett, B. R., Smith, L. C., Kervick, C. T., Ballysingh, T. A., Moore, M., & Gonell, E. (2019). The emancipatory potential of transformative mixed methods designs: Informing youth participatory action research and restorative practices within a district-wide school transformation project. *International Journal of Research & Method in Education*, *42*(3), 305–316. doi:https://doi.org/10.1080/1743727X.2019.1598355

Garrison, D. R., & Shale, D. (1987). Mapping the boundaries of distance education: Problems in defining the field. *American Journal of Distance Education*, *1*(1), 7–13. doi:https://doi.org/10.1080/08923648709526567

Gaskell, A. (2017). Open distance learning. In M. A. Peters (Ed.), *Encyclopedia of Educational Philosophy and Theory*. London: Routledge. doi:https://doi.org/10.1007/978-981-287-588-4_215

Given, L. (Ed.) (2012). *The Sage encyclopedia of qualitative research methods*. Los Angeles: Sage. doi:https://doi.org/10.4135/9781412963909

Glass, J., & Sue, V. (2008). Student preferences, satisfaction, and perceived learning in an online mathematics class. *Merlot Journal of Online Learning and Teaching*, *4*, 325–338.

Granikov, V., Hong, Q. N., Crist, E., & Pluye, P. (2020). Mixed methods research in library and information science: A methodological review. *Library and Information Science Research*, *42*(1). 101003. doi:https://doi.org/10.1016/j.lisr.2020.101003

Grant, C., & Osanloo, A. (2014). Understanding, selecting, and integrating a theoretical framework in dissertation research: creating the blueprint for your "house." *Administrative Issues Journal Education Practice and Research, 4*(2), 12–26. doi:https://doi.org/10.5929/2014.4.2.9

Guba, E. G., & Lincoln, Y. S. (1988). Do inquiry paradigms imply inquiry methodologies? In D. M. Fetterman (Ed.), *The silent scientific revolution: Qualitative approaches in evaluating education* (pp. 89–115). Berkeley: McCutchen Press.

Gulliver, M., & Fekete, E. (2017). Introduction to special edition on deaf geographies. *Journal of Cultural Geography*, *34*(2), 121–130.

Gunawan, J. (2015). Ensuring trustworthiness in qualitative research. *Belitung Nursing Journal*, *1*(1), 10–11. doi:https://doi.org/10.33546/bnj.4

Hall, M. (2019). *Critical disability theory*. Stanford Encyclopedia of Philosophy. Retrieved from https://plato.stanford.edu/entries/disability-critical/

Harris, R., Holmes, H. M., & Mertens, D. M. (2008). Research ethics in sign language communities. *Sign Language Studies*, *9*(2), 104–131. doi:https://doi.org/10.1353/sls.0.0011

Hay, J. F. (2003). Implementation of the inclusive education paradigm shift in South African education support services. South African journal of education, 23(2), 135-138.

Heale, R., & Noble, H. (2019). Integration of a theoretical framework into your research study. *Evidence-Based Nursing*, *22*(2), 36–37. doi:https://doi.org/10.1136/ebnurs-2019-103077

Heick, T. (2018). What is the difference between pedagogy, andragogy, and heutagogy? *Teachthought*. Retrieved from https://www.teachthought.com/pedagogy/andragogy/

Held, M. B. E. (2019). Decolonizing research paradigms in the context of settler colonialism: An unsettling, mutual, and collaborative effort. *International Journal of Qualitative Methods*, *1*(8), 1–16. doi:https://doi.org/10.1177/1609406918821574

Hesse-Biber, S., & Leavy, P. (2008). Introduction: Pushing on the methodological boundaries: The growing need for emergent methods within and across the disciplines. In S. Hesse-Biber & P. Leavy (Eds.), *Handbook of emergent methods* (pp. 1–15). New York: Guilford Press.

Heydenrych, J. F., & Prinsloo, P. (2010). Revisiting the five generations of distance education: Quo vadis? *Progressio*, *32*(1), 2010–2015.

Hitchcock, J. H., & Onwuegbuzie, A. J. (2020). Developing mixed methods crossover analysis approaches. *Article Journal of Mixed Methods Research*, *14*(1), 63–83. doi:https://doi.org/10.1177/1558689819841782

Holmberg, B. (1977). *Distance education: A survey and bibliography*. London: Kogan Page.

Holmberg, B. (1985). The feasibility of a theory of teaching for distance education and a proposed theory. ZIFF Papiere 60. Retrieved from https://files.eric.ed.gov/fulltext/ED290013.pdf

Horkheimer, M. (1937). Traditional and critical theory. In M. Horkheimer (Ed.), *Critical theory: Selected essays* (pp. 188–243). New York: Continuum.

Howell, B. A. (2005). Real world problems of virtual crime, recommended citation. *Yale Journal of Law and Technology Article, 7*(1), 104–122.

Howell, C., Chalklen, S., & Alberts, T. (2006). A history of the disability rights movement in South Africa. In S. Shah & M. Priestley (Eds.), *Disability and social change: A South African agenda* (pp. 46–84). Bristol: Bristol University Press. doi:https://doi.org/10.2307/j.ctt9qgt0j

Howell, J. J., & Luckner, J. L. (2003). Helping one deaf student develop content literacy skills: An action research report. *Communication Disorders Quarterly*, *25*(1), 23–27.

Howell, S. L. & Wilcken, W. (2010). Student support services. In I. Management Association (Ed.), *Electronic Services: Concepts, Methodologies, Tools and Applications* (pp. 1253–1260). Hershey: IGI Global. doi:https://doi.org/10.4018/978-1-61520-967-5.ch076

Hosking, D. L. (2008). *Critical disability theory*. Paper presented at the 4th Biennial Disability Studies Conference at Lancaster University, UK, 2–4 September 2008.

Huberman, A., & Miles, M. B. (1994). Data management and analysis methods. In I. N. K. Denzin & Y. S. Lincoln (Eds.), *The Sage handbook of qualitative research* (pp. 428–444). Los Angeles: Sage.

Humphries, B., Mertens, D. M., & Truman, C. (2020). Arguments for an "emancipatory" research paradigm. In B. Humphries, & C. Truman (Eds.), *Research and Inequality* (pp. 3-23). London: Routledge. doi:https://doi.org/10.4324/9781003071679-2

Imenda, S. (2014). Is there a conceptual difference between theoretical and conceptual frameworks? *Journal of Social Science, 38*(2), 185–195.

Ishtiaq, M. (2019). Book review. Creswell, J. W. (2014). *Research design: Qualitative, quantitative and mixed methods approaches* (4th ed.). Thousand Oaks: Sage. *English Language Teaching, 12*(5), 40–41. doi:https://doi.org/10.5539/elt.v12n5p40

Ivankova, N. V. (2015). Applying mixed methods in action research. *Mixed Methods Applications in Action Research, 62*(7), 50–83.

Ivankova, N., & Wingo, N. (2018). Applying mixed methods in action research: Methodological potentials and advantages. *American Behavioral Scientist*, *62*(7), 978–997. doi:https://doi.org/10.1177/0002764218772673

Ivankova, N. Creswell, J. W., & Stick, S. L. (2006). Using mixed-methods sequential explanatory design: from theory to practice. *Field Methods*, *18*(1), 3–20. doi:https://doi.org/10.1177/1525822X05282260

Jacklin, A., Robinson, C., O'Meara, L., & Harris, A. (2007). Improving the experiences of disabled students in higher education. In *The Higher Education Academy*. Retrieved from https://www.researchgate.net/publication/253525979_Improving_the_Experiences_of_Disabled_Students_in_Higher_Education

Jain-Link, P., & Kennedy, J. T. (2019). Why people hide their disabilities at work. *Harvard Business Review*. Retrieved from https://hbr.org/2019/06/why-people-hide-their-disabilities-at-work

Johnson, J. L., Adkins, D., & Chauvin, S. (2020). Qualitative research in pharmacy education: A review of the quality indicators of rigor in qualitative research. *American Journal of Pharmaceutical Education, 84*(1), 138–146. doi:https://doi.org/10.5688/ajpe7120

Juvonen, J., Lessard, L. M., Rastogi, R., Schacter, H. L., & Smith, D. S. (2019). Promoting social inclusion in educational settings: Challenges and opportunities. *Educational Psychologist*, *54*(4), 250–270. doi:https://doi.org/10.1080/00461520.2019.1655645

Kadenge, M., & Musengi, M. (2018). Zimbabwean sign language. In T. Kamusella & F. Ndhlovu (Eds.), *The Social & Political History of Southern Africa's Languages* (pp. 339–346). London: Palgrave Macmillan. doi:https://doi.org/10.1057/978-1-137-01593-8_21

Kawulich, B. B. (2005). Participant observation as a data collection method. *Forum Qualitative Sozialforschung* (*Forum: Qualitative Social Research*), 6(2). Art. 43. 28 pages. doi:https://doi.org/10.17169/fqs-6.2.466

Kayembe, C., & Nel, D. (2019). Challenges and opportunities for education in the Fourth Industrial Revolution. *African Journal of Public Affairs*, *11*(3), 73–94.

