

The Use of Assistive Technology in Inclusive Education: Understanding the Experiences of Students with Learning Disabilities at South African Universities

Lindokuhle Maswana

22M3104

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Department of Sociology

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Supervisor: Babalwa Sishuta

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ABSTRACT

The primary purpose of this study is to examine the experiences of students with learning disabilities in accessing assistive technology at South African universities. The field of learning disabilities is relatively emerging in South Africa. Critical scholarly literature demonstrates that universal access, democratic participation and inclusion remains a challenge for students with learning disabilities in higher education. This research is informed by the Social Model of Disability (SMD) and the Universal Design for Learning (UDL), which are considered vital elements of disability inclusion and transformation in higher education. The social model of disability provides valuable insights into social barriers that continue to marginalise, discriminate and exclude those living with disabilities.

This research is primarily qualitative using in-depth semi-structured interviews. Quantitative surveys were utilised to further complement the research. The unit of analysis in this study were students with learning disabilities, academic, library, disability unit, Student Affairs Services and ICT staff members. Two universities were chosen for this purpose: one with a dedicated disability unit and another one still in its infancy in establishing a disability unit.

The findings indicate that the disability services offered to the students at the two institutions are qualitatively different. This study reveals glaring gaps at institutional level in the nature and extent of support services available to students with learning disabilities: lack of adequate resources including funding, inaccessible assistive technology, lack of training and expertise and staff attitudes in dealing with students with learning disabilities. The study found that after the students with learning disabilities disclose, they are neglected, and experience negative attitudes and stigma. The study showed that sometimes it is hard and expensive to get accommodations as a student with learning disabilities.

The findings suggest that having a dedicated disability unit increases inclusion and awareness about available services compared to universities that do not have them. A concern was raised by the staff members that students with disabilities do not make use of the available assistive technology. This study calls for integrating the universal design for learning with assistive technology to enhance the inclusion of students with learning disabilities in South African universities. This will assist students with learning disabilities to achieve better academic outcomes and complete their tasks more efficiently and independently. This study recognises that the provision of disability services is a costly enterprise but service delivery needs to be fast-tracked regardless.

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LIST OF ACRONYMS

AT	Assistive Technology
CAST	Center for Applied Special Technology
CDT	Critical Disability Theory
ERAS	Ethical Review Application System
ICT	Information and Communications Technology
IEPs	Individualised Educational Plans
LDs	Learning Disabilities
NSFAS	National Student Financial Aid Scheme
PSET	Post-School Education and Training
SRC	Student Representative Council
UDHR	Universal Declaration of Human Rights
UD	Universal Design
UDL	Universal Design for Learning
UN	United Nations
UNCRPD	United Nations International Convention on the Rights of Persons with Disabilities
UNESCO	United Nations Educational, Scientific Cultural Organisation
UNISA	University of South Africa
UPIAS	Union of the Physically Impaired Against Segregation

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“Therefore, humble yourselves under the mighty hand of God, that He may exalt you in due time” 1 Peter 5: 6.

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CHAPTER ONE INTRODUCTORY CHAPTER

1. CONTEXT OF THE RESEARCH

The primary goal of this study is to examine the experiences of students with learning disabilities in accessing assistive technology at South African universities. This research is undertaken within the sociology of education and disability studies. The research is informed by technological advancements and how they are used to assist people with learning disabilities in achieving desired academic outcomes; the quest for inclusivity and universal accessibility in higher education which brings an end to the marginalisation of the disabled population; the increasing social consciousness and the search for differentiated instruction in higher education.

Since the dawn of democracy in South Africa in 1994, the aim of higher education institutions has been to increase access and inclusion of previously disadvantaged groups in line with various policy prescripts and directives. Studies by Carrim & Wangenge-Ouma (2012), the Council of Higher Education (2013) and the information shared at the Second National Higher Education Summit (2015) reveal an increased access into higher education of diverse students. Between 2005 and 2017 the headcount enrolments in South African higher education had increased by 41% from 735 072 to 103 6984 (Essop, 2020: 11).

Whilst remarkable progress has been made, those with disabilities do not fare well in this regard. Enrolment rates of the disabled population fall far short. As Mutanga (2017a: 1) argues “people with disabilities make up less than 1% of the total student population admitted at South African higher education institutions”. The extent to which this percentage represents those with learning disabilities in higher education institutions is unclear, considering the complexity of disability disclosure as well as questions surrounding access to support services.

It has been broadly reported that at basic education level learners with disabilities face serious challenges in accessing education. According to van der Merwe (2017) at higher education level, however, the situation is not better, where 80% of students with disabilities are not attending tertiary higher education institutions. This therefore, opens a space for creative

ideas in promoting inclusivity. According to the Department of Education (DoE) (2005) a number of higher education institutions in South Africa from the most advantaged universities such as the University of Cape Town, the University of Johannesburg and the University of Pretoria to the ones that have least resources such as the University of Venda and the University of Zululand embarked on establishing disability units to promote inclusivity for students with disabilities. There is evidence that a substantial number of students with learning disabilities do not have access to the services provided by these disability units (DoE, 2005). One of the reasons is failure to disclose their disability.

Together with the issue of disability disclosure, the academic success of students with learning disabilities is another issue that has not been addressed in institutions of higher learning. According to the World Report on Disability (World Health Organization & The World Bank, 2011: 39) as with developed countries, descriptive data suggests that persons with disabilities are at a disadvantage in educational attainment (*in record time, my emphasis*) and labour market outcomes. The dropout rate and throughput rates are not unique to those with disabilities. Duma (2019: 63) argues “graduation rates are relatively low among students with disabilities. The reasons why those with disabilities drop-out appear to be the same as non-disabled students, but it must be considered that those with disabilities are additionally burdened by living with disabilities”.

There are no reliable statistics of how many disabled people there are, let alone those with learning disabilities. However, the World Report on Disabilities (2011) highlights a substantially growing population worldwide “there are over 1 billion disabled people in the world of whom nearly 200 million experience considerable difficulties in functioning. This estimate suggests that 15 per cent of the world’s population live with an impairment...” (World Health Organization & The World Bank, 2011: 39).

South Africa is a signatory of various international conventions including, the Universal Declaration of Human Rights (1948) and the United Nations International Convention on the Rights of Persons with Disabilities (2006). These recognise assistive technology as a human right and the facilitation of access to learning in higher education. In March 2018, the South African *Strategic Policy Framework on Disability for the Post-school Education and Training System*, was introduced. In this framework, inclusion is acknowledged as “equal

access and opportunities and eliminating discrimination and intolerance for all” (Department of Higher Education & Training, 2018: 20/21).

Defining learning disabilities is not an objective category but a social construct in a given society and is affected by a lack of cross-cultural understanding or collaborative approaches to a standard definition (Grunke & Cavendish, 2016: 2). Despite definitional problems, for this study learning disabilities refer to an umbrella term of neurological disorders of speech, language, reading, writing, arithmetic, spelling, reasoning and organising and processing information that interferes with the development of academic skills (Ali & Rafi 2016: 111; Raja & Kumar, 2011: 11). The disability cannot be cured or fixed but with proper assistance and intervention, persons with learning disabilities can perform and obtain the desired results successfully (Ali & Rafi 2016: 111). This definition is relevant to this study since the primary focus is not on physical visible disabilities but on learning disabilities that are not easily detected and identified, unless through proper diagnosis and intervention such as dyslexia, dysgraphia, dyscalculia and dysphasia.

In addition to the above understanding of learning disabilities, this study adopts an expanded definition. This seeks to bridge the gap between traditional approaches that focus on physical and cognitive attributes to critical analysis that embrace the notion of power, inequality, oppression and marginality experienced by those with disabilities.

Assistive technology¹ in education is defined as any device or service that will increase the ability of the student to participate in academic activities successfully and work independently (OCALI, 2013: 11; Bennett *et al.*, 2018: 161; Stumbo *et al.*, 2009: 100). Assistive technology, therefore, can be introduced to ensure inclusive education. Assistive technology, thus, helps bridge the gap by ‘assisting’ in the practice of receiving education and ensures success when dealing with academic difficulties (Ahmad, 2015: 65; Iyer, 2019: 3). In addition, Forgrave (2002: 122) mentions that assistive technology provides an opportunity for students to finish their tasks more efficiently and independently, which can improve how they perform on different parts of reading and writing tasks. Current available assistive technology

¹Assistive technology can be low-tech, mid-tech, or high-tech devices. According to Viner *et al.* (2020: 422), low-tech devices, such as highlighting pens, do not cost much and are not complicated to use. Chambers (2020: 15) describes mid-tech devices as assistive technology that do not require too much training for the user and often operate with batteries like talking calculators. The high-tech device includes sophisticated electronics or computers like speech-to-text software (Jacobsen, 2012:64).

includes computer screen readers, text readers, screen magnifiers, voice input, switch input which can be installed in a widely used platform such as Windows, Mac. Having a clear, consistent design such as tools and icons, WYNN², Dragon³, Carlo⁴ (Čerešňová, 2018: 128).

The field of learning disabilities is under-researched in higher education. Generally, there is little research that focuses on access to assistive technology by students with learning disabilities in higher education, rather studies focus from early childhood education to high school. Studies at this level focus on understanding the diverse characteristics of learning disabilities and instructional approaches (Ali & Rafi, 2016; Klang *et al.*, 2019; Obiozor, 2011: 128). Students with learning disabilities are regarded as children with special needs and are treated as such (Hayes & Bulat, 2017). Consistent with this understanding special programmes are provided to facilitate learning, but there is concern that these students “are not recognised much in schools but are stigmatised as stupid by both teachers and parents due to a lack of awareness” (Raja & Kumar, 2011). Raja & Kumar (2011: 17) recommend the search for new technology that can facilitate learning in addition to a collaborative relationship between educators, specialists and parents, thereby “turning learning disabilities into special opportunities for success”.

Research on learning disabilities is largely based on developed country experiences. However, there is a growing body of research that is emerging in South Africa (Duma, 2019; Johnson, 2013; Manase, 2021; Mantsha, 2016; Mazibuko, 2019; Morrison, *et al.*, 2009; Mutanga, 2013, 2015, 2017; Ndlovu, 2021). On the rest of the African continent studies include those done in Kenya (Gona *et al.*, 2011; Obare &Winga, 2021), Zimbabwe (Van der Mark & Verrest, 2014; Mapuranga *et al.*, 2015) and Namibia (Taderera, 2017; Bartlett, 2010).

What complicates matters in these contexts are the stereotypes and prejudices associated with learning disabilities, leading to poor family and community support. A study by Taderera & Hall (2017: 3) points to a lack of services for children with learning disabilities on the African continent. Their study in Namibia revealed that participants had a vague

²WYNN is software that helps you read, study, and comprehend text more easily and effectively (Čerešňová, 2018: 128).

³Dragon is a speech recognition system to use their voice naturally to create more detailed and accurate documentation quickly and easily (Čerešňová, 2018: 128).

⁴Carlo software helps with speech synthesis, word prediction, spellchecking combined together for someone who has a learning disability (Čerešňová, 2018: 128).

understanding of learning disabilities due to a lack of access to essential knowledge, the availability of programmes, services and policies. These findings support those of Abosi (2007), who argues that learning disabilities are often not clearly understood in African contexts.

The research by Ndlovu (2021), Manase (2020), and Dalton *et al.* (2019) provides context-based understanding of learning disabilities and the provision of assistive technology in higher education in South Africa. Combined these studies acknowledge the quest for universal access for students with learning disabilities in higher education through the provision of academic support in South Africa. In addition, these studies point to a lack of adequate resources, inaccessible assistive devices and a lack of training and expertise to teach students with disabilities.

Manase (2020) examines the learning experiences of university students with learning disabilities with specific reference to the formation of their capabilities. Manase (2020: 115) concludes “students with learning disabilities without support have a high risk of failing and dropping out of university”. In addition, Manase (2020) argues for a critical look at adjusted assessments for students with learning disabilities and the extent to which they advance or undermine their academic development and outcomes.