Keegan, D. (1986). Interaction and communication. In D. Keegan (Ed.), *The foundations of distance education* (pp. 89–107). Kent: Croom Helm.

Kiprop, V. (2020). Which countries recognize sign language as an official language? *World Atlas*. Retrieved from https://www.worldatlas.com/articles/which-countries-recognize-sign-language-as-an-official-language.html

Kivunja, C., & Kuyini, A. B. (2017). Understanding and applying research paradigms in educational contexts. *International Journal of Higher Education*, *6*(5), 26–41. doi:https://doi.org/10.5430/ijhe.v6n5p26

Kop, R., & Hill, A. (2008). Connectivism: Learning theory of the future or vestige of the past? *International Review of Research in Open and Distance Learning*, *9*(3). 13 pages. doi:https://doi.org/10.19173/irrodl.v9i3.523

Kravchenko, A., & Kyzymenko, I. (2019). The Forth Industrial Revolution: New paradigm of society development or posthumanist manifesto. *Philosophy and Cosmology*, *22*, 120–128. doi:https://doi.org/10.29202/phil-cosm/22/10

Kuhn, T. S. (1962). *The structure of scientific revolutions*. Chicago: University of Chicago Press.

Kuhn, T. S. (1970). *The structure of scientific revolutions* (2nd ed.). Chicago: University of Chicago Press.

Kusters, A., De Meulder, M., & O'Brien, D. (2017). *Innovations in deaf studies: The role of deaf scholars*. Oxford: Oxford University Press.

Ladd, P. (2003). *Understanding deaf culture: In search of deafhood*. Clevedon: Multilingual Matters.

Ladd, P. (2015). Global deafhood: Exploring myths and realities. In M. Friedner & A. Kusters (Ed.), *It's a small world: International deaf spaces and encounters* (pp. 274–286). Washington D.C.: Gallaudet University Press.

Laher, S., Fynn, A., & Kramer, S. (2019). *Transforming research methods in the social sciences: Case studies from South Africa.* Johannesburg: Wits University Press. doi:https://doi.org/10.18772/22019032750

Lane, H. (1995). Constructions of deafness. *Disability & Society*, *10*(2), 171–190. doi:https://doi.org/10.1080/09687599550023633

Lang, H. G. (2002). Higher education for deaf students: Research priorities in the New Millennium I thank Lisa Elliot for her assistance with the literature review. *Journal of Deaf Studies and Deaf Education*, *7*(4), 267–280. doi:https://doi.org/10.1093/deafed/7.4.267

Lang, H. G., & Steely, D. (2003). Web-based science instruction for deaf students: What research says to the teacher. *Instructional Science*, *31*, 277–298.

Leedy, P. D., & Ormrod, J. E. (2015). *Practical research: Planning and design, global edition* (11th ed.). Boston: Pearson.

Letseka, M. (Ed.). (2015). *Open distance education (ODL) in South Africa*. New York: Nova Publishers.

Lincoln, Y. S., & Guba, E. G. (2000). Paradigmatic controversies, contradictions, and emerging confluences. In N. K. Denzin & Y. S. Lincoln (Eds.), *The Sage handbook of qualitative research* (pp. 163–188). Thousand Oaks: Sage.

Liversidge, A. G. (2003). Academic and social integration of deaf and hard-of-hearing students in a Carnegie research-I university. Dissertation submitted to the Faculty of the Graduate School of the University of Maryland, College Park.

Mace, R. (1985). Universal design, barrier-free environments for everyone. *Los Angeles: Designers West*, *33*(1), 147–152.

Magongwa, L. (2008). *Deaf teachers' experience of being students at the university of the Witwatersrand*. Johannesburg: University of the Witwatersrand.

Magongwa, L. (2010). Deaf education in South Africa. *American Annals of Deaf*, *155*(4), 493–496.

Marczyk, G. R., DeMatteo, D., & Festinger, D. (2021). *Essentials of research design and methodology*. Hoboken: John Wiley & Sons.

Marschark, M., & Spencer, P. E. (2006). Spoken language development of deaf and hard-of-hearing children: Historical and theoretical perspectives. In P. E. Spencer & M. Marschark (Eds.), *Advances in the spoken language development of deaf and hard-of-hearing children* (pp. 3–21). Oxford: Oxford University Press.

Matjila, T. N. (2018). A phenomenological study of the lived experiences and meaning of being a student with a physical impairment at an open distance learning university. Dissertation submitted to the Department of Psychology at the University of South Africa, Pretoria.

Matjila, T. N., & Van der Merwe, P. (2021). Transformative research paradigm: A response to SDG 4 by intensifying support scholarships for deaf and hard-of-hearing students at an open distance and e-learning university. 10 pages. Preprint. doi:https://doi.org/10.25159/UNISARXIV/000010.V1

Matshedisho, K. R. (2007). Access to higher education for disabled students in South Africa: A contradictory conjuncture of benevolence, rights and the social model of disability Knowledge Rajohane Matshedisho. *Disability & Society*, *7*, 685–699. doi:https://doi.org/10.1080/09687590701659535

Mawonde, A., & Togo, M. (2019). Implementation of SDGs at the University of South Africa. *International Journal of Sustainability in Higher Education*, *20*(5), 932–950. doi:https://doi.org/10.1108/IJSHE-04-2019-0156

Maxwell, J. A. (2013). Designing a qualitative study. In J. A. Maxwell (Ed.), *Qualitative research design: An interactive approach* (pp. 214–253). (3rd ed.). Thousand Oaks: Sage.

McGuire-Adams, T. D. (2019). Paradigm shifting: Centering indigenous research methodologies, an Anishinaabe perspective. *Qualitative Research in Sport, Exercise and Health*, *12*(1), 34–47. doi:https://doi.org/10.1080/2159676X.2019.1662474

McKeown, C., & McKeown, J. (2019). Accessibility in online courses: Understanding the deaf learner. *TechTrends, 63*(5), 506–513. doi:https://doi.org/10.1007/s11528-019-00385-3

Mertens, D. M. (2009). *Transformative research and evaluation*. New York: The Guilford Press.

Mertens, D. M. (2010). Philosophy in mixed methods teaching: The transformative paradigm as illustration. *International Journal of Multiple Research Approaches*, *4*(1), 9–18. doi:https://doi.org/10.5172/mra.2010.4.1.009

Mertens, D. M. (2012). Transformative mixed methods: Addressing inequities. *American Behavioral Scientist*, *56*(6), 802–813. doi:https://doi.org/10.1177/0002764211433797

Meyer, I. A., & Gent, P. R. (2016). The status of ICT in education in South Africa and the way forward. 48 pages. Retrieved from https://nect.org.za/publications/technical-reports/the-state-of-ict-in-education-in-south-africa/

Mike, D., & Harrington, M. (2013). Retrofitting an online graduate course for ADA compliance: The case for universal design for learning. In R. McBride & M. Searson (Eds.), *Proceedings of society for information technology & teacher education international conference 2013* (pp. 789–794). Chesapeake: Association for the Advancement of Computing in Education (AACE).

Milam, J., Voorhees, R. A., & Bedard-Voorhees, A. (2004). Assessment of online education: Policies, practices, and recommendations. *New Directions for Community Colleges*, *2004*(126), 73–85. doi:https://doi.org/10.1002/CC.156

Ministry of Education. (2001). National plan for higher education ministry of education. Retrieved from https://www.justice.gov.za/commissions/feeshet/docs/2001-NationalPlanForHigherEducation.pdf

Mishra, S. B., & Alok, S. (2017). *Handbook of research methodology: A compendium for scholars & researchers*. New Delhi: Educational Publishing.

Mogane, M. P. (2010). The development and evaluation of a wellness promotion programme for students with disabilities at institutions of higher learning with special reference to the university of Limpopo (Turfloop campus). Thesis submitted to the Faculty of Arts at the University of Zululand, Empangeni.

Moore, M. (1991). Editorial: Distance education theory. *American Journal of Distance Education*, *5*(3), 1–6. doi:https://doi.org/10.1080/08923649109526758

Moore, M. (2006). Theory and theorists. *European Distance and E-Learning Network. Slide Player*. 27 October 2006. Retrieved from https://slideplayer.com/slide/5869053/

Moore, M. G. (1973). Toward a theory of independent learning and teaching. *The Journal of Higher Education*, *44*(9), 661–679. doi:https://doi.org/10.2307/1980599

Moore, M. G. (1990). *Contemporary issues in American distance education*. Oxford: Pergamon.

Moore, M. G. (1993). Theory of transactional distance. In D. Keegan (Ed.), *Theoretical principles of distance education* (pp. 22–38). Abingdon: Routledge.

Moore, M. G., & Kearsley, G. (2012). *Distance education: A systems view of online learning*. Belmont: Wadsworth Cengage Learning.

Morgan, D. L. (2007). Paradigms lost and pragmatism regained: Methodological implications of combining qualitative and quantitative methods. *Journal of Mixed Methods Research*, *1*(1), 48–76. doi:https://doi.org/10.1177/2345678906292462

Morgan, D. L. (2014). Pragmatism as a paradigm for social research. *Qualitative Inquiry*, *20*(8), 1045–1053. doi:https://doi.org/10.1177/1077800413513733

Morgan, D. L. (2017). Mixed methods research. In K. Korgen (Ed.), *The Cambridge handbook of sociology: Core areas in sociology and the development of the discipline* (pp. 143–152). Cambridge: Cambridge University Press.

Morgan, R. Z., & Kaneko, M. (2019). Construction of deaf narrative identity in creative South African sign language (SASL). *Stellenbosch Papers in Linguistics Plus*, *59*(0), 1–20. doi:https://doi.org/10.5842/59-0-792

Moroe, N. F., & De Andrade, V. (2018). Hearing children of deaf parents: Gender and birth order in the delegation of the interpreter role in culturally deaf families. *African Journal of Disability*, *7*, 1–10.

Motala, S., & Menon, K. (2020). In search of the "new normal:" Reflections on teaching and learning during Covid-19 in a South African university. *Southern African Review of Education*, *26*(1), 80–99.

Möwes, D. L. (2005). An evaluation of student support services in open and distance learning at the university of Namibia. Dissertation submitted to the University of Stellenbosch, Stellenbosch.

Mpofu, J., & Chimhenga, S., & Mafa, O. (2013). Funding higher education in Zimbabwe: Experience, challenges and opportunities of the cadetship scheme. In D. Teferra (Ed.), *Funding higher education in sub-Saharan Africa* (pp. 327–350). London: Palgrave Macmillan. doi:https://doi.org/10.1057/9781137345783_13

Msweli, P. (2012). View of mapping the interplay between open distance learning and internationalisation principles. *The International Review of Research in Open and Distance Learning*, *13*(3), 97–116.

Mutanga, O. (2017). Students with disabilities' experience in South African higher education – a synthesis of literature. *South African Journal of Higher Education*, *31*(1), 135–154. doi:https://doi.org/10.20853/31-1-1596

Mutanga, O. (2017). *Policy brief: Inclusive Policy for Students with Disabilities*.

National Planning Commission. (2010). National Development Plan (2030). *Department of the Presidency: Republic of South Africa*.

Ngobeni, W. P., Maimane, J. R., & Rankhumise, M. P. (2020). The effect of limited sign language as barrier to teaching and learning among deaf learners in South Africa. *South African Journal of Education*, *40*(2), 1–7. doi:https://doi.org/10.15700/SAJE.V40N2A1735

Ngubane-Mokiwa, S. A. (2013). *Information and communication technology as a learning tool: Experiences of students with blindness.* June issue. University of South Africa. Retrieved from http://uir.unisa.ac.za/handle/10500/13246%0Ahttp://files/401/Ngubane-Mokiwa

Ngulube, P. (2020). The movement of mixed methods research and the role of information science professionals. In P. Ngulube (Ed.), *Handbook of research on connecting research methods for information science research* (pp. 425–455). Hershey: IGI Global. doi:https://doi.org/10.4018/978-1-7998-1471-9.ch022

Ngulube, P., & Ngulube, B. (2015). Mixed methods research in the South African journal of economic and management sciences: An investigation of trends in the literature. *South African Journal of Economic and Management Sciences*, *18*(1), 1–13. doi:https://doi.org/10.17159/2222-3436/2015/v18n1a1

Ngyende, A. (2011). Statistical release (revised). P0301.4: Census 2-11. 82 pages. Retrieved from https://www.statssa.gov.za/publications/P03014/P030142011.pdf

Nhamo, G. (2021). Localisation of SDGs in higher education: UNISA's whole institution, all goals and entire sector approach. *Southern African Journal of Environmental Education*, *37*(1), 63–85. doi:https://doi.org/10.4314/sajee.v37i1.5

Nowell, L. S., Norris, J. M., White, D. E., & Moules, N. J. (2017). Thematic analysis: Striving to meet the trustworthiness criteria. *International Journal of Qualitative Methods*, *16*, 1–13. doi:https://doi.org/10.1177/1609406917733847

Nowicki, L. (2019). Sign language included as a subject for matric exam. *Ground Up*. 14 January 2019. Retrieved from https://www.groundup.org.za/article/sign-language-included-subject-matric-exam/

Nsamba, A. N. (2016). Exploring the quality of students' support services in distance learning environments. Thesis submitted at the Department of Education at the University of South Africa, Pretoria.

Omniconvert. (2019). *What is…sample size?* Sample Size Definition. *Omniconvert*. Retrieved from https://www.omniconvert.com/what-is/sample-size/

Omrin, M. S., & Falola, E. O. (2011). Educational research theoretical and conceptual frameworks. *Global Journal of Educational Research*, *10*(x), 9–12. Retrieved from http://www.globalresearch-journals.org/journal/gjer/archive/july-2011-vol-1(1)/educational-research-theoretical-and-conceptual-frameworks

Open University. (2021). Supporting students with disabilities. *The Open University*. Retrieved from https://www.open.ac.uk/courses/do-it/disability

Paniagua, A. S.-E., & Simpson, O. (2018). Developing student support for open and distance learning: The EMPOWER project. *Journal of Interactive Media in Education*, *2018*(1). Art. 9. 10 pages. doi:https://doi.org/10.5334/jime.470

PanSALB. (2006). Pan South African Language Board: Annual Report 2005/2006. 50 pages. Retrieved from: https://static.pmg.org.za/docs/2007/070509pansalb.pdf

PanSALB. (2022). South African sign language the country's 12th official language. *Lawforall*. Retrieved from https://www.google.com/search?q=South+African+Sign+Language+the+country%27s+12th+official+language.&rlz=1C1OKWM_en-gbZA929ZA929&oq=South+African+Sign+Language+the+country%27s+12th+official+language.&aqs=chrome..69i57.1173j0j7&sourceid=chrome&ie=UTF-8

Parker, A. (2020). Interaction in distance education: The critical conversation. *AACE (Association for the Advancement of Computing in Education) Review, 12*, 13–17.

Patru, M., & Khvilon, E. (2002). *Open and distance learning: Trends, policy and strategy considerations*. Paris: UNESCO.