Dalton *et al.* (2019) conducted a comparative study utilising theoretical frameworks of universal design (UD) and universal design for learning (UDL) on how to achieve inclusiveness in higher education. Their study indicates that South African universities fare unfavourably to their United States of America counterparts. Specifically, with regards to Stellenbosch University the study identified the following limitations in the provision of disability services: insufficient planning for inclusion; disability must be viewed as part of social transformation occurring in South Africa; staff are not always disability aware and that exclusion still exists (Dalton *et al.*, 2019: 4). While the University of Cape Town has an active and responsive disability service, the challenge of equitable access to the online learning environment remains (Dalton *et al.*, 2019: 3). These include the need for print resources to be accessible and on time; appropriate assistive technology software to support access to online materials; assessment tasks must be accessible timely and connectivity issues to support access. These findings corroborate what Ndlovu (2021: 12) refers to as normalisation and ableism, which deliberately excludes and marginalises those with

disabilities. Ndlovu (2021: 12) argues “normalisation and ableism manifest in the way in which society tries to make those with disabilities what they are not by ignoring their lived experiences and imposing top-down services, thus misrepresenting and limiting their functionality and learning”.

This study adopts a two-pronged conceptual framework: the social model of disability and the universal design for learning (UDL) to examine the provision of assistive technology at South African universities. At the core of the social disability model is a discourse that champions universal access and the inclusion of disability. This contrasts sharply from the traditional dominant medical model of disability. The latter is an essentialist, pathological and inward-looking model which sees disability in medical terms by focusing on the individual as diseased (Cigman, 2010: 159). Hence, disability is an “impaired or difference that must be corrected through medical intervention” (Hosking, 2008: 12). This interpretation lies at the root of discrimination, exclusion and hierarchies found in society.

In contrast the social model of disability locates disability within the social structure and not the individual (Retief & Letšosa, 2018: 4). According to Hosking (2008: 7) the social model of disability rests on three interrelated principles: disability is socially constructed; disability is characterised as a complex interrelationship between impairment, individual response to impairment and the social environment, and the social disadvantage experienced caused by the physical, institutional/ structural and attitudinal environment which marginalises those who do not fit the social expectation of normalcy. Hence, disability is a lived reality in which the experiences of people with disabilities are central to interpreting their place in the world (in this case higher education) and as a social and political definition based on societal power relations (Reaume, n.d.). In addition, scholars such as (Goodley, 2000, 2001, 2014; Hosking, 2008; Ndlovu, 2021; Pearson & Boskovich, 2019) emphasise the intra/intersectionality of disability as intersecting with other multiple identities such as sexuality, race, ethnicity, gender or class. This is crucial for understanding this diverse population in higher education from various angles.

Similar to the social model of disability, UDL in higher education is grounded on the principle of inclusion of diverse populations which is consistent with the emerging attempts of the provision of equal access for all. The UDL introduces flexible styles of learning to ensure that diverse students are able to access education, including those with learning

disabilities. Courey *et al.* (2012: 10) defines UDL as a set of principles and techniques for use in the classroom along with the design of accessible instructional materials. These principles revolve around a variety of alternative ways for students to participate using different modes of representation, action and expression, and engagement (Burgstahler, 2007: 3).

1.1. GOALS OF THE RESEARCH

The primary goal of this research study is to examine the experiences of students with learning disabilities in accessing assistive technology at South African universities.

The study is informed by the following interrelated objectives:

1. To explore students' perceptions and experiences with learning disabilities in accessing assistive technology.
2. To explore the attitudes and experiences of various key university staff members (academic, library, disability unit, Student Affairs Services and ICT staff members) on assistive technology for students with learning disabilities.

1.2. RESEARCH METHODOLOGY

A brief description of the research methodology is presented here. An elaborate discussion of the research methodology is in Chapter Three.

This research is primarily qualitative using in-depth semi-structured interviews. Qualitative research provides rich, in-depth description and understanding of social actions and events (Babbie & Mouton, 1998: 270). According to Denzin & Lincoln (2017: 50) qualitative research relies on first hand experiences of people as the meaning-making agents in their daily lives. This is apt in this study in understanding the experiences and perceptions of students with learning disabilities in higher education. This research adopted purposive sampling. Quantitative surveys were utilised to further complement the research. This included the use of surveys for staff only. This form of triangulation increases the validity and reliability of the research, taking "multiple perspectives into account and attempting to understand the influences of multilateral social systems and subjects' perspective and behaviours" (Babbie & Mouton, 1998: 275).

The study observes Rhodes University ethical guidelines. Given the sensitivity of the information obtained from students with learning disabilities, the researcher approached this study with an appreciation of the vulnerabilities and risks involved.

1.3. STRUCTURE OF THE THESIS

The thesis consists of five chapters.

Chapter One is an introductory chapter. It provides an overview of this study focusing on the research statement, research objectives and methodology. A brief description of the research methodology is presented. An elaborate discussion of the research methodology is in Chapter Three.

This chapter provides an overview of the structure of the thesis as outlined below.

Chapter Two covers relevant literature in relation to the research topic. The core themes of this chapter include: defining two key concepts, namely, disability and assistive technology; the politics of disability focusing on ableism and disability disclosure; research studies that have been conducted in South Africa; the legislative framework on disability in higher education in South Africa, in particular, the *Strategic Policy Framework on Disability for the Post-school Education and Training System* (2018) and the conceptual framework that underpins this study, namely, the social model of disability and the universal design for learning.

Chapter Three presents the research methodology used in the current study.

Chapter Four is data presentation and analysis. Core themes that are discussed include: disability disclosure, awareness about disability support services, the disability unit services, assistive technology for inclusive higher education, universal design for learning, attitudes of staff, training of staff members, and the issue of funding.

Chapter Five is the concluding chapter.

CHAPTER TWO LITERATURE REVIEW

2. INTRODUCTION

This study examines the experiences of students with learning disabilities (LDs) in accessing assistive technology at various South African universities. The research is informed by technological advancements and how they are used to assist people with learning disabilities in achieving desired academic outcomes; the quest for inclusivity in and universal accessibility in higher education which brings an end to the marginalisation of the disabled population; the increasing social consciousness and the search for differentiated instruction in higher education.

Critical literature on learning disabilities in higher education is dominated by developed country experiences and perspectives. International and local research focuses more on the experiences of students with physical disabilities, and less on students with learning disabilities. A growing number of learning disability researchers are leaning more towards understanding students with learning disabilities from pre-school, primary school, and high school, and less on higher education. The field of learning disabilities in higher education is relatively emerging especially in South Africa. Hence, the voices of students with learning disabilities in higher education are not heard. Closing this gap is crucial to creating platforms that allow students with learning disabilities in higher education to be heard and understood in their own words. The central argument in this chapter is the need to mainstream learning disabilities in higher education to promote universal access and inclusion of all students in South Africa. Similarly, emphasis is put on the existing power and institutional structures that create disempowering barriers on this vision.

This literature review is divided into five inter-related sections. The first section focuses on defining two key concepts relevant to this study, namely, learning disabilities and assistive technology. The second section examines the politics of disability: ableism and the question of disability disclosure. Ableism allows us to understand the process of the social construction of disability. Ableism reinforces societal attitudes, beliefs and practices about what normalcy is whilst creating entrenched stereotypes and various injustices which marginalises those not considered 'normal'. Ableist discourses complicates disability disclosure but "can be a platform to disrupt the ableist framework around disability" (Pearson & Boskovich, 2019: 2). The third section discusses a selection of research on learning

disabilities and assistive technology in South Africa. A crucial point here is that the scholarship is increasingly becoming diverse and is evolving. The fourth section focuses on South Africa's *Strategic Policy Framework on Disability for the Post-school Education and Training System* (2018). This document positions South Africa within global debates. This is a useful starting point but a critical assessment reveals glaring gaps in implementation at the institutional level. The last section discusses the two-pronged conceptual framework that informs this study: the social model of disability and the universal design for learning.

2.1. DEFINING KEY CONCEPTS: AN OVERVIEW

2.1.1. Understanding learning disabilities

To understand learning disabilities, one has to examine the concept of disability. This concept is much deeper than what it appears to be at face value. An expanded definition seeks to bridge the gap between traditional approaches that focus on physical and cognitive attributes to critical analysis that embrace the notion of power, inequality, oppression and marginality experienced by those with disabilities. Definitions of disability, also, recognise that definitions are fluid and continuously evolving (United Nations International Convention on the Rights of Persons with Disabilities, 2006), whilst at the same time advocating that disability must be understood as part of a spectrum of diversity (Pearson & Boskovich, 2019: 26).

South Africa's *Strategic Policy Framework on Disability for the Post-school Education and Training System* (Department of Education & Training, 2018: vii/viii) defines disability as:

“The loss or elimination of opportunities to take part in the life of the community, equitably with others, encountered by persons having physical, sensory, psychological, developmental, learning, neurological, or other impairments, which may be permanent, temporary or episodic in nature, thereby causing activity limitations, and participation restriction with mainstream society. These barriers may be due to economic, physical, structural, social, attitudinal and /or cultural factors”.

Scott (2013: 11) defines disability “as a complex set of features, attributed to individuals, that pathologise and oppress”. For Goodley (2014: xi) disability must be understood as an identity position, often a negative, marked and stigmatised social position. In addition, Pothier & Devlin (2006: 2) (cited in Gillies 2014) states “disability is not a question of medicine or health, nor is it just a question of sensitivity and compassion; rather, it is a question of politics and powerlessness, power over and power to”. Combined these definitions reject disability

discrimination⁵ and embrace both the social definition and the scientific one that seek to promote democratic participation, universal access and a social justice / human rights approach to disability by removing social barriers to success.

Any definition of disability must recognise its intersectional character which includes class, geographical, gender, historical and cultural aspects, etc. Davis (2006: 218) argues:

“...in constructing a theory of disability oppression poverty and powerlessness are cornerstones of the dependency people with disabilities experience. The most fitting characterisation of the socio-economic condition of people with disabilities is that they are outcasts. The extent and implications of this is that it is readily apparent that people, including those with disabilities living in the more economically developed regions of the world have higher standards of living than their counterparts in the Third world... The 300 to 400 million people with disabilities who live in the periphery exist in abject poverty. These are the poorest and most powerless people on earth”.

Central to this quote is that the construction of disability is intricately linked to the “material conditions and structures of power” (Davis, 2006: 119). In addition, it raises questions about the principles that underline many disability policies and interventions which fall far short of making a real difference in the lives of the population.

Given the above, it is clear that defining learning disabilities is not an objective category but a social construct in a given society and is affected by a lack of cross-cultural understanding or collaborative approaches to a standard definition (Grünke & Cavendish, 2016). Also, the argument that “people with disabilities have deduced is that definitions tend to become mechanisms that are used to exclude and marginalise them, rather than as enabling tools for positive action, development and social integration” (Department of Higher Education & Training, 2018: 18) is emphasised in this study. Hence, both the social definition and the biological / scientific understanding of learning disabilities are advanced here.

Despite definitional problems, for this study learning disabilities refer to neurological disorders of speech, language, reading, writing, arithmetic, spelling, reasoning and organising and processing information that interferes with the development of academic skills (Ali & Rafi, 2016: 111; Raja *et al.*, 2011: 11). The disability cannot be cured or fixed but with proper assistance and intervention, persons with learning disabilities can perform and obtain the desired results successfully (Ali & Rafi, 2016: 111). This definition is relevant to this study since the primary focus is not on physical visible disabilities but on learning

⁵ “Discrimination on the basis of disability means any distinction, exclusion or restriction on the basis of disability, which has the purpose or effect of impairing or nullifying the recognition, enjoyment or exercise, on an equal basis with others, on all human rights and fundamental freedoms in the political, economic, social, cultural, civil or any other field. It encompasses all forms of unfair discrimination, whether direct or indirect, including denial of reasonable accommodation” (Department of Higher Education & Training, 2018: viii).

disabilities. Learning disabilities, such as dyslexia, dysgraphia, dyspraxia, and dyscalculia, are therefore part of a larger group of learning difficulties (State of Victoria Department of Education & Training, 2022: 6; Namkung & Peng, 2018).