Pather, M. R. (2020). The Impact of the Fourth Industrial Revolution on Education in South Africa. The Thinker, 83, 19–23. https://doi.org/10.4159/harvard.9780674366237.c3

Paul, J., & Criado, A. R. (2020). The art of writing literature review: What do we know and what do we need to know? *International Business Review*, *29*(4), 101717. doi:https://doi.org/10.1016/J.IBUSREV.2020.101717

Peel, E. L. (2004). Inclusive practice in South Africa : A deaf education perspective. Dissertation submitted to the School of Human and Community, University of Johannesburg, Johannesburg.

Pelmutter, D. M. (1991). The language of the deaf. *The New York Review of Books, 38*(6). 19 pages. Retrieved from https://semantics.uchicago.edu/kennedy/classes/sum08/myths/perlmutter-nyrb.pdf

Penprase, B.E. (2018). The Fourth Industrial Revolution and higher education. In N. Gleason (Ed.), *Higher education in the era of the Fourth Industrial Revolution* (pp. 207–228). Singapore: Palgrave Macmillan. doi:https://doi.org/10.1007/978-981-13-0194-0_9

Perniss, P., Lu, J. C., Morgan, G., & Vigliocco, G. (2018). Mapping language to the world: The role of iconicity in the sign language input. *Developmental Science*, *21*(2). e12551. 41 pages. doi:https://doi.org/10.1111/desc.12551

Peter, K. A. (2010). The interpretation and use of mixed methods research within programme evaluation practice. Thesis submitted to the Department of Sociology and Social Anthropology-the University of Stellenbosch, Stellenbosch.

Peters, M. A., & Jandrić, P. (2019). Education and technological unemployment in the Fourth Industrial Revolution. In G. Redding, A. Drew, & S. Crump (Eds.), *The Oxford handbook of higher education systems and university management* (pp. 394–413). Oxford: Oxford University Press. doi:https://doi.org/10.1093/oxfordhb/9780198822905.013.27

Pope, K. S. & Vetter, V. A. (2016). Ethical dilemmas encountered by members of the American psychological association: A national survey. *American Psychologist, 47*(3), 397–411.

Possi, M. K. (1996). Gender and education of people with disabilities in Tanzania. *UTAFITI (New Series)*, *3*(2), 155–168.

Pribesh, S., Dickinson, G. K., & Bucher, K. T. (2006). A comparison of online and face to face cohorts in a school library media specialist graduate programme: A preliminary study. *Journal of Education for Library and Information Science*, *47*(4), 303–323.

Pudans-Smith, K. K., Cue, K. R., Wolsey, J.-L. A., Clark, M. D. (2019). To deaf or not to deaf: That is the question. *Psychology*, *10*(15), 2091–2114. doi:https://doi.org/10.4236/PSYCH.2019.1015135

Punch, K. (2005). *Introduction to social research: Quantitative and qualitative approaches* (2nd ed.). London: Sage.

Quinlan, C., Zikmund, W., Babin, B., Carr, J., & Griffin, M. (2015). *Business research methods*. Andover: South Western Cengage.

Ragaan, L. C. (1999). Good teaching is good teaching: An emerging set of guiding principles and practices for the design and development of distance education. *Cause Effect*, *22*(1), 20–24.

Rehman, A. A., & Alharthi, K. (2016). An introduction to research paradigms in distance education. *International Journal of Educational Investigations*, *3*(October), 51–59.

Rembis, M. (2019). Challenging the impairment/disability divide. *Routledge Handbook of Disability Studies*, *11415*, 377–390. doi:https://doi.org/10.4324/9780429430817-27

Roberts, J. B., Crittenden, L. A., & Crittenden, J. C. (2011). Students with disabilities and online learning: A cross-institutional study of perceived satisfaction with accessibility compliance and services. *Internet and Higher Education*, *14*(4), 242–250. doi:https://doi.org/10.1016/j.iheduc.2011.05.004

Romm, N. R. A. (2018). *Responsible research practice: Revisiting transformative paradigm in social research*. Cham: Springer.

Romm, N. R. A., & Ngulube, P. N. R. (2015). Mixed methods research. In E. R. Mathipa & M. T. Gumbo (Eds.), *Addressing research challenges: Making headway for developing researchers* (pp. 157–175). Sandton: Mosala-Masedi.

Rose, D. H.., & Meyer, A. (2002). *Teaching every student in the digital age: Universal design for learning*. Alexandria: Association for Supervision and Curriculum Development. doi:https://doi.org/10.1007/s11423-007-9056-3

Rose, J., & Johnson, C. W. (2020). Contextualizing reliability and validity in qualitative research: Toward more rigorous and trustworthy qualitative social science in leisure research. *Journal of Leisure Research, 51*(4), 432-451. doi:10.1080/00222216.2020.1722042

Roulet, T. J., Gill, M. J., Stenger, S., & Gill, D. J. (2017). Reconsidering the value of covert research: The role of ambiguous consent in participant observation. *Organizational Research Methods*, *20*(3), 487–517. doi:https://doi.org/10.1177/1094428117698745

Saleh, A., & Bista, K. (2017). Examining factors impacting online survey response rates in educational research: Perceptions of graduate students. *Journal of Multidisciplinary Evaluation*, *13*(29), 63–74.

Sampana, E. Y., & De La Cruz, A. (2020). Count them in! Inclusion of persons with disabilities in a diversified workforce – a transformative mixed-methods study. *Journal of Management and Training for Industries*, *7*(2), 26–60. doi:https://doi.org/10.12792/JMTI.7.2.26

Saunders, M. N. (1997). Understanding research philosophy and approaches to theory development. In M. N. Saunders, P. Lewis, & A Thornbill (Eds.), *Research methods for business students* (pp. 128–170). Harlow: Prentice Hall.

Saunders, M. N., Lewis, P., & Thornhill, A. (2016). *Research methods for business students* (7th ed.). Harlow: Prentice Hall.

Saunders, S. A., Nolan, J., & Provost, S. (2009). Student attributions and performance: Problems with unfounded optimism? *Research in Higher Education*, *5*, 1–8.

Saxton, M. (2018). Hard bodies: Exploring historical and cultural factors in disabled people's participation in exercise; applying critical disability theory. *Sport in Society*, *21*(1), 22–39. doi:https://doi.org/10.1080/17430437.2016.1225914

Schalk, S. (2017). Interpreting disability metaphor and race in Octavia Butler's "The evening and the morning and the night." *African American Review*, *50*(2), 139–151. doi:https://doi.org/10.1353/afa.2017.0018

Scotland, J. (2012). Exploring the philosophical underpinnings of research: Relating ontology and epistemology to the methodology and methods of the scientific, interpretive, and critical research paradigms. *English Language Teaching*, *5*(9), 9–16. doi:https://doi.org/10.5539/elt.v5n9p9

Searle, J. R. (2015). *A theory of perception: Seeing things as they are*. Oxford: Oxford University Press. doi:https://doi.org/10.1093/acprof:oso/9780199385157.001.0001

Sendall, M. C., McCosker, L. K., Brodie, A., Hill, M., & Crane, P. (2018). Participatory action research, mixed methods, and research teams: Learning from philosophically juxtaposed methodologies for optimal research outcomes. *BMC Medical Research Methodology*, *18*(1), 1–6. doi:https://doi.org/10.1186/s12874-018-0636-1

Setai, S. (2012). *A case study of a young deaf man's identity construction in a hearing family*. Vol. 66. Johannesburg: University of the Witwatersrand Press.

Setai, S. (2014). A case study of a young deaf man's identity construction in a hearing family. Dissertation submitted to the Faculty of Humanities of the University of the Witwatersrand, Johannesburg.

Shakespeare, T., Watson, N., & Alghaib, O. A. (2017). Blaming the victim, all over again: Waddell and Aylward's biopsychosocial (BPS) model of disability. *Critical Social Policy*, *37*(1), 22–41. doi:https://doi.org/10.1177/0261018316649120

Shenton, A. K. (2004). Strategies for ensuring trustworthiness in qualitative research projects. *Education for Information*, *22*, 63–75. doi:https://doi.org/10.4135/9781446294406.n347

Siemens, G. (2017). Connectivism: A learning theory for the digital age. *Pressbooks*. Retrieved from https://pressbooks.pub/lidtfoundations/chapter/connectivism-a-learning-theory-for-the-digital-age/.

Singh, R. K., & Mahapatra, S. K. (2019). Education of deaf learners through open schooling system in India. *Asian Journal of Distance Education*, *14*(2), 26–31.

Sinha, T., Clarke, S., & Farquharson, L. (2018). Shrek, Saunders and the onion myth: Using myths, metaphors and storytelling. In P. Demartini, & M. Marchiori (Eds.), *Proceedings of the 17th European Conference on Research Methodology for Business and Management Studies*. Retrieved from https://winchester.elsevierpure.com/en/publications/shrek-saunders-and-the-onion-myth-using-myths-metaphors-and-story

Skrebneva, I. V. (2015). Guidelines to curriculum adaptations to support deaf learners in inclusive secondary schools. Thesis submitted to the School of Education at the University of South Africa, Pretoria.

Solesvik, M. (2018). The rise and fall of the resource-based view: Paradigm shift in strategic management. *Journal of the Ural State University of Economics*, *19*(4), 5–18. doi:https://doi.org/10.29141/2073-1019-2018-19-4-1

South African Government. (2019). Minister Stella Ndabeni-Abrahams on Presidential Commission developing South Africa's 4IR Strategy. 12 June 2019. Retrieved from https://www.gov.za/speeches/presidential-commission-fourth-industrial-revolution-meets-establish-roadmap-towards

StatsSA. (2020). How unequal is South Africa? Retrieved from http://www.statssa.gov.za/?p=12930

Ștefan, Ț. (2019). Implications of modern digital technologies in higher education. *Advances in Economics, Business and Management Research*, *105*, 554–557. doi:https://doi.org/10.2991/iscde-19.2019.107

Story, M. F. (2012). The principles of universal design. In H. Smith, F. Wolfgang, & P. Koryon (Eds.), *Universal design Handbook* (Issue 2). Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=ehh&AN=82784466&site=ehost-live&scope=site

Subotzky, G., & Prinsloo, P. (2011). Turning the tide: A socio-critical model and framework for improving student success in open distance learning at the University of South Africa. *Distance Education, 32*, 177–193. doi:https://doi.org/10.1080/01587919.2011.584846

Taherdoost, H. (2018). Sampling methods in research methodology, how to choose a sampling technique for research. *International Journal of Academic Research in Management*, *5,* 19–27. doi:https://doi.org/10.2139/ssrn.3205035

Tait, A. (2000). Planning student support for open and distance learning. *Open Learning*, *15*(3), 287–299. doi:https://doi.org/10.1080/713688410

Tait, A. W. (2014). From place to virtual space: Reconfiguring student support for distance and e-learning in the digital age. *Open Praxis*, *6*(1), 5–16. doi:https://doi.org/10.5944/openpraxis.6.1.102

Tallman, J., & Fitzgerald, M. A. (2005). Blending online and classroom learning environments. *Knowledge Quest*, *34*(1), 25–28.

Taylor, A. (2016). *Auditory-verbal therapy with deaf or hard-of-hearing children in Gauteng, South Africa*. Johannesburg: University of the Witwatersrand.

Taylor, J. (2001). Fifth generation distance education. *Instructional Science and Technology*, *1*, 1-14.

Teddlie, C., & Tashakkori, A. (2009). *Foundations of mixed methods research: Integrating quantitative and qualitative approaches in the social and behavioral sciences*. London: Sage.

Terry, G., Hayfield, N., Clarke, V., & Braun, V. (2017). Thematic analysis. In C. Willig, & W. Stainton-Rogers (Eds.), *The Sage handbook of qualitative research in psychology* (pp. 17–37). London: Sage.

The Presidency. (2019). *South Africa's voluntary national review (VNR) Report 2019: Empowering people and ensuring inclusiveness and equality*. Retrieved from https://sustainabledevelopment.un.org/content/documents/23402RSA_Voluntary_National_Review_Report__9_July_2019.pdf

Thompson, J. (2004). Teaching English literacy to members of the deaf community: Insights for bilingual programming. Thesis submitted to Applied Language Studies at the Auckland University of Technology, Auckland.

Titmus, C., Buttedahl, P. G., Ironside, D. J., & Lengrand, P. (1979). *Terminology of adult education.* Paris: UNESCO.

Tobi, H., & Kampen, J. K. (2017). Research design: The methodology for interdisciplinary research framework. *Quality & Quantity, 52*(3), 1209–1225. doi:https://doi.org/10.1007/S11135-017-0513-8

Toledo-Pereyra, L. H. (2012). Research design. *Journal of Investigative Surgery*, *25*(5), 279–280. doi:https://doi.org/10.3109/08941939.2012.723954

Tournier, M. (1967). Das Fernstudium – ein neues pädagogisches Forschungs und Entwicklungsfeld. *Revue Française de Pédagogie, 1*, 43–45.

Tsekeris, C. (2019). Surviving and thriving in the Fourth Industrial Revolution: Digital skills for education and society. *Homo Virtualis*, *2*(1), 34–42. doi:https://doi.org/10.12681/homvir.20192

Tye-Murray, N., Spry, J. L., & Mauzé, E. (2009). Professionals with hearing loss: Maintaining that competitive edge. *Ear and Hearing*, *30*(4), 475–484. doi:https://doi.org/10.1097/AUD.0b013e3181a61f16

Ukwoma, S. C., & Ngulube, P. (2021). Trends and patterns of theory use in open and distance education research journals 2009-2018. *Open Learning*, *00*(00), 1–15. doi:https://doi.org/10.1080/02680513.2021.1911793

UNESCO. (2019a). Discussion on SDG 4 – Quality education. *High-level Political Forum on Sustainable Development*. 14 pages. Retrieved from https://sustainabledevelopment.un.org/content/documents/23669BN_SDG4.pdf

UNESCO. (2019b). *Recommendation on Open Educational Resources (OER)*. Retrieved from https://en.unesco.org/themes/building-knowledge-societies/oer/recommendation

UNISA. (2016). UNISA Language policy. Retrieved from https://www.unisa.ac.za/static/myunisa/Content/Student%20affairs%20&%20SRC/Documents/SRC%20Important%20Policy%20Documents/LanguagePolicy_rev_appr_Council_28042016.pdf

UNISA. (2018). Open distance elearning policy. 6 pages. Retrieved from https://www.unisa.ac.za/static/myunisa/Content/Student%20affairs%20&%20SRC/Documents/SRC%20Important%20Policy%20Documents/Policy%20-%20Open%20Distance%20e-Learning%20-%20rev%20appr%20Exco%20of%20Council%20-%2010.12.2018.pdf

UNISA. (2021). Public relations: Introduction to public relations. Retrieved from https://www.unisa.ac.za/sites/corporate/default/Register-to-study-through-Unisa/Subjects-&-modules/All-subjects/PUBLIC-RELATIONS

United Nations. (2020). *The sustainable development goals report*. Retrieved from https://books.google.co.za/books/about/The_Sustainable_Development_Goals_Report.html?id=M6D9DwAAQBAJ&printsec=frontcover&source=kp_read_button&hl=en&redir_esc=y#v=onepage&q&f=false

United Nations. (2022). Convention on the rights of persons with disabilities (CRPD). *Department of Economic and Social Affairs: Disability*. 6 May 2022. Retrieved from https://www.un.org/development/desa/disabilities/convention-on-the-rights-of-persons-with-disabilities.html

University of the Witwatersrand. (2021). *Disability Rights Unit (DRU)*. Retrieved from https://www.wits.ac.za/disability-rights-unit/

Varpio, L., Paradis, E., Uijtdehaage, S., & Young, M. (2020). The distinctions between theory, theoretical framework, and conceptual framework. *Journal of the Association of American Medical Colleges*, *95*(7), 989–994. doi:https://doi.org/10.1097/ACM.0000000000003075

Vogel, I. (2012). Review of the use of "theory of change" in international development – review report. Retrieved from https://gsdrc.org/document-library/review-of-the-use-of-theory-of-change-in-international-development/

Voorhees, A. B. (2001). Creating and implementing competency-based learning models. *New Directions for Institutional Research*, *2001*(110), 83–95. doi:https://doi.org/10.1002/IR.13

Watson, N., & Vehmas, S. (2019). Disability studies: Into the multidisciplinary future. In *Routledge handbook of disability studies*. Retrieved from https://books.google.com/books?hl=en&lr=&id=eB24DwAAQBAJ&oi=fnd&pg=PT16&dq=Watson+%26+Vehmas+2019&ots=8NnxCxapDh&sig=ebGfIhxtzbAH07pApp9hAh3TrC4

West, D. (2012). *Signs of hope: Deafhearing family life*. Newcastle upon Tyne: Cambridge Scholars Publishing.