The term “learning disability” was used in the *Educating Exceptional Children* (Kirk, 1962). Samuel Kirk (1962) who was a psychologist defined LDs while delivering a speech at an education conference held in Chicago as “a retardation, disorder, or delayed development in one or more of the processes of speech, language, reading, writing, arithmetic, or other school subjects resulting from a psychological handicap caused by a possible cerebral dysfunction and/or emotional or behavioural disturbances” (Swanson *et al.*, 2013: 22).

Studies have identified various causes for learning disabilities (Cortiella, 2014; Ali & Rafi, 2016). Cortiella (2014: 3) points out that there are various causes of learning disabilities such as the damage in the developing of the brain before or during birth, due to maternal illness or injury, the use of drugs or alcohol during pregnancy, premature or prolonged labour, problems that hinder enough oxygen from getting to the brain during birth. Learning disabilities can be hereditary, meaning that if the parents of the child had or have learning disabilities, they may pass it on the child (Nemours Kids’ Health, 2015). Ali & Rafi (2016: 111) describe a learning disability as an outcome which is due to a difference in the way an individual’s brain is "wired".

Co-morbidity is one further issue related to the conceptualisation of LDs that is increasingly becoming important. In many cases a learning disability does not occur as an isolated phenomenon but rather in combination with other cognitive disabilities or emotional/behavioural disorders (Ali & Rafi, 2016: 111; Raja *et al.*, 2011: 11). This can cause the students to have a severe education need requiring special attention (Newark, 2019). For instance, “dyscalculia and dyslexia have been shown to be combined with attention-deficit hyperactivity disorder at a rate of twenty-six percent (26%) and thirty-three (33%), respectively. In addition, seventeen percent (17%) of children with dyscalculia showed severe deficits in reading” (Gross-Tsur *et al.*, 1996; Mayes & Calhoun, 2006; Shaywitz & Shaywitz, 1988).

2.1.2. Unpacking assistive technology

Over the years the term Assistive Technology (AT) has been widely used in different fields. One of the first official definitions of assistive technology was included in the Technology-Related Assistance for Individuals with Disabilities Act, 1988, in United States of America (Zallio & Ohashi, 2022: 2). According to this Act, the term assistive technology identifies any item, piece of equipment, or product system, whether acquired commercially, modified, or customised, that is used to increase, maintain, or improve functional capabilities of individuals with disabilities (Singh & Shaughnessy 2020: 241). The definition of assistive technology in South Africa overlaps with the one above. AT is defined as “an umbrella term that includes assistive, adaptive and rehabilitative devices and services for persons with disabilities, which enable persons with disabilities and learning differences to attain independence (Department of Higher Education & Training, 2018: vii). Additionally, there is an emphasis on the term assistive technology service, which refers to any service that directly assists an individual with a disability in the selection, access or use of an AT device (Cook & Polgar, 2015: 2; Nepo, 2016: 211). Assistive technology in education is defined as any device or service that will increase the ability of the student to participate in academic activities successfully and work independently (OCALI, 2013: 11; Bennett *et al.*, 2018: 161; Stumbo *et al.*, 2009: 100).

The benefits of assistive technology are highlighted by Forgrave (2002). According to Forgrave (2002: 122) assistive technology provides an opportunity for students to finish their tasks more efficiently and independently, which can improve how they perform on different parts of reading and writing tasks.

2.1.2.1. Global socio-economic impact of assistive technology

The field of assistive technology is said to have gained attention worldwide (Batanero, *et al.*, 2022: 1). Some research studies acknowledge that there is little knowledge of assistive technology in developing countries (Batanero, *et al.*, 2022; Hernandez, 2019; Borg *et al.*, 2019).

Developed countries fare comparatively better than developing countries both in terms of research, the development, access and usage of assistive technology. In general, the provision of assistive technology is limited in low and middle-income countries, together with poorly designed structured systems that are placed to facilitate service delivery (Maclachlan *et al.*, 2018: 460). Based on a report released by the World Federation of Occupational Therapists,

the provision of AT better satisfied the needs of individuals in higher income countries, than they were in low-income countries and low middle-income countries (Boot, *et al.*, 2018: 900). It is evident there is a high need for assistive technology in low-and middle-income countries, whereas the demand is low due to lack of awareness about AT (Tangcharoensathien *et al.*, 2018: 85). This contradiction between demand and need introduces difficulties to improve access of AT, which is a real challenge. Studies from high-income countries show that assistive technology can have a positive socio-economic impact on people with disabilities through bettering their access to education and increasing achievement (Forgrave, 2002: 122; Batanero, *et al.*, 2022; Borg *et al.*, 2019).

The use of AT in inclusive education is not frequently regarded as an achievable goal in developing countries, due to a lack of resources. As assistive technology remains inaccessible and costly for a large proportion of citizens, this can result in the exacerbation of inequalities (Shi *et al.*, 2022: 4). Even low technology devices such as crutches are costly for economically disadvantaged people, although there have been instances where high assistive technology has been successfully implemented (Godisa, 2009). There are instances where solar energy has been used to wholly or partially power computer labs in educational institutions in South Africa and Rwanda (eKhaya, 2009; Inveneo, 2007; Solar Electric Light Fund, 2009 (cited in Gronlund *et al.*, 2010).

2.2. THE POLITICS OF DISABILITY

This section discusses two of the critical issues that reinforce marginality and the social exclusion of people with learning disabilities, namely, ableism and the notion of disability disclosure. These are at the centre of higher institution's failure to meet the needs of those with learning disabilities, despite various pronouncements to this effect. According to Pearson & Boskovich (2019: 25) ableist discourses on disability disclosure operate in everyday interactions, thus impacting the quality of educational retention and achievements.

2.2.1. Ableism

Ableism is defined as stereotyping, prejudice, discrimination, and frequent social oppression directed—knowingly or unknowingly—towards people with disabilities or simply because they are classified as disabled, regardless of whether their impairments are physical or mental, visible or invisible like learning disabilities (Dunn, 2019: 2; Nario-Radmond, 2020: 1). The very same term is also described as a set of beliefs that guide cultural and institutional

practices, ascribing negative values to individuals with disabilities while deeming able-bodied and able-minded individuals as ‘normal’, therefore superior to their disabled counterparts (Annamma *et al.*, 2013: 1278). Ableism has been used by various social groups to justify their elevated level of rights and status in relation to other groups (Wolbring, 2008: 253).

Campbell’s (2009) intersectional analysis adds a useful dimension to this discussion. Goodley (2014: 22) explains:

“As soon as disability emerges as a site of marginality then so too Other identities. Ethnicity, class, gender, sexuality and pan-national identities converge around the problems of disability as a consequence of attempts to maintain what Campbell (2009) terms ableist normativity. Disabled people, women, children, queer people, people of colour and poor people share an Other space to that of the dominant same founded upon ableist, heteronormative, adult, white European and North American, high income nation’s values. A shift to ableism connects to other processes of dominance and reification of some societal groups over others...”

What is evident in this discussion is that ableism and the accompanying oppression and practices is deliberate and destructive. It is exactly this that led to social activism and the increasing social consciousness around issues of disability. The following section looks at sociological concepts such as normalcy, norms / normative expectations, stigma and stigmatisation in the critical works of Goffman (1963) Barnes *et al.* (1999) Davis (2006), Goodley (2014) in order to understand the social construction of ableism and its consequences.

2.2.2. The social construction of ableism

Society has normative expectations for its members. Any deviation from what is regarded as ‘normal’ or ‘acceptable’ behaviour is met with general disapproval including anger, ridicule or condemnation. Implicit here is the notion that the behaviour or physical attributes is devalued, dehumanised, inappropriate, frowned upon and unacceptable through the use of judgement, labelling, stereotypes, censure and restrictions (Adler & Adler, 2009; Clinard & Meier, 2001; Franzese, 2009; Henry, 2009; Thio, 1998).

The above resonates with what Davis (2006: 3) argues “to understand the disabled body, one must examine the concept of the normalcy, the normal, the normal body... The ‘problem’ is not the person with disabilities, it is the way that normalcy is constructed to create the problem of the disabled person”. Barnes *et al.* (1999:77) quoting Hunt (1966: 146) states “... the problem of disability lies not only in the impairment of function and its effects on us individually, but also more importantly in the area of our relationship with normal people”. In

this context people with disabilities are more often than not considered as ‘the other’ who do not fit in society. According to Hunt (1966: 146) (cited in Barnes *et al.*, 1999: 77) disabled people are set apart from the ‘ordinary’ in ways which see them as posing a direct challenge to commonly held societal values by appearing as unfortunate, useless, different, oppressed and sick. Barnes *et al.*, (1999: 77) elaborates “disabled people’s challenge to able-bodied values is that they are sick, suffering and diseased, in short, they represent everything that the ‘normal’ most fears”. This ableist mentality is reproduced in various guises throughout the lives of the disabled population, including educational settings. Barnes *et al.*, (1999: 77) explains:

“These include the opportunity for marriage, parenthood, social status, independence and freedom... When despite these deprivations, disabled individuals are happy they are lauded for their exceptional courage”.

Erving Goffman’s (1963) seminal text on stigma and stigmatisation is useful in understanding the ableist discourse and its relation to the study of disability and consequences on ones’ social identity. Goffman (1963) defines stigma “as an attribute that is deeply discrediting ... that makes a person or collectivity different from others and of a less desirable kind, is thoroughly bad, dangerous or weak ... is reduced in our minds from a whole and usual person to a tainted, discounted one”. This is an outcome of stigmatisation which occurs when perceived differences between an individual or group and other members of society lead to labelling, stereotyping, separation, loss of status, and discrimination (Link & Phelan, 2001). According to Goffman (1963: 133) we construct a stigma-theory - an ideology to explain someone’s inferiority and account for the danger they represent, sometimes rationalising an animosity based on other differences. Coleman (2006: 142) argues that this conceptualisation of stigma indicates that those possessing power can determine which human differences are desired and undesired, thus reflecting the value judgements of the dominant group.

People with learning disabilities may experience negative social identity, because of the perception that they are less likely to achieve socially valued goals, like successfully completing higher education in record time (Finlay & Lyons, 1998: 38). This means that in the mind of the society the person with learning disabilities is reduced from a whole person to a tainted being (Barnes, 1999; Goffman, 1963; Goodley, 2014; Pearson & Boskovich, 2019). For those with disabilities this is a start of a rigorous problem of stigmatisation.

Goffman (1963) and Coleman (2006) discuss issues pertaining to stigma management, including masking, acceptance, isolating oneself, being defensive, etc. There is a term called masking that is usually used by individuals with autism (Pearson & Rose, 2021). These individuals sometimes hide who they are to pass the social norms and to be accepted, leading them to disconnect with their identity (Pearson & Rose, 2021:54; Stanborough, 2021). UNESCO (2020) explains:

“When we view the same term in the context of learning disabilities, it is noticeable that students with dyslexia often use poor handwriting on purpose to mask their grammatical vocabulary problems. This is to avoid stigmatisation associated with learning disabilities. Masking of learning disabilities can also lead to late identification of the disability for the student to be granted assistance”.

2.2.3. The notion of disability disclosure

Research on disability disclosure tends to focus on the work environment. In these settings the person with disability may be faced with a contradiction between disclosing to get accommodation or the fact that now they will be marked as a problem worker and will be dismissed in an already precarious environment (Wilton, 2006: 27). Sometimes workers tend to not disclose their disability because it might even reduce the chances of them being hired or keeping a position they already have (Wilton, 2006: 35). These sentiments are not only peculiar to these settings but can be applied to higher education institutions as well.

The notion of disability disclosure in higher education presents several challenges for those with disabilities. It raises questions about consent, access to services, vulnerability, ableism, non-disclosure etc. The experience of higher education institutions catering for the needs of students with disabilities is relatively new in South Africa. Such services tend to be restricted even when students have disclosed their disability. South African public schools do have a record that accommodates the needs of those with learning disabilities compared to higher education institutions. Even though the issue of disclosure is seen as one of the most important aspects of the admission process, universities that see disclosure as a matter for the individual student, face difficulties reaching out to some students (Weedon & Riddell, 2009: 145).