Westwood, P. (2011). *Commonsense methods for children with special educational needs* (6th ed.). London: Routledge.

WHO (World Health Organization). (2021). Deafness and hearing loss. 1 April 2021. Retrieved from https://www.who.int/news-room/fact-sheets/detail/deafness-and-hearing-loss

Winston, A. S. (2020). Why mainstream research will not end scientific racism in psychology. *Theory & Psychology*, *30*(3), 425–430. doi:https://doi.org/10.1177/0959354320927086

Woodward, J. (1973). Some characteristics of pidgin sign English. *Sign Language Studies*, *3*, 39–46.

Wooten, P. M. (2014). A phenomenological study of online learning for deaf students in postsecondary education: A deaf perspective. Dissertation submitted to the Department of Education, Liberty University, Lynchburg. Retrieved from https://search.proquest.com/docview/1525981909?accountid=14548%0Ahttps://julac.hosted.exlibrisgroup.com/openurl/HKU_ALMA/SERVICES_PAGE??url_ver=Z39.88-2004&rft_val_fmt=info:ofi/fmt:kev:mtx:dissertation&genre=dissertations+%26+theses&sid=ProQ:Education+Dat

World Bank. (2020). Disability inclusion. Retrieved from https://www.worldbank.org/en/topic/disability.

World Federation of the Deaf. (2011). Report from the general assembly of the world federation of the deaf – Canadian association of the deaf. Retrieved from http://cad.ca/media-centre/news-events/report-from-the-general-assembly-of-the-world-federation-of-the-deaf/

World Federation of the Deaf. (2021). The legal recognition of national sign languages. Retrieved from https://wfdeaf.org/news/the-legal-recognition-of-national-sign-languages/

Wrench, J. S., Thomas-Maddox, C., Richmond, V. P., & McCroskey, J. C. (2016). *Quantitative research methods for communication: A hands-on approach* (3rd ed.). Oxford: Oxford University Press.

Wrigley, O. (1996). *The politics of deafness*. Washington D.C.: Gallaudet University Press.

Yoon, J.-O., & Kim, M. (2011). The effects of captions on deaf students' content comprehension, cognitive load, and motivation in online learning. *American Annals of the Deaf*, *156*(3), 283–289. doi:https://doi.org/10.2307/26235157

Yoshioka, T., Chen, Z., Dimitriadis, D., Hinthorn, W., Huang, X., Stolcke, A., & Zeng, M. (2019). Meeting transcription using virtual microphone arrays: Microsoft technical report MSR-TR-2019-11. 5 pages. Retrieved from https://www.microsoft.com/en-us/research/uploads/prod/2019/05/DenmarkTechReport-5ccb8b095c8f3.pdf

Young, A., Napier, J., Oram, R., & Young, A. (2020). The translated deaf self, ontological (in) security and deaf culture. *The Translator*, *00*, 1–20. doi:https://doi.org/10.1080/13556509.2020.1734165

Participation Information Sheet

Dear Prospective Participant

My name is Tonny Nelson Matjila and I am researching with Prof van der Merwe, a Professor in the Department of Psychology, towards the Doctor of Philosophy degree in Psychology at the University of South Africa (UNISA). We are inviting you to participate in a study entitled, ***An evaluation of student support services in an open distance and e-learning university: Towards a framework for students who are Deaf and Hard of Hearing***.

WHAT IS THE PURPOSE OF THE STUDY?

I am conducting this research to evaluate the provision of student support services for students who are Deaf and Hard of Hearing at an ODeL University.

"WHY AM I INVITED TO PARTICIPATE?"

Your input will contribute to the development of a student support framework for students who are Deaf and Hard of Hearing at an Open Distance Learning university, as well as policy amendments or development.

The proposal went through the ethics committee on the departmental, college, and institutional levels, where it was aggressively probed and scrutinised to check if it meets all requirements indicated in the Protection of Personal Information Act.

I am looking at interviewing and administering questionnaires to students who are Deaf and Hard of Hearing and staff members who are involved in the provision of student support, who are willing to be interviewed.

"WHAT IS THE NATURE OF MY PARTICIPATION IN THIS STUDY?"

Your actual role will be to discuss your experiences, perceptions, and your thoughts about how, and the way student support is and should be provided to students who are Deaf and Hard of Hearing.

There will be no right or wrong answers and the main questions asked will be the following:

- How should student support for students who are Deaf and Hard of Hearing be provided?

- How is student support being provided for students who are Deaf and Hard of Hearing?

- What are the communication challenges faced by students who are Deaf and Hard of Hearing?

- Who are the stakeholders responsible for student support provision for students who are Deaf and Hard of Hearing?

- How are the policies around disability, specifically for the students who are Deaf and Hard of Hearing, being implemented and monitored?

The study involves audio and video recordings, including the presence and participation of a sign language interpreter. However, I will need your permission. There is a consent form that may be printed or may be e-mailed to you before I can record your responses. This will help me to write down the true reflection of your responses. The transcript and the interpretation of your responses will be forwarded to you so that you may confirm whether it is a true reflection of what you meant.

The duration of interviews will be between 20 and 40 minutes.

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

Yes, participating in this study is voluntary and you are under no obligation to consent to participation. If you decide to take part, you will be given this information sheet to keep and be asked to sign a written consent form. You are free to withdraw at any time and without giving a reason.

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

No. However, should you feel that there is an emotional burden during or after the data collection, the researcher is willing to refer you to a counsellor at any UNISA centre for counselling purposes.

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

Yes, your name will not be recorded anywhere, and no one will be able to connect you about the answers you have given. Your answers will be given a code number or a pseudonym and

you will be referred to in this way in the data, any publications, and other research reporting methods such as conference proceedings.

Your responses may be reviewed by people responsible for making sure that research is done properly, including members of the Research Ethics Review Committee. Otherwise, records that identify you will be available only to people working on the study.

Your anonymous data may be used for other purposes, such as a research report, journal articles and/or conference proceedings. Your privacy will be protected in any publication of your information, be it a report of the study that may be submitted for publication or any other way of publication. Individual participants will therefore not be identifiable in such a report.

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

Hard copies of your answers will be stored by the researcher for five years in a locked cupboard/filing cabinet. For future research or academic purposes, electronic information will be stored on a password protected computer. Future use of the stored data will be subject to a further research ethics review and approval, if applicable. Hard copies will be shredded and/or electronic copies will be permanently deleted from the hard drive of the computer using a relevant software programme.

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

Participants will not receive any remuneration, monetary reward, or incentives for participating in the study.

"HAS THE STUDY RECEIVED ETHICS APPROVAL?"

This study has received written approval from the Research Ethics Review Committee of the Department of Psychology at UNISA, also from the Research Ethics Review Committee of the College of Human Sciences, as well as the Research Permission Subcommittee of UNISA. A copy of the approval letter can be obtained from the researcher if you wish to.

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

If you would like to be informed of the final research findings, please contact Tonny Matjila at 42238099@mylife.unisa.ac.za. The findings will also be accessible on the UNISA repository

system by searching the title of the study indicated above on http://uir.unisa.ac.za/handle/10500/14514.

Should you require any further information or want to contact the researcher about any aspect of this study, please contact 42238099@mylife.unisa.ac.za.

Should you have concerns about how the research has been conducted, you may contact the supervisor, Prof Van der Merwe at vdmerp1@unisa.ac.za. Alternatively, contact the research ethics chairperson of the Ethics Committee, Department of Psychology, Prof I Ferns, at 012 429 8210 or fernsi@unisa.ac.za.

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

Thank you.

Tonny Nelson Matjila

ANNEXURE B
Consent Form

I, _____ (participant name), confirm that the person asking my consent to take part in this research has told me about the nature, procedure, potential benefits and anticipated inconvenience of participation.

I have read (or had explained to me) and understood the study as explained in the information sheet.

I have had sufficient opportunity to ask questions and am prepared to participate in the study.

I understand that my participation is voluntary and that I am free to withdraw at any time without penalty (if applicable).

I am aware that the findings of this study will be processed into a research report, journal publications and/or conference proceedings, but that my participation will be kept confidential unless otherwise specified.

I agree with the recording of the audio responses.

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

Participant Name & Surname_____

Participant Signature_____   Date_____

Researcher's Name & Surname_____

Researcher's signature_____   Date_____

ANNEXURE C

Questionnaire: Students

The Survey Questionnaire

Please answer all the questions in this survey questionnaire by following the instructions and ensuring all the questions are answered. This questionnaire will only take 30 minutes of your time.

Section A: Demographical information of participants

This section is about your personal information. Please cross (**X**) the appropriate box.

1. Gender

Male	
Female	

2. Age

Younger than 21 years	
21-30 years	
30-40 years	
40-50 years	
50-60 years	
Above 60 years	

3. Working experience

0-2 years	
2-5 years	
5-10 years	
10-15 years	
15-20 years	
20-25 years	
25-30 years	
Above 30 years	

4. Current status

Fulltime student, employed	
Fulltime student, unemployed	
Fulltime student, self-employed	

Part-time student, employed	
Part-time student, unemployed	
Part-time student, self-employed	

5. Role if working

Senior management	
Middle management	
Junior management	
Non-management	

6. Hearing impairment

Yes	
No	
If yes, please specify	

7. Marital status

Single	
Married	
Divorced/Departed	
Other	

8. Indicate how far you live from your nearest regional service centre

0-10 km	
11-20 km	
21-35 km	
Over 35 km	

9. Kindly indicate your highest level of qualification

Matric/N3	
Diploma/N6	
Degree/B Tech	
Honours/Post-Graduate Diploma	
Masters	
PhD	
Other	

10. College registered with

College of Education (CEDU)	
College of Human Sciences (CHS)	

College of Accounting Sciences (CAS)	
College of Economics and Management Sciences (CEMS)	
College of Law (CLAW)	
College of Science, Engineering and Technology (CSET)	
College of Agriculture and Environmental Sciences (CAES)	
School of Business Leadership (SBL)	
Other	

11. Your preferred method of accessing student support services

Face-to-face	
Online	
Both modes	

Section B: Student Support Services Awareness

Are you aware of the following student support services? Cross (**X**) the appropriate option between aware (1) or unaware (2).

Student Support Services	Aware (1)	Unaware (2)
Admission (application) and registration		
Student counselling and career guidance		
The library		
Face-to-face tutorials		
Online tutorials		
The disability unit (ARCSWID)		
Academic literacy programme (reading and writing skills)		
Computer labs		
Telecentres (internet cafés registered with UNISA)		
Student funding		
Exam		
Enquiries (call centre)		
Assignments		
Other (specify)		

Section C: Student Support Services Accessibility

Indicate if you access these support services: Never (1); Seldom (2); Sometimes (3); Often (4); or Very Often (5) by crossing (**X**) the appropriate option.

Student Support Services	Never (1)	Seldom (2)	Sometimes (3)	Often (4)	Very Often (5)
Admission (application) and registration					
Student counselling and career guidance					

Student Support Services	Never (1)	Seldom (2)	Sometimes (3)	Often (4)	Very Often (5)
The library					
Face-to-face tutorials					
Online tutorials					
The disability unit (ARCSWID)					
Academic literacy programme (reading and writing skills)					
Computer labs					
Telecentres (internet cafés registered with UNISA)					
Student funding					

Section D: Effectiveness of Student Support Services for Students who are Deaf and Hard of Hearing

Do you find the student support services for students with SDHH, Strongly Ineffective (1); Somewhat Infective (2); No Opinion (3); Effective (4); or Strongly Effective (5). Cross (**X**) the appropriate option.

Student Support Services	Strongly Ineffective (1)	Somewhat Infective (2)	No Opinion (3)	Effective (4)	Strongly Effective (5)
Admission (application) and registration					
Student counselling and career guidance					
The library					
Face-to-face tutorials					
Online tutorials					
The disability unit (ARCSWID)					
Academic literacy programme (reading and writing skills)					
Computer labs					
Telecentres (internet cafés registered with UNISA)					
Student funding					

Section E: Inclusion of Students who are Deaf and Hard of Hearing

Indicate if Strongly Dissatisfied (1); Somewhat Dissatisfied (2); No Opinion (3); Satisfied (4); or Strongly Satisfied (5) by the programme's inclusion of SDHH. Cross the appropriate option.

Student Support Services	Strongly Dissatisfied (1)	Somewhat Dissatisfied (2)	No Opinion (3)	Satisfied (4)	Strongly Satisfied (5)	Comment (one word representing your choice)
Admission (application) and registration						
Student counselling and career guidance						
The library						
Face-to-face tutorials						
Online tutorials						
The disability unit (ARCSWID)						
Academic literacy programme (reading and writing skills)						
Computer labs						
Telecentres (internet cafés registered with UNISA)						
Student funding						

Section F: Areas of Improvements

Indicate the level of improvement needed for each support service by rating 1-5, where 1=Extreme need for improvement; 2=More need for improvement; 3=Regular need; 4=Fair need for improvement; and 5=Less improvement

Improvements	Admission (application) and registration	Student counselling and career guidance	The library	Face-to-face tutorials	Online tutorials	Disability Unit	Academic Literacy Programme (reading and writing skills)	Computer labs	Telecentres (internet cafés registered with UNISA)	Student funding
Communication dissemination										
Channels for communication										
Resources										
Materials										
Awareness										
Training										

Section G: Any additional comments?

_____

_____

_____

_____

Thank you, this is the end of the questionnaire.

Questionnaire: Staff

The Survey Questionnaire

Please answer all the questions in this survey questionnaire by following instructions and ensure all the questions are answered. This questionnaire will only take 30 minutes of your time.

Section A: Demographical information of participants

This section is about your personal information. Please cross (**X**) an appropriate box.

1. Gender

Male	
Female	

2. Population Group

African	
White	
Coloured	
Indian	
Chinese	
Foreign national	
Other	

3. Designation

Admin and professional	
Academic/researcher	
Other	

4. Role

Lecturer/professor	
Unit manager or HOD/Deputy director/Director	
Supervisor or Level P7 administrator	
Advisor or Level P8 administrator	
Officer or Level P9 administrator	
Other	

5. Department attached to

College	
Admission (application) and registration	
Student assessment administration (assignments & exams)	
Counselling and career development (DCCD)	
The library	
Tutorials	
The disability unit (ARCSWID)	
Academic literacies	
Technology enhanced learning (TEL) – Computer labs	
Student funding	
Student development	
Information services	
SRU	

6. Working experience at Unisa in Years

0-2 years	
2-5 years	
5-10 years	
10-15 years	
Above 15 years	

7. Your preferred mode of supporting students

Face-to-face	
Online	
Dual mode	
Other	

Section B: Student Support Services Awareness

Are you aware of the following student support services? Cross (**X**) the appropriate option between aware (1) or unaware (2).

Student Support Services	Aware (1)	Unaware (2)
Admission (application) and registration		
Student counselling and career guidance		
The library		
Face-to-face tutorials		
Online tutorials		
The disability unit (ARCSWID)		
Academic literacy programme (reading and writing skills)		
Computer labs		

Student Support Services	Aware (1)	Unaware (2)
Telecentres (internet cafés registered with UNISA)		
Student funding		
Exam		
Enquiries (call centre)		
Assignments		
Other (specify)		

Section C: Student Support Services Accessibility

Indicate if you access these support services: Never (1); Seldom (2); Sometimes (3); Often (4); or Very Often (5) by crossing (**X**) the appropriate option.