In simple terms, disability disclosure is about revealing information regarding a disability to another person or when someone chooses to make their disability to be known (Pennington, 2010: 52). This is more complex than the previous statement, as this involves decision-making and determinations of “when and to whom to disclose, determining the value of the

disclosure, positive and negative responses of the disclosure, and the value of the accommodations⁶ (Rocco, 2001: 10). This statement is supported by Valle, *et al.* (2004: 4) who state, “disability disclosure is a complex and ongoing process requiring decisions about who should know, why they should know, how to inform, what to disclose, and when to inform”. In this sense, disability disclosure should be regarded “as not merely forms of barriers or accommodation issues but as contested and fluid in everyday settings and acknowledges the importance of addressing institutional change...” (Pearson & Boskovich, 2019: 3). Also, disability disclosure is dependent on how individuals situate themselves within the meaning of disability (Pearson & Boskovich, 2019: 3).

Research evidence suggests that students who disclose their disabilities are motivated by the need to access accommodations (Cole & Cawthon, 2015; Pearson & Boskovich, 2019). In most cases, the success of a student is often influenced by the attitudes and readiness of academic staff to provide the accommodations they need. Sometimes in higher institutions, even educators struggle when it comes to accommodating students with disabilities. This can lead to students being reluctant to disclose their disabilities because of the fear of differential and discriminatory treatment from their lecturers and peers. (Lindsay *et al.*, 2011: 528) There is a need therefore to understand how educators and students with disabilities make disclosure possible for them to obtain successful academic outcomes.

The influence of the ableist culture is pervasive in issues relating to non-disclosure. If a student decides to disclose their disabilities, they are often faced with social exclusion, discrimination, negative attitude and stigma. This is because at times people are not educated enough or there is a lack of disability awareness. When a student with disabilities is stigmatised, this means that the society see them as people with personal flaws. People with disabilities therefore often feel marginalised and excluded by other people’s discomfort when interacting with them (Lindsay *et al.*, 2011: 527).

A study that was conducted by Grimes *et al.*, (2020: 34) on learning disabilities mentioned that one of the reasons why students do not disclose is that they do not want to be labelled as disabled as they walk through the door, they want to be included as a ‘normal’ student.

⁶ “Accommodations are alterations in the way tasks are presented that allow children with learning disabilities to complete the same assignments as other students. Accommodations do not alter the content of assignments, give students an unfair advantage or in the case of assessments, change what a test measures (National Centre for Learning Disabilities, 2006). These can include time and spelling concessions.

Kranke *et al.* (2013: 48) conducted a study on non-apparent disabilities like learning disabilities. One of the students stated that one of the reasons they do not disclose their disability is to avoid feeling different from other students, through special treatment. In other studies that were conducted students reveal that they would hide or deny their learning disability to avoid disclosing (Cole & Cawthon, 2015; Pearson & Boskovich, 2019). Some students with disabilities, lacked self-confidence to disclose and advocate for their needs. It is crucial to address the learning challenges of non-disclosed students, as a fundamental part of the diverse student body (Grimes *et al.*, 2020: 34). Research by Pearson & Boskovich (2019) points to the need to challenge and uproot the “embodied social power relationships” (Samuels, 2017: 16) that continue to perpetuate the ableist culture.

2.3. RESEARCH ON LEARNING DISABILITIES IN SOUTH AFRICA: A SELECTION AND OVERVIEW OF STUDIES

In general, the field of learning disabilities in higher education is evolving globally but remains under-researched especially in South Africa. Research on learning disabilities is largely based on developed country experiences. However, there is a growing body of research that is emerging in South Africa (Duma, 2019; Johnson, 2013; Manase, 2021; Mantsha, 2016; Mazibuko, 2019; Morrison, *et al.*, 2009; Mutanga, 2013, 2015, 2017; Ndlovu, 2021). On the rest of the African continent studies include those done in Kenya (Gona *et al.*, 2011; Obare &Winga, 2021), Zimbabwe (Van der Mark & Verrest, 2014; Mapuranga *et al.*, 2015) and Namibia (Taderera, 2017; Barlett, 2010). The key themes that are explored on learning disabilities in higher education in South Africa include, a comparison of students with learning disabilities and those without learning disabilities, barriers, challenges, strategies and the support students with learning disabilities receive from institutions, experiences of students with learning disabilities and assistive technology. There is little research that focuses on access to assistive technology by students with learning disabilities in higher education, rather studies focus from early childhood education to high school.

This discussion is not exhaustive but provides a synopsis of research done in this area in South Africa.

- De Beer *et al.* (2022) conducted research at the University of the Western Cape to explore the experiences of people with invisible disabilities. This study included all the students as long

as they were registered at the institution, had invisible disability and spoke English, Afrikaans and IsiXhosa (de Beer, *et al.*, 2022). These are the official languages in the province of the Western Cape. Students were between ages 18 and 50.

This study showed that the experiences of individual students are unique, together with the disability they have (de Beer, *et al.*, 2022). The study noted that each disability is “influenced by a complex interaction of intrapersonal, interpersonal and contextual factors”. The analysis of the results revealed that students with invisible disabilities face the effects of managing an invisible disability both at home, with friends and school (de Beer *et al.*, 2022: 5). The study also revealed that disclosing their disability was a challenge because of stigma and the fear of being judged.

On the question of the available support for students with invisible disabilities at the university, the research shows that most students who were interviewed did not register with the official university support unit. (de Beer *et al.*, 2022: 4). This leads to students lacking support. The study shows that there was a lack of awareness when it came to understanding the purpose of the disability unit and the services it provides (de Beer *et al.*, 2022: 7).

- A study carried out by Tugli *et al.* (2013) with students with disabilities at the University of Venda during the 2011 academic year assessed the perceptions of students with disabilities concerning access and support. Both undergraduates and postgraduate students with disabilities were included. The results showed that sports and recreational facilities were the poorest (Tugli *et al.*, 2013: 362). The study concluded that the success of a person must not be measured by how excellent their academic performance is but other aspects of human endeavour such as sports and music (Tugli *et al.*, 2013: 362). Extra-curricular activities such as sport and music and other activities are usually confined to able bodies. Another form of exclusion that is shown by this study is that physical access caused a challenge in their learning, creating a sense of feeling unwelcome in the institution (Tugli *et al.*, 2013: 362). Assistive devices create an opportunity for full access of disabled students. In this study however, “Almost one in two participants (47.8%) concurred with the statement that their disabilities affected their attending seminars, tutorials, library etc. Without any doubt, these participants are learners whose learning experiences depend on how much educational support and assistive devices are ploughed into assisting them” (Tugli *et al.*, 2013). This

experience has negatively impacted the disabled students when it comes to accessing education, making them unsafe.

- This study by Phukubje & Ngoepe (2017) is similar to the one by Tugli *et al* (2013) since it focused on access to support services. This study was conducted at the University of Limpopo to evaluate the convenience and accessibility of library services for students with disabilities (Phukubje & Ngoepe, 2017). Ninety-one percent (91%) of the disabled students stated that library services were poor (Phukubje & Ngoepe, 2017:85). According to Phukubje & Ngoepe (2017) the disabled students were just not satisfied with the services available to them. Some of the reasons were that the books were not available in other formats, and only a few of them were in audio format. Students with disabilities vary, there should be a number of formats such as braille, sign language for the deaf and blind students. Another challenge that was mentioned is that students who had multiple disabilities, did not get services that will come to their rooms in the residences since they cannot visit the library (Phukubje & Ngoepe, 2017: 185). Students with disabilities continue to face challenges when it comes to accessing learning services, such as the library which is one of the most important places in education. This study shows the high level of stress that students with disabilities deal with, when it comes to access alone. How much more when it comes to making sense of the educational material they have, in order to succeed in higher education?
- Similarly, Duma (2019) explored the academic experiences and outcomes of students with disabilities at the Durban University of Technology and Mangosuthu University of Technology, KwaZulu-Natal. The study was motivated by the lack of research on the academic success of students with learning disabilities. This study paints a positive picture about the resilience and success of students in these institutions, despite the adversity, such as an unsupportive learning environment at their respective institutions, stigma, prejudice and discrimination, inappropriate teaching and learning methodologies, infrastructural challenges, lack of funding, frustrations and anxiety they experienced.

The study by Duma (2019) confirms findings from other studies (Mantsha, 2016; Mutanga, 2015; Cole & Cawthon, 2015; Phukubje & Ngoepe, 2017; Tugli *et al.*, 2013; de Beer *et al.*, 2022; Abed & Shackelford, 2020) about structural challenges at institutions of higher learning faced by students with disabilities which aggravate exclusion and thus a barrier to success. For example, a study by Abed & Shackelford (2020) did a comparative analysis between undergraduate and postgraduate students with learning disabilities enrolled at King

Abdulaziz University, in Saudi Arabia. The study examined the experiences of students with learning disabilities and the nature of academic support the students had received, and what they wish to receive for their best academic performance. Abed & Shackelford (2020: 41) concluded that with the progression from undergraduate to postgraduate programmes, there is an increase in the support requirements for students with learning disabilities. Postgraduate students did report that they receive some academic support, but they need more, specifically with regards to reading and writing. This is because of the increased workload compared to undergraduate programmes. In undergraduate programmes, there is proof of successful undergraduates due to the strategies they employ. These strategies, however, do not work for students who are in postgraduate due to their more demanding programs (Abed & Shackelford, 2020: 42). The research study also revealed that both undergraduate students and postgraduate students are knowledgeable about the available services for students with learning disabilities. The study showed that the students required increased accommodation in the completion of academic tasks including examinations. The study, also, showed that in Saudi Arabia, improved awareness is needed for both undergraduate and postgraduate students with learning disabilities among faculty and administrators.

- The primary objective of the study by Zongozzi (2020) was to explore obstacles towards accessible quality open distance and e-learning education for students with disabilities in South Africa. This study involved lecturers from the University of South Africa. A selection of lecturers was made from all the 7-teaching colleges of UNISA namely: College of Human Sciences, College of Education, College of Science, Engineering and Technology, College of Economic Management Sciences, College of Law, College of Agricultural Sciences and the college of Accounting Sciences. In total nine lecturers were interviewed, five females and four males.

Research findings included: (a) Poor support of students with disabilities. (b)The implementation of policies and strategies was also noted as poor by the university in this research. (c) With regards to inaccessible learning material for students with disabilities, the study suggests that it is important for the various types of disabilities to be known and how these influence learning. (d)This study noted that even if assistive technology is partially accessible for the lecturers at UNISA to use, training on assistive technology is not enough to enhance the quality of teaching that will benefit students with disabilities in South Africa (Zongozzi, 2020: 1654).

2.3.1. Studies on learning disabilities and assistive technology at South African universities

The research by Ndlovu (2021), Manase (2020), and Dalton *et al.* (2019), provide context-based understanding of learning disabilities and the provision of assistive technology in higher education in South Africa. Combined these studies acknowledge the quest for universal access for students with learning disabilities in higher education through the provision of academic support in South Africa. In addition, these studies point to a lack of adequate resources, inaccessible assistive devices and a lack of training and expertise to teach students with disabilities. Manase (2020) examines the learning experiences of university students with learning disabilities with specific reference on the formation of their capabilities. Manase (2020: 115) concludes “students with learning disabilities without support have a high risk of failing and dropping out of university”. In addition, Manase (2020) argues for a critical look at adjusted assessments for students with learning disabilities and the extent to which they advance or undermine their academic development and outcomes.

The Dalton *et al.* (2019) study, argues that South African universities fare unfavourably to their United States counterparts. Specifically, with regards to Stellenbosch University the study identified the following limitations in the provision of disability services: insufficient planning for inclusion; disability must be viewed as part of social transformation occurring in South Africa; staff are not always disability aware and that exclusion still exists (Dalton *et al.*, 2019: 4). While the University of Cape Town has an active and responsive disability service, the challenge of equitable access to the online learning environment remains (Dalton *et al.*, 2019: 3). These include the need for print resources to be accessible and on time; appropriate assistive technology software to support access to online materials; assessment tasks must be accessible timely and connectivity issues to support access. These findings corroborate what Ndlovu (2021: 12) refers to as normalisation and ableism, which deliberately excludes and marginalises those with disabilities. Ndlovu (2021: 12) argues “normalisation and ableism manifest in the way in which society tries to make those with disabilities what they are not by ignoring their lived experiences and imposing top-down services, thus misrepresenting and limiting their functionality and learning”.

There is a variety of assistive technology that South African disability authors mention in their research studies. For example, Chiwandire & Vincent included assistive technology like

“laptops with specialist digital voice recording” (2019: 9). Ngubane-Mokiwa & Zongozzi (2021: 146) mentioned assistive technology like “NVda screen readers, Index Everest v5, Natiq Reader, Braille display, OCR software for PDF reading, Text to speech software, and etc.” Similarly, Tekane & Potgieter (2021: 2); van Jaarsveldt & Ndeya-Ndereya (2015: 204) mention “Braille and tape-recorded readings, sign language interpreters, alternative assessments, and assistive technology such as Job Access with Speech (JAWS) software together with screen reading or voice recognition software and a foot mouse. All of the above AT creates independence for student with disabilities in terms of learning in higher education”.

Students with disabilities who come from socio-economically disadvantaged backgrounds face ongoing learning challenges. Ngubane-Mokiwa & Zongozzi (2021:145) reported that “students with disabilities faced challenges such as exclusion due to being digitally illiterate, lack of respect for human dignity, inadequate time to complete online summative assessments, systemic challenges, inability to access learning materials in different formats, lack of digital skills to use assistive technology and high internet costs”. This requires training in the use of the assistive technology including basic computer skills and keyboard training (Ndlovu, 2021: 14; Ngubane-Mokiwa & Zongozzi, 2021: 144).

2.4. SOUTH AFRICA’S STRATEGIC POLICY FRAMEWORK ON DISABILITY FOR THE POST-SCHOOL EDUCATION AND TRAINING SYSTEM (2018)

This discussion focuses on South Africa’s Strategic Policy Framework on Disability for the Post-School Education and Training System (PSET) (2018). This document is in line with global debates on disability. South Africa is a signatory of various international conventions including, the Universal Declaration of Human Rights (1948); the United Nations International Convention on the Rights of Persons with Disabilities (2006) and the Continental Plan of Action for the African Decade of Persons with Disabilities (1999). These recognise equal rights, inclusivity and assistive technology as a human right and the facilitation of access to learning in higher education.

In South Africa, some of the policy instruments that guide the Department of Higher Education and Training include the following:

The Bill of Rights as enshrined in the *Constitution of the Republic of South Africa*, Act 108 of 1996. This guarantees that all South Africans enjoy democratic values of human dignity, equality and freedom.

- The White Paper on the Rights of Persons with Disabilities (2015). This provides for gender mainstreaming, service delivery by various stakeholders to people with disabilities to ensure inclusion, to provide social protection and the eradication of marginalisation.

In March 2018, the South African *Strategic Policy Framework on Disability for Post-school Education and Training* was introduced (Department of Higher Education & Training, 2022: 8). In this framework, inclusion is acknowledged as “equal access, opportunities, eliminating discrimination and intolerance for all” (Department of Higher Education & Training, 2018: 20/21; Government Gazette, 2022: 8). The purpose of this policy framework is to “create an inclusive PSET system for people with disabilities; guide PSET institutions in the creation of an enabling environment for people with disabilities; and provide the DHET with a monitoring and evaluation instrument to ensure that disability compliance is mainstreamed in all PSET institutions” (Department of Higher Education & Training, 2018: 14).

The following eight assumptions underpin the policy framework (DHET, 2018: 12)

1. The needs of people with disabilities are not fully addressed.
2. These needs must be approached from a human rights and developmental perspective.
3. Gross neglect and discrimination take place within the private and PSET system.
4. All cultures have traditional and customary practices that have subjected and still subject people with disabilities to limitations and forms of discrimination.
5. The management, resourcing, and funding for disability rights in PSET remains fragmented and separate from that of existing transformation and diversity programmes at institutional levels.
6. A *Strategic Policy Framework on Disability for the Post-School Education and Training System* needs to be developed together with people with disabilities in the spirit of ‘nothing for us without us’.
7. The State has a key role to play as an agent of transformation.
8. The empowerment of people with disabilities is critical in achieving an equitable and inclusive society.

This Policy Framework is informed and guided by the social definition of disability and the social model of disability. The former has already been discussed under 2.1.1 whilst the latter is the subject of discussion under 2.5.1 Suffice to say, both recognise the complexity of defining disability and the barriers caused by economic, physical, structural, social, attitudinal and /or cultural factors.

Whilst this Policy document is progressive, some of the criticisms include (Mutanga *et al.*, 2018):

- There's still enough room in the policy for universities to abdicate their responsibility when it comes to things like decent and properly equipped accommodation for students with disabilities. For example, the framework states that all institutions should make adjustments to enable people with disabilities to be on par with everyone else. But there's a contradiction. Institutions are not supposed to incur significant expenses when making these adjustments. The reality is that some alterations – like making lecture halls and residences accessible particularly to people in wheelchairs – will cost money. This will be particularly challenging for South Africa's poorer, less resourced and rural institutions.
- This brings in the question of funding. Considering the challenge of meeting the educational needs of the students in higher education in general, it is unlikely for the government to meet its financial obligations in funding disability interventions.
- The role of the private sector has not been explored. That's an oversight, since industry and businesses should be involved. They could fund some of the work, offer technological innovations to improve the lives of students with disabilities and even offer employment to graduates with disabilities.
- Finally, the involvement of those living with disability including both students and staff in implementing the Policy is unclear. They are key stakeholders in ensuring the successful implementation. They can also be powerful advocates in the elimination of stigma and discrimination.
- The Policy provides general statements on disability and views all disabilities as the same. But students with disabilities have varied and unique needs. They require individually tailored services based on what each person requires to be successful. The risk with the framework is that some students may not get enough tailor-made support for their specific disabilities.

2.5. THEORETICAL FRAMEWORK

The study discusses the two-pronged conceptual framework that informs this study: the social model of disability and the universal design for learning. At the core of the social model of disability is a discourse that champions universal access and the inclusion of disability. Similar to the social model of disability, UDL in higher education is grounded on the principle of inclusion of diverse populations which is consistent with the emerging attempts of the provision of equal access for all. The universal design for learning introduces flexible styles of learning to ensure that diverse students are able to access education, including those with learning disabilities.

2.5.1. THE SOCIAL MODEL OF DISABILITY

The social model of disability is an outcome of social activism that challenged the systemic exclusion and discrimination of those living with disability. This model advances the mainstreaming of learning disability in social theorising as this area has been marginalised. At the core of the social model of disability is a discourse that champions the inclusion of disability in our everyday lived reality. The social model of disability contrasts sharply from the traditional dominant individual medical model of disability.

The latter is an essentialist, pathological and inward-looking model which sees disability in medical terms by focusing on the individual as diseased (Cigman, 2010: 159). In this sense disability is an “impairment or difference that must be corrected through medical intervention” (Hosking, 2008: 12). It looks at any abnormalities or deficiencies in the bodies and how these causes some extent of disability. It refers to an individual with disability as having a functional ‘incapacity’, which is generalised and becomes what they identify with (Hosking, 2008:12). This is known as the personal tragedy approach. This is where persons with disabilities are viewed as victims, people who require care and depend on others. This notion is even influenced by social welfare policies as Oliver (1983) and Finkelstein (1993) argue “these were designed to assist people with disabilities cope with their disability”. People with disabilities are supported to adapt and adjust to their disability making it an individual instead of a collective matter (Goodley, 2014: 25). This interpretation lies at the root of discrimination, exclusion and hierarchies found in society.

In contrast, the social model locates disability within the social structure and not the individual (Retief & Letšosa, 2018: 4). These practices, beliefs and attitudes are reflected in the subjective and lived daily experiences of those living with a disability. Hence, the argument is that society is the one that disables individuals with disabilities, and therefore solutions that are put into action must be aimed at societal change and not individual adjustment (Riox and Bach, 1994: 9). The model focuses on the causes that are external and the effects these disabling barriers are experienced by disabled people in the society. These barriers come from a wide range of social and material factors, including education, the built environment and family support (Goodley, 2014: 30).

According to Hosking (2008: 7) the social disability model rests on three interrelated principles: disability is socially constructed; disability is characterised as a complex interrelationship between impairment, individual response to impairment and the social environment, and the social disadvantage experienced caused by the physical, institutional/structural and attitudinal environment which marginalises those who do not fit the social expectation of normalcy. Hence, disability is a lived reality in which the experiences of people with disabilities are central to interpreting their place in the world (in this case higher education) and as a social and political definition based on societal power relations (Reaume, 2014). In addition, critical disability scholars, emphasise the intra/intersectionality of disability as intersecting with other multiple identities such as sexuality, race, ethnicity, gender or class (Ndlovu, 2021: 4). This is crucial for understanding this diverse population in higher education from various angles.

2.5.2. UNIVERSAL DESIGN FOR LEARNING

In addition to the social model of disability this study is guided by the UDL. The universal design for learning introduces flexible styles of learning to ensure that diverse students are able to access education, including those with learning disabilities.

The origins of the term universal design for learning (UDL) came from the term universal design (UD). Universal design is an architectural term universal design came up with Ron Mace, who was an architect and disabilities rights advocate (Erdtman *et al.*, 2021: 158; Zhong, 2012: 34). This term emerged from the requirement that public spaces must include various access points in order to meet several ways that people explore their environments (Meynell, 2019: 1). The expansion of UD principles that looks at the physical environment to

the digital one, influenced the development of UDL, which is interested in what takes place when the students get through the school doors (Tobin, & Behling, 2018: 22). Courey *et al.* (2012: 10) defines UDL as a set of principles and techniques for use in the classroom along with the design of accessible instructional materials. These principles revolve around a variety of alternative ways for students to participate using different modes of representation, action and expression, and engagement (Burgstahler, 2007). Universal design for learning is a curriculum and instructional design framework based in neuroscientific research and focused on how the brain recognises, processes, organises, evaluates and responds to varied types of information (Meyer *et al.*, 2014). It produces flexible goals, methods, materials, and assessments that work for everyone (CAST, 1998). UDL attempts to remove practices that discriminate, but rather install inclusive ways of learning for all students (Wells, 2022: 3; Hodges *et al.*, 2020).

UDL in higher education is grounded on the principle of inclusion of diverse population which is also consistent with the emerging attempts of the society's provision of equal access for all (Dolmage, 2017; Meyer *et al.*, 2014; McGuire *et al.*, 2006; Rose & Meyer, 2002). The strategy for fostering disability inclusion in South African higher education can be through the provision of accessible curricula and assessment by lecturers on campus (Lyner-Cleophas, 2019). According to Manase (2020: 150) UDL is crucial when addressing inequalities and employing social transformation. Students with learning disabilities are a diverse group although two students have dyslexia, this does not mean they will use the same way or methods of learning.

The universal design for learning in higher education began in the early 2000s, when the U.S Department of Education created grants for universities and colleges in order to bring the concepts in higher education (Tobin & Behling, 2018). The higher education in United States and Canada has not been able to adopt UDL as quick as it has in the elementary and secondary spaces (Tobin & Behling, 2018: 27). UDL was now aimed to better the educational experiences of students with disabilities and those who had not disclosed their disabilities to the offices (Tobin & Behling, 2018: 28).

Ndlovu (2021) argues that assistive technology should be incorporated into the universal design which is more specific to teaching and learning because the mandate of UDL is to ensure that all students with and without disabilities gain access to learning. It is important to

think of diverse students even before they enter the classroom. Ndlovu (2021: 15) concludes that through the inclusion of AT in UDL this can be seen as a way of soliciting a unified solution to mitigate the challenge of those with disabilities being excluded both in the global south and west. The Center for Applied Special Technology found that UDL's principles were not only supportive to students with disabilities, but supportive to everyone.

Some teachers make a mistake of thinking that UDL will replace assistive technology, since all needs will be anticipated and addressed. Rose *et al.* (2005) addresses this concern by noting that AT and UDL can be thought of as two interventions on a continuum that involves reducing barriers. UDL seeks to reduce barriers for everyone while AT reduces barriers for individuals with disabilities (Edybrum, 2015: 18).

Incorporating UDL does not eliminate educational barriers to learning for some students (Zeff, 2007). However, it provides a new standard and mindset for instructors to reduce those barriers for all students. The instructors that make use of the UDL principles acknowledge that there is by chance a diversity of students in the courses, they believe that all students have the same right into higher education and lastly, they aspire to creating equitable access to learning for all students in their courses. (La *et al.*, 2018: 4)

2.6. CONCLUSION

This chapter has explored the various dimensions of disability including the meanings of disability and assistive technology, the politics of disability: ableism and disability disclosure, scholarship in South Africa, South Africa's policy framework on disability and the conceptual framework which includes: the social model of disability and universal design for learning. It is clear that research in South Africa whilst it is still emerging contributes to the scholarship on disability studies. A growing body of research in South Africa notes the challenges of students with disabilities in South African higher education. These challenges include, amongst others, lack of digital skills to use assistive technology, the inability to access learning material in different formats, and poor support of students with disabilities.

This study advances the need to integrate AT to ensure inclusion and transformative practices in higher education. Assistive technology is a tool that will assist students with learning disabilities to finish their tasks more efficiently and independently. Research on assistive

technology and its access is comparatively better in developed countries than in developing countries. This causes demand to be low, which limits access.

The notion of disability disclosure and ableism enforces marginalisation in higher education. Societal normative expectations construct stereotypes, prejudice, and discrimination towards people with learning disabilities. In higher education, however, the notion of disability disclosure comes with several challenges, including limited services that cater only to students who disclose their disabilities, whilst neglecting those who fail to disclose.

CHAPTER THREE RESEARCH METHODOLOGY

3. INTRODUCTION

This chapter focuses on the research methodology employed in this study. Information on the qualitative design, quantitative survey, study area, negotiating access, sample size, data collection method, interviews, semi-structured interviews, and data collection and analysis are provided. The study observes the Rhodes University and research ethical guidelines. Given the sensitivity of the information obtained from students with learning disabilities, the researcher approached this study with an appreciation of the vulnerabilities and risks involved.

A crucial part of any study is the literature review, consulting primary and secondary sources, including internet sources such the websites of the various universities with disability units and those at the initial stages of establishing one. This helped the researcher obtain published information about learning disability services, the provision and use of assistive technology. In addition to the literature review, a once-off one hour visit to one of the university disability units was done. There was no systematic observation of the disability units and their operational procedures. This proved useful in understanding the emerging field of disability studies in South Africa.

3.1. RESEARCH DESIGN AND DATA COLLECTION METHODS

3.1.1. Qualitative design

This research is primarily qualitative using in-depth semi-structured interviews. Quantitative surveys were utilised to further complement the research. This form of triangulation increases the validity and reliability of the research, taking “multiple perspectives into account and attempting to understand the influences of multilateral social systems and subjects’ perspective and behaviours” (Babbie & Mouton, 1998: 275).

Qualitative research provides rich, in-depth description and understanding of social actions and events (Babbie & Mouton, 1998: 270). According to Denzin & Lincoln (2017: 50) qualitative research relies on first hand experiences of people as the meaning-making agents in their daily lives. This is apt in this study in understanding the experiences and perceptions of students with learning disabilities in higher education. According to Greenstein *et al.* (2003: 49) qualitative research is the wide-ranging method in research design based on the

need to understand human and social engagement from the lens of participants. Hence, this method was employed because the study aimed to obtain the unique experiences of students with learning disabilities, regarding the use assistive technology at South African universities. The participants in this study have the experience

The qualitative methodology is associated with the interpretivist paradigm since the primary emphasis was on how people construct meaning and interpreted experiences that affected them (Maxwell, 2013: 40). This made it possible for the researcher to examine and understand the students with learning disabilities and staff members' everyday experiences with assistive technology in higher education, capturing them in a subjective way. The researcher aimed to understand how the participants made sense of the daily encounters of life and how this influenced their experiences with regards to accessing assistive technology. This approach further allowed the researcher to focus on a specific, relatively small group of students with learning disabilities in higher education institutions, which enabled for the uniqueness of each participant to be preserved in the analysis (Maxwell, 2013:41). A total of six students participated in this study, both at undergraduate and postgraduate levels.

The qualitative method used in this study was in-depth semi-structured interviews. According to Blandford (2013: 23) semi-structured in-depth interviews are best suited for understanding peoples' perceptions and experiences. In this study, these semi-structured in-depth interviews included a pre-set of questions that allowed flexibility. This provided the researcher an opportunity for probing of responses and participants not to be constrained by a rigid set of pre-determined questions. This data collection method allowed the researcher to get more feedback in collecting rich data (Hyman & Sierra, 2016). During data collection in this study, the researcher asked for consent from the participant for the interview to be recorded. The audio recording was also necessary for the coding of the interview and the creation of transcripts. The researcher used a pen and a notepad to take down notes and details that could not be recorded on tape, like gestures. This was helpful because, in some cases, the recording was unclear; the researcher could go back to the field notes. While taking notes, the researcher made sure to keep eye contact with the participant, to show interest and keep the conversation flowing.

3.1.2. Quantitative surveys

A quantitative survey was utilised to further complement the research. This also assisted in addressing the second research objective of the study⁷. While the broad opinions of the staff members were obtained using the in-depth semi-structured interviews, the quantitative surveys, were mainly used to get an overview of the attitudes of the staff members. This included the use of surveys for academic, library, disability unit, student affairs services and ICT staff members. Initially, the study aimed to conduct the research study at seven South African universities. However, due to time constraints and the delays in the ethical clearance process, the study ended up using two universities: one with an established dedicated disability unit and another one in the elementary stages of establishing a disability unit.

3.2. AREA OF STUDY

The unit of analysis are two institutions of higher learning in South Africa, which are kept anonymous throughout the research study. Specifically, this involved interviewing students with learning disabilities and staff at the two institutions. The two institutions are qualitatively different in terms of the nature and type of disability services available for their students. Thus, a distinction is made between an institution with a dedicated disability unit and the one that is still at the initial stages of establishing one.

A dedicated disability unit in this study means that the unit only deals with the needs and services of students with disabilities, including learning disabilities. This means that there are staff responsible for providing targeted interventions to the students, staff and the general university population. For many students with disabilities, the disability unit is the first place of contact. The disability units ensure participation and access in the university for students with disabilities. They, also, influence the university to make reasonable adjustments and accommodations to support students with disabilities to ensure full participation (Mbuva, 2019: 58). A crucial part of their support services is creating awareness about disability.

⁷ To explore the attitudes and experiences of various key university staff members (academic, library, disability unit, Student Affairs Services and ICT staff members) on assistive technology for students with learning disabilities.

3.3. POPULATION AND SAMPLING

A population is defined as a group of individuals with at least one common characteristic distinguishing that group from others (Best & Kahn, 2006). It is the entire group of people or objects that are of interest to the researcher (Vanderstoep & Johnston, 2009: 26). In this research study, the population was the university students and staff members at an institution with no dedicated disability unit and the one that has a dedicated disability unit. Within the population, there is target population. The researcher focused more on the target population. This is because they can best share the experiences and thoughts that speak to the research goal (Asiamah *et al.*, 2017: 1613). The target population in this research study was the students with learning disabilities and university staff members (ICT specialist, head of the disability unit, academics and librarians).

3.3.1. Sample selection

A sample is a subset “of people or social phenomena to be studied, from the larger “universe” (Payne & Payne, 2005: 200). Sampling is an important part of the research design. This study used purposive sampling. Purposive sampling is when a researcher determines what information is necessary and then searches for individuals who can and are willing to supply it due to their expertise or experience (Bernard, 2002). Purposive sampling was used for this research study because the participants, which are students with learning disabilities and university staff members were identified at an initial stage. The dedicated disability unit has a complement of five staff members, all were interviewed. Seven staff members were interviewed where the disability unit is still at its infancy. The staff members from both institutions comprised of academic, library, Student Affairs Services and ICT staff. In total six students and twelve staff members were interviewed. All of the participants were above 18 years old.

Before initiating the interview, the researcher asked for consent from the participant for the interview to be recorded. The audio recording was also necessary for the coding of the interview and the creation of transcripts. The researcher used a pen and a notepad to take down notes and details that could not be recorded on tape, like gestures. This was helpful because, in some cases, the recording was unclear; the researcher could go back to the field notes. While doing this, the researcher ensured they avoided facing the notepad for a long time to maintain and maintain eye contact, showing interest in what the participant was saying.

3.4. NEGOTIATING ACCESS

Negotiating access is an ongoing process that may take two forms. The first one is the researcher to gain entry to conduct part of your research and then seek access further for your other part of your research (Saunders *et al.*, 2007: 164). This may take place in different parts of an organisation and negotiating access for each part needed. Secondly the gatekeepers that have granted you access may be different from the group of people you wish to collect data from.

Physical access to a particular organisation will be formally given to you through its management (Saunders *et al.*, 2007: 164). Furthermore, the researcher needs to gain informal acceptance from the potential participants within the organisation in order to be given access to the data they are able to provide. Access influences your ability to choose a representative sample of participants, which can allow you to meet the objectives of your study producing reliable and valid data.

Permission for access was requested from the two institutions that were the target of the research. First the head of the dedicated disability unit was contacted since this unit deals with all matters regarding service delivery to all students living with a disability, including those with learning disabilities. A letter that fully described what the study entails, which included the study's aim, purpose, and benefits, was provided. Another invitation letter was sent via the Student Affairs Services of the institution without a dedicated disability unit. The Student Affairs Services forwarded the invitation letter to the disability emailing list at the institution. This was for the students with learning disabilities to receive the request to participate in the study.

Students indicated their interest in the study by contacting the researcher via email. The students with learning disabilities were then invited to participate in in-depth interviews. The participants were given a consent form to sign before the interview to be aware of their rights as participants. Related stakeholders which included academics, the staff members of the university with a disability unit, ICT specialist and librarians were also invited to be part of the research. This helped explain what is required from the academic staff members, including their attitudes on students' experiences when accessing assistive technology and their role when distributing it.

Apart from the written communication to the various institutions, access was negotiated via established social media platforms such as Microsoft Teams, Zoom and over the telephone. This provided a useful platform to engage directly with all stakeholders and clarify issues. This was an involved process that lasted three months.

Once ethical clearance was approved this was communicated to the respective stakeholders. It is only then that the researcher was allowed to the data collection stage which included in-depth semi-structured interviews and quantitative surveys.

3.5. DATA ANALYSIS

Recorded interviews from the participants were transcribed accordingly. After the interviews were recorded and transcribed, the analysis stage commenced. A thematic analysis approach was therefore, used to analyse the qualitative data from the interviews. This allowed the researcher to identify themes drawn out from these interviews. The researcher revisited and read the transcribed interviews so that they could be familiar with the study and its approach before continuing with the next step. Thematic analysis allowed the researcher to go through the interview transcripts and select themes that came up through common patterns in the experiences of students with learning disabilities when accessing assistive technology (Braun & Clarke, 2006: 7). The themes drawn out from the transcripts were selected by the researcher with relation to the objectives of the research. The use of direct quotes from the transcribed interviews is utilised and corroborated accordingly with relevant literature. Some of the themes that emerged from the thematic analysis were the process of disability disclosure. This theme looks at how students with learning disabilities disclose their disability in their universities. The other theme is disability units and support services. This particular theme covered issues of awareness. Another theme is assistive technology for inclusive higher education, this looks at how assistive technology benefit students with learning disabilities. The researcher also came up with a theme called attitudes of various university staff members on the provision of assistive technology for students with learning disabilities. This part of the discussion zooms in the university staff members.

3.6. ETHICAL CONSIDERATIONS

The study observed ethical guidelines. Given the sensitivity of the information obtained from students with learning disabilities, the researcher approached this study with an appreciation of the vulnerabilities and risks involved. The ethical guidelines included:

3.6.1. Protecting participants from harm

All participants who volunteered to participate in the study were fully informed about how the study will be conducted and their role as research participants. Consent forms were completed before the data was collected from the participants. The participants were made aware that they could withdraw from the study anytime they wanted to.

Confidentiality is rooted in trust. During the research study, participants were assured that in writing up the study and in all subsequent publications, the privacy of students with learning disabilities and the staff would be protected and maintained. The audios of the interviews were only accessible to the researcher and the supervisor. The interview audios were later on kept in a safe Google-drive. The analysis chapter made use of quotes from the transcribed interviews. This was done to support some points being made in the research. These quotes were kept anonymous, making it impossible to trace them back to the students and university staff members. The research study assured that the participant's anonymity was prioritised as it is a way for the participants to achieve other values, such as privacy or liberty. This research study kept the personal information of the participants confidential and secure. Scott (2005:243) declares that anonymity is when the source in the research remains identified. The researcher avoided identifying information and using the real names of the participants. The names of the universities of interest in the research remain unknown. The research did not intend to encroach on the personal lives of the research population, especially those with learning disabilities using assistive technology. Instead, the research confined itself to the following interrelated objectives which are, to explore students' perceptions and experiences with learning disabilities in accessing assistive technology, and to examine the attitudes and experiences of various key university members such as lecturers, ICT staff, library staff on access and the use of assistive technology for students with learning disabilities.

Interviews were taken in a comfortable and non-judgmental manner that did not threaten the well-being of the students with learning disabilities and the staff involved. The students with learning disabilities were alerted to the university's various support structures/ should they

feel uncomfortable or distressed. Nevertheless, this did not occur because the students and academic staff were comfortable during the data collection stage.

3.7. REFLEXIVITY AND POSITIONALITY

Reflexivity is the process of looking both inward and outward with regard to the positionality of the researcher and the research process (Shaw & Gound, 2001). As a researcher who is also a student with no learning disabilities my positionality had a potential of influencing the research. For this research study I took an observer perspective because I do not have learning disabilities. I do not know how that is like. When conducting the research study, I had to put my experiences aside. I had to have an open mind that is willing to listen and be able to tell the different experiences of the students with learning disabilities, without adding my own opinions. I had to be able to narrate how the students with learning disabilities use assistive technology and their experiences with it.

3.8. LIMITATIONS OF THE RESEARCH STUDY

The ethical clearance took a long time to be approved. The ethical clearance application was submitted to the seven universities. These universities required the researcher to fill in forms. The forms also required supporting documents such as research proposal, interview guides, consent form, gatekeeper's approval letter, and ethical clearance certificate from my university. The verification of these documents took long. The ethical committees of other universities took up to three months to review the research and approve the ethical clearance. However, two universities gave an ethical clearance approval immediately, hence, the decision to select them as the unit of analysis.

There were financial constraints since the research study is self-funded and there were no funds to travel to various institutions. For this, social media platforms such as Microsoft Teams, Zoom, WhatsApp were utilised.

Initially the researcher targeted seven institutions of higher learning. In addition to delays in the ethical clearance process, disability units at various institutions wanted to be directly involved in the study, including the recruitment of the participants. The researcher could not risk the data collection process, which could potentially impact the validity and reliability of the data.

The time factor was another limitation, because of the allocated time to conduct the research. In addition, the participants though they had agreed to participate in the study; they were not able to honour the agreed time.

3.9 CONCLUSION

In conclusion, the qualitative design allowed the researcher to further interrogate and obtain unique experiences from the students with learning disabilities and university staff members. This made it possible for the researcher to examine and understand the students with learning disabilities and staff members' everyday experiences with assistive technology in higher education, capturing them in a subjective way. The researcher was aware of reflexivity and her positionality, and took these into account when she conducted the study. The literature review helped the researcher to focus the study. The data was analysed using a thematic analysis approach, which enabled the researcher to identify common patterns and themes within the data collected. Although there were some limitations during the research process, the research found alternative solutions for such challenges.

CHAPTER FOUR DATA PRESENTATION AND ANALYSIS

4. INTRODUCTION

This chapter presents data analysis and a discussion of the findings. The primary goal of this study is to examine the experiences of students with learning disabilities in accessing assistive technology at South African universities. The following interrelated objectives inform the study: to explore students' perceptions and experiences with learning disabilities in accessing assistive technology, and to examine the attitudes and experiences of various key university staff members (academic, library, disability unit, Student Affairs Services and ICT staff members) on assistive technology for students with learning disabilities. The findings of this research are supported with evidence from the literature review. The research used a thematic approach for analysing data. The themes that are discussed include disability disclosure, awareness about disability support services, the disability unit services, assistive technology for inclusive higher education, universal design for learning, attitudes of staff, training of staff members, and the issue of funding.

4.1. THE PROCESS OF DISABILITY DISCLOSURE IN UNIVERSITIES

Students in higher education disclose a variety of discourses at higher education, such as the discourse of disability, personal identity, and social and emotional problems (Jones, 2022; Vignols, 2017; Wahab *et al.*, 2017). The application process for admission in various universities is the first entry point to disclose one's disability but this is not mandatory, despite the fact that you sign a declaration that the information supplied on the forms is correct. Cole & Cawthon (2015: 164) explain the act of disclosing as students having to reveal their disability. It is clear that students disclose for a variety of reasons, including receiving accommodations. The students in this study talked about disclosing their learning disabilities, they noted:

*"...I stated on my application form that I was disabled. Stating that I was dyslexic, with ADHD".
"...on your application form you also have to disclose there if you have any learning disabilities dyslexia etc."*

Theoretically, after disclosing their learning disabilities to the university, the students are automatically registered under the disability support group, if the university has one. The disability support group entails communication for students with learning disabilities. According to Cole & Cawthon (2015: 164), students can disclose their disabilities to their university, faculty, classmates, and staff. In some instances, however, students may be

required to disclose more than once to faculty, departments, tutors, and lecturers (Cole & Cawthon, 2015: 164).

In the current study, disclosing allowed students to use provided accommodations such as assistive technology, spelling, or time concessions in their university. Mamiseishvili & Koch (2011: 98) observe that the most common accommodation offered to students with disabilities is test time extension. Sometimes students choose not to disclose their learning disability and do without disability services. Rao & Gartin (2003) note that post-disclosure, students with learning disabilities may still encounter difficulties with using their accommodation in class.

In this study students disclosed their learning disabilities by applying for concessions. When asked about disability disclosure, the students said:

"I applied for concessions".

"You kind of apply for how many minutes you need and what you need from the university... you have to send in a remedial assessment, an educational assessment to kind of prove that you have learning disabilities. So, in matric I got a test done to get metric concessions. I sent those details forward, which was a report from an occupational therapist".

For students to obtain concessions, they must provide medical proof and / or educational history reports from educational psychologists or health professionals proving they have learning disabilities. The students in this study identified these as remedial assessments. According to the institution's policy accessed by the researcher, the examination concession committee reviews the applications (Exam concession policy, 2015). The application goes to Senate, which decides if they will grant the student permission. This decision is for the Senate alone and not for the health practitioner (Exam concession policy, 2015). The health professionals' remedial assessments serve as proof of getting their concession application approved.

According to Fox & Kim (2004: 328), students with invisible disabilities, like learning disabilities, experience difficulty accessing official certifications, because it is not easy to identify the learning disabilities from a medical and institutional perspective. The students acknowledged the difficulties in this process by stating that:

"I think I had to apply about four times to get my concession. So, it was a hard process to try and get myself the concession. I mean, when I eventually did get it, there was very little communication on where or how. I was always emailing the Disability Support being like, do I have my concessions where

do I write my exams? ... What is the process of me you know, I didn't know I got very little communication that is what I can say".

"...And you hand it to our educational psychologist to prove that you are dyslexic... other people say it is quite difficult, especially if you don't have those documents to get the help you need".

"The difficult thing about this whole remedial stuff is at the institution, to be recognised, you have to have a remedial assessment. ... Those are expensive and you don't get those unless you are prescribed by a medical doctor or something. So, unless you're a person like me who has a long history of remedial stuff and... It's really hard to get an accurate assessment of people. And also, to just get an appointment with an OT (occupational therapist). They are expensive".

The required medical evidence from the students with learning disabilities takes the route of a medical model of disability. Oklin (1999: 26) states that the medical model of disability is when:

"Disability is seen as a medical problem that resides in the individual. It is a defect in or failure of a bodily system and as such is inherently abnormal and pathological. The goals of intervention are cure, amelioration of the physical condition to the greatest extent possible, and rehabilitation (i.e. the adjustment of the person with the disability to the condition and to the environment). Persons with disabilities are expected to avail themselves of the variety of services offered to them and to spend time in the role of patient or learner being helped by trained professionals..."

The medical model of disability is also known as the individual model of disability. The individual model takes the individual with a disability as having a functional 'incapacity' which is generalised and becomes what they identify with (Barnes *et al.*, 1999: 21). Furthermore, people living with disabilities will be dependent on professional experts (Barnes *et al.*, 1999: 21). The dependence on professionals is noted in the literature as "reducing" the outcome of a person's disability or "personal tragedy" (Barnes *et al.*, 1999: 21). In this case, students with learning disabilities depend on health professionals for remedial assessments. All this takes place for students to get accommodations for their learning disabilities to participate in university at the same level as students with no disabilities.

In this study, one can conclude that the students are supported to adjust, making this an individual problem instead of a collective (Barnes *et al.*, 1999: 21). Students now face challenges such as stress due to writing exams without concessions, the difficulties in the process of applying for concessions, getting little support and communication from disability support, and expenses. In this case, these challenges are the students' problem, not the institutions. This study supports the social model of disability. This model is against the principle of the individual model of disability, which makes a disability an individual problem. The social model of disability instead locates disability within society. It notes

society's failure not to consider the needs of people with disabilities while providing appropriate services to them (Oliver, 1996: 22). In this context, the social model of disability faults the institutional barriers visible in higher education. These limit access and participation of disabled students in higher education and impacts their learning and possibly academic outcomes.

4.1.1. Learning experience post-disclosing: self-advocacy

Students with learning disabilities in higher education need to develop or strengthen their self-advocacy skills, "to disclose their needs to their instructors and accurately explain the type of help they require in all their courses" (Anderson *et al.*, 1997). According to Schreiner (2007: 300) self-advocacy is "the ability to speak up for what we want and need". For Goodley (2000) self-advocacy elevates students' ownership over their studies. It is clear that self-advocacy does place undue pressure on students.

Fullerton & Duquette (2016) state that in some higher education institutions students negotiate accommodations themselves. In this case, it is a decision of that particular academic whether or not to give them. Similarly, the students in this study have voiced out that they get marked down during the term when they write tests, tutorials, and assignments. The students must constantly remind the academic staff and disclose their learning disabilities and the accommodations they have to receive. On a positive note, Rao & Gartin (2003: 50) proclaims that many professors are willing to provide accommodations and it depends on the type of the disability a student has. Some disabilities might be hard to accommodate.

Studies by Jensen *et al.* (2004) and Wolanin & Steele (2004) argue that disclosure may unintentionally bring about negative attitudes among staff. Students in this research study, on the other hand, had this to say:

"... That's where a lot of my disjoint came in, so during the term my tutors didn't know about my spelling concessions, so I'd get marked down for things like grammar and spelling and those things, whereas in exams it would have a nice big stamp on it saying do not penalise spelling..."

"During term time, so there's no real concessions during tests and stuff like that. So, you have to, as the person, you want to ask to go to the lecture and be like, Listen, I have concessions, may I get my extra time? May I get my spelling concession? and sometimes they look at you funny..."

"Even some of my lecturers did not realise but I just told them but they forget. I have to remind them that you can't mark me wrong for the spelling. Since it is science of course it is more difficult..."

The literature acknowledges the shift between primary and high school and higher education disclosure. In basic education, which is primary and high school, schools need to identify students with disabilities as well as students with learning disabilities (Melian & Meneses, 2022: 2). In addition, the school must provide accommodations and support students with disability need (Melian & Meneses, 2022: 2). In contrast, students with disabilities in higher education must "actively decide to disclose their disability to the faculty or student services to gain access to these accommodations" (Melian & Meneses, 2022: 2).

In this study, one student notes that he was required to make some adjustments to enter higher education. The student mentions that in high school, they had about fourteen tests, and four exams, someone was reading for him. He stated "*At university, that is a different story. They do not get that. Students with learning disabilities can read, but sometimes they read slower than others, they lose attention quickly and have to read the material more than twice*". Another student mentioned that her learning disability is mild and did not need much assistance in higher education because of the remedial classes she took at primary and high school. She mentioned that she could work around her learning disability.

It is evident that students use self-advocacy to disclose more than once, and at some point, the lecturers forget about accommodations given to students and students experience irrational and negative attitudes from staff and all concerned. The negative attitudes and unfair treatment of students relate to ableism and stigma, which perceive students with learning disabilities as non-normative. Melian & Meneses (2022: 9) state that when one is disclosing, they are giving up privacy on a sensitive part of their identity, "exposing themselves to emotional risks, arising from the perception of stigma, rejection, or deviating from "normalcy".

4.1.2. Ableism and stigma on learning disabilities post-disclosing

According to Annamma *et al.* (2013: 1279), ableism "is a set of beliefs that guide cultural and institutional practices ascribing negative values to individuals with disabilities while deeming able-bodied and able-minded individuals as normal, therefore superior to their disabled counterparts". In this sense, ableism acts as a barrier to successful learning and positive educational outcomes.

Studies propose that some students with learning disabilities are uncomfortable trying to convince their professors about their disabilities (Madaus *et al.*, 2003; Tsagris & Muirhead, 2012). These can be due to the continuous self-advocacy they have to go through as they interact with some of their lecturers and other individuals at the university. Ableism is evident in the responses by the respondents in this study:

“When we write exams, a visible stamp states that a student has a concession. This practice conveys the discrimination involved. That is where a lot of my disjoint comes in. The fact that this is done in an open way, when one is writing assessments it’s in a separate venue, one is invigilated by strangers who are not supposed to know about my condition”.

"Sometimes they look at you funny when you negotiate various accommodations".

“I have to remind my lecturers constantly because the professor forgets about my spelling concession. I am marked wrong all the time. The institution needs to remember”.

“One time my department in the institution was doing renovations. The department knew that I used a wheelchair, they forgot about me, and did not install a lift. There were only stairs to get to the lab”.

Here the exclusion of students with learning disabilities and physical disabilities is evident. The university has power, and the people with no disabilities are the majority; therefore, students with disabilities are excluded from full participation as a result of the dominant ableist culture. Another factor that caused students with learning disabilities in this study to feel rejected and excluded is the issue of stigma.

According to Goffman (1963: 1), stigma excludes individuals with disabilities, leaving them inferior in the eyes of society, "a blemished person, ritually polluted, to be avoided, especially in public places". Since learning disabilities are invisible, people often experience being stigmatised, misunderstood, or misperceived (Cook & Clement, 2019: 2). A study by de Beer *et al.* (2022) explored the notion of stigma. According to de Beer *et al.* (2022: 5) “Students reported the fear of judgement associated with disclosing their conditions. Some students even reported that having an invisible disability was often considered to be taboo and they cautioned against making their conditions known for fear of being perceived and treated differently by others”.

It is evident that students with learning disabilities, sometimes do not disclose their disabilities because of the fear of being stigmatised. Power is present when stigmatisation is taking place: it disempowers the people in the stigmatised group when it comes to having access to rights, resources, and opportunities, often determined by those who have power in the social hierarchy (Scior & Werner, 2016). Stigma and prejudice against students with

learning disabilities are mentioned in a research study by Denhart (2007). Denhart (2007: 485) states “students with learning disabilities are labelled as attempting to cheat or using unfair advantages when requesting accommodations. They tend to use false impressions about themselves and somehow cheat the system by going to college as a person with learning disability traits, and are exposed as frauds”.

4. 2. DISABILITY UNITS AND SUPPORT SERVICES

At this point it is necessary to provide a description of the disability support services at the two universities that are the subject of study before describing and analysing the data that was collected. This is necessary in order to orientate the reader. A distinction is made between an institution without a disability unit and the institution with a dedicated disability unit.

4.2.1 An institution without a disability unit

In this institution, disability services fall under the auspices of the Student Affairs Services. The institution in this study does not have a dedicated disability unit. The vision and mission statements of the Student Affairs Services are stated as follows, respectively:

“To create a living and learning student support system and environment that is inclusive and conducive to academic success, through promoting a healthy lifestyle and personal growth”.

“To provide a welcoming, professional, affirming and safe student support system as well as a diverse array of residential, sporting, cultural and leadership opportunities that will foster the holistic development of students”.

The Student Affairs Services has a vast portfolio. It is in charge of all the needs of students with and without disabilities. Communication from the disability services happens via the emailing list when students register and disclose their disabilities.

The mandate for Student Affairs Services is to ensure that all university students have all the support they need, including students with disabilities. Although they are not explicitly mentioned, they are part of the student body. Student representation is one of the essential things when it comes to disability. Within student leadership opportunities, one of the participants noted: *“how many disabled students are in the SRC, not even a single person”?* One can conclude that students with disabilities are overlooked in taking up those positions as stated in the mission statement.

The university mentions that they have study material provided in various formats which the students with disabilities require, such as voice-to-text conversion and enlarged text. A student in the research study mentioned that they are not given such a service, which can point out on lack of awareness of available resources. At the door of the disability unit, there is a poster that states available assistive technology. What can be taken away from this is that different awareness platforms must be applied, including social media platforms and posters around campus, not only where the disability services are situated. Other assistive technology devices posted on the Student Affairs Services website are computers with speech recognition software, reading and writing support software, wide screens, and text magnification technology; and bluetooth devices for hearing aids.

Other assistive technology will be provided when requested at the university, as stated on the website page. The use of computers in exams is mentioned on the university website. There is also mention of the NSFAS disability bursary for additional teaching and support for students with disabilities. The Student Affairs Services, also, has a Facebook, Twitter, and Instagram page, where they posted about the workshop that took place in the institution on the importance of creating awareness of invisible disabilities in institutions of higher learning. This workshop aimed to implement a transformation plan that is socially inclusive and to create staff and students that are informed by an appreciation of equity and social justice. This workshop aimed to make the university a space that allows them to disclose their disabilities. This event was also reflected on the website page.

4.2.2. An institution with a disability unit

Disability services at this institution contrast sharply with the discussion above.

The disability unit of this institution has an active and interactive social media platform. The disability unit's vision and mission statements read:

"The unit strives to be the first choice in providing efficient support services for students with disabilities" – Vision statement.

"The unit aims to provide appropriate support services to empower students with disabilities on campus through assistive technology, training & development – encouraging independence and active participation in the academic and co-curricular activities" Mission statement.

From the vision and mission statements, it is clear that the main focus of the disability unit is to provide support and services that empower students with disabilities on their campus. Services that are highlighted by the disability unit include the development and training of

students and staff members on assistive technology, to encourage independence. The disability unit aims to foster inclusivity and integration of students with disabilities without discrimination and to facilitate the provision of reasonable accommodations to enhance access for the success of students with disabilities.

The disability unit, therefore, has targeted popular social media (Facebook, Twitter, YouTube, Instagram) platforms to post about all matters related to disability—the social media pages in this institution are where you find consistent posts about disability throughout the week and academic year. The social media posts are on disability rights awareness month, with activities like bake and share for autism awareness month. There is also information on basic sign language training for all disabled and non-disabled. The social media platform has information on assistive technology awareness. Some state: "We have a wide range of assistive devices available to suit your needs! Enquire TODAY".

At the beginning of each academic year, this institution hosts events for students with disabilities designed to create awareness. This presents an opportunity for the students with disabilities to get familiar with the staff members and their peers and socialise.

There is ongoing communication on all social media platforms of the disability unit sharing inspirational quotes such as: "I can do it, my dreams are valid". Disability education is facilitated in meaningful ways, targeting not just people and students living with disabilities but the community at large. The institution shares inspirational videos and talks by disabled individuals. Also, the disability unit is active on the local radio station where discussions on critical topics including disability take place, such as defining disability and disability inclusion and society's current thoughts on disability. Through the feedback active link on the website, it is clear the disability unit engages in reflective practice and is open to learning creative ways of promoting disability as a daily lived experience. This means the disability unit interventions are adaptable to changing times.

The disability unit page, also, shares useful educational facts about different types of disability. Some of the topics found on this page involve information and technology methodologies for persons with disabilities, entrepreneurship and business skills, disability rights and job opportunities, and state resources to ensure provision for access to justice for persons with disabilities.

Services provided by the disability unit are wide ranging: establishing reasonable accommodations and support systems, increasing awareness about and advocating for persons with disability, concessions (tests & exams), facilitation of exam venues for differently abled students, scribes (available on request), accessible transport, accessible student housing, adaptive technology (devices and software – advised by NSFAS), referrals to available student funding, universal design and access (infrastructure).

The active participation of those living with disability is widespread throughout the resource page. They are invited to share their personal experiences, videos, and positivity. In this section, the student with a disability chooses if they want to be anonymous or not. It is interesting to note that students on this public platform use their pictures, videos, and real names. The use of their real identity in a public platform suggests that there is normalisation of disability because disability is not something to be ashamed of.

It is clear that disability is an ongoing discourse in this institution, and the disability unit is responsible for that. The environment created by this university is inclusive and seeks to dismantle ableism. One of the students mentioned that even students that are not disabled participate in the events the disability unit holds.

4.2.3. Exclusion of students with learning disabilities through lack of awareness

When disability awareness programs are implemented, they can influence the entire school environment, creating students who are better citizens in society enabling them to understand the notion of diversity in the world (Lindsay & McPherson, 2011, cited in Dukic & Mecseri, 2019: 490). Gasser *et al.* (2013) notes that creating disability awareness will create positive attitudes toward students with disabilities. When the student was asked about learning disability awareness at her institution, she replied:

“I don't think that there's much awareness around specifically learning disabilities. Just because I don't think that's a discourse that is spread across South Africa...because this generally will be more publicised in more wealthy communities”.

One student mentioned that there is a lack of awareness when it comes to learning disabilities in her institution. The lack of awareness of various types of disabilities is a social barrier. This creates negative attitudes for ignorance, misunderstanding, and prejudice that makes society least appreciate the full potential that a person with disabilities can be successful

(South African Human Rights Commission, 2016). Manase (2020: 7) observes that on the African continent, the available knowledge focuses on physical disabilities. Comparing knowledge on physical disabilities and learning disabilities, a student had this to say in this study:

“I think physical disabilities will get treated ... I think a lot better than people with learning disabilities... on the surface, you don't look different from the next person. So, you get treated as equal to the next person. But if you have a physical disability, then people can see you are disabled, they will treat you accordingly, you know, they'll help you out. And that's, I think university is pretty good with dealing with physical disabilities but I don't think they are as good in dealing with mental or learning disabilities... Well, actually give credit where credit is due. The university is actually very good at dealing with mental disability. So, like depression, severe depression, severe anxieties, you know, they do allow for people with those disorders to, you know, get help, but I feel like there's a lack of like, aided learning disabilities, where people are like dyslexic, ADHD get another opinion, that we are just left to deal with it ourselves”.

Stone (2005) conducted a research study to explore women's experience of living with their disabilities post-stroke. The findings stated possible reasons for the lack of disabilities discourse in South Africa. These findings showed that for individuals with invisible disabilities, such as learning disabilities, there is an understanding that their disability is not as harmful compared to visible disabilities. Based on this understanding, Stone (2005) argues an impression is created that individuals with visible disabilities are the only persons worth taking seriously. One student said: *“on the surface, you don't look different from the next person. So, you get treated as equal to the next person”*. This shows that students with learning disabilities are not being recognised as deserving of assistance through available support structures. Venville *et al.* (2016: 572) reported that support structures that exist and are carried out at higher learning institutions were mainly developed for students with physical and sensory disabilities. Students with invisible disabilities are disadvantaged in the end, with no appropriate accommodations.

Israel (2016) conducted