Student Support Services	Never (1)	Seldom (2)	Sometimes (3)	Often (4)	Very Often (5)
Admission (application) and registration					
Student counselling and career guidance					
The library					
Face-to-face tutorials					
Online tutorials					
The disability unit (ARCSWID)					
Academic literacy programme (reading and writing skills)					
Computer labs					
Telecentres (internet cafés registered with UNISA)					
Student funding					

Section D: Effectiveness of Student Support Services for Students who are Deaf and Hard of Hearing

Do you find the student support services for students with SDHH, Strongly Ineffective (1); Somewhat Infective (2); No Opinion (3); Effective (4); or Strongly Effective (5). Cross (**X**) the appropriate option.

Student Support Services	Strongly Ineffective (1)	Somewhat Infective (2)	No Opinion (3)	Effective (4)	Strongly Effective (5)
Admission (application) and registration					
Student counselling and career guidance					
The library					
Face-to-face tutorials					
Online tutorials					

Student Support Services	Strongly Ineffective (1)	Somewhat Infective (2)	No Opinion (3)	Effective (4)	Strongly Effective (5)
The disability unit (ARCSWID)					
Academic literacy programme (reading and writing skills)					
Computer labs					
Telecentres (internet cafés registered with UNISA)					
Student funding					

Section E: Inclusion of Students who are Deaf and Hard of Hearing

Indicate if Strongly Dissatisfied (1); Somewhat Dissatisfied (2); No Opinion (3); Satisfied (4); or Strongly Satisfied (5) by the programme's inclusion of SDHH. Cross the appropriate option.

Student Support Services	Strongly Dissatisfied (1)	Somewhat Dissatisfied (2)	No Opinion (3)	Satisfied (4)	Strongly Satisfied (5)	Comment (one word representing your choice)
Admission (application) and registration						
Student counselling and career guidance						
The library						
Face-to-face tutorials						
Online tutorials						
The disability unit (ARCSWID)						
Academic literacy programme (reading and writing skills)						
Computer labs						
Telecentres (internet cafés registered with UNISA)						
Student funding						

Section F: Areas of Improvements

Indicate the level of improvement needed for each support service by rating 1-5, where 1=Extreme need for improvement; 2=More need for improvement; 3=Regular need; 4=Fair need for improvement; and 5=Less improvement

Improve-ments	Admission (applica-tion) and registration	Student counsel-ling and career guidance	The li-brary	Face-to-face tuto-rials	Online tutori-als	Disa-bility Unit	Academic Literacy Pro-gramme (reading and writ-ing skills)	Com-puter labs	Telecen-tres (inter-net cafés registered with UNISA)	Stu-dent fund-ing
Communi-cation dis-semination										
Channels for commu-nication										
Resources										
Materials										
Awareness										
Training										

Section G: Any additional comments?

_____

_____

_____

Thank you, this is the end of the questionnaire.

ANNEXURE E
Ethical Clearance

![UNISA logo - university of south africa]

RESEARCH PERMISSION SUB-COMMITTEE (RPSC) OF THE SENATE RESEARCH, INNOVATION, POSTGRADUATE DEGREES AND COMMERCIALISATION COMMITTEE (SRIPCC)

11 August 2020

Decision: Research Permission Approval from 11 August 2020 until 31 May 2021.

Ref #: 2020_RPSC_017
Mr. Tonny Nelson Matjila
Student #:   4223-809-9
Staff #: N/A

Principal Investigator:
Mr. Tonny Nelson Matjila
Department of Psychology
School of Social Sciences
College of Human Sciences
42238099@mylife.unisa.ac.za; 012 429 3911/ ███████

Supervisor: Prof Petro Van der Merwe, vdmerp1@unisa.ac.za; 012 429 2118, ███████

An evaluation of student support services in an open distance and e-learning university: Towards a framework for students with hearing impairments.

Your application regarding permission to conduct research involving UNISA employees, students and data in respect of the above study has been received and was considered by the Research Permission Subcommittee (RPSC) of the UNISA Senate, Research, Innovation, Postgraduate Degrees and Commercialisation Committee (SRIPCC) on 28 July 2020.

It is my pleasure to inform you that permission has been granted for the study. You may:

1. Gain access to the email addresses of the staff, as indicated in the application, through the gatekeeping assistance of your supervisor.
2. Send the survey to the students who have indicated in their registration form that they have disability or impairment through the gatekeeping assistance of ICT.
3. Conduct interviews with the students who indicate an interest to participate in the interviews.
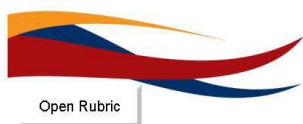
University of South Africa
Preller Street, Muckleneuk Ridge, City of Tshwane
PO Box 392 UNISA 0003 South Africa
Telephone: +27 12 429 3111 Facsimile: +27 12 429 4150
www.unisa.ac.za

Open Rubric

- 284 -

We would like to wish you well in your research undertaking.

Kind regards,

Dr Retha Visagie – Deputy Chairperson
Email: visagrg@unisa.ac.za, Tel: (012) 429-2478

Prof Lessing Labuschagne – Chairperson
Email: llabus@unisa.ac.za, Tel: (012) 429-6368

ANNEXURE F

Interview Protocol: Students who are Deaf and Hard of Hearing

Interview Questions	Background Information/ Demographics	Awareness of SSS	Accessibility of SSS	Effectiveness of SSS	Inclusiveness of SSS	Policies and Legislature
		Interview Q#1	Interview Q#2	Interview Q#3	Interview Q#4	Interview Q#5
Based on the information that you provided in the questionnaire, did you go to high school at mainstream, special school, school for the deaf?	X					
Sometimes a common experience, language, or way of being, like deaf or hard of hearing (DHH) leads a group of people to identify as a community, for example, some people identify as part of a cultural group because they share a common experience. Is there a community with which you identify? Do you disclose your deafhood/disability? Why?	X					
Which SSS or departments do you know? How centralised/decentralised is your SSS?		X				
From those you know, which ones have you used? Is it easier to access the services face-to-face or online?			X		X	
Was it difficult to receive the services?				X		
Were you assisted with your needs?					X	
As SDHH, were you assisted accordingly?					X	
How do you prefer to be assisted?					X	
How would you like to be assisted in future?				X	X	
Do you know of any policies on SSS for SDHH?						X
What can be enforced to ensure that everything is done according to the law or policies?						X
What are your views on SASL as the 12th official language in SA?						X
Where can the university improve, making sure that coming SDHH enjoy their academic journey with reference to the curriculum, tuition fees, and discrimination?						

Interview Questions	Background Information/ Demographics	Awareness of SSS	Accessibility of SSS	Effectiveness of SSS	Inclusiveness of SSS	Policies and Legislature
		Interview Q#1	Interview Q#2	Interview Q#3	Interview Q#4	Interview Q#5
Voice over with the SASL interpreter.	X	X	X	X	X	X
Reflections with SASL.	X	X	X	X	X	X

ANNEXURE G

Interview Protocol: Staff

Interview questions	Background information/ Demographics	Awareness of SSS	Accessibility of SSS	Effectiveness of SSS	Inclusiveness of SSS	Policies and legislature
		Interview Q#1	Interview Q#2	Interview Q#3	Interview Q#4	Interview Q#5
Based on the information that you provided in the questionnaire, which SSS are you working at? How are the SDHH supported?	X					
Sometimes a common experience, language, or way of being leads a group of people to identify as a community, for example, some people identify as part of a cultural group because they share a common experience. Is there a community with which you identify?	X					
Which SSS or departments do you know?		X				
Out of those you know, which ones have you used or referred students to?			X			
How easy or difficult it is to refer a student?				X		
Do you think SDHH are being assisted after referrals? Is it easy for them to access those services. For academic staff: Do you know how and where to find the list of SDHH for your module on myUnisa?					X	
Do you think it makes a difference if SDHH disclose their deafhood/disability?					X	
Do you know of any policies on SSS for SDHH?						X
What are your views on SASL as the 12th official language of SA?						X
Do you think the university should employ SASL interpreters or train staff in SSS?						X
If awareness campaigns on DHH are introduced, do you think it will be easy for you to take part in them?						
Where can the university improve, making sure that coming SDHH enjoy their academic journey?						
Voice over with the SASL interpreter.	X	X	X	X	X	X
Reflections with SASL.	X	X	X	X	X	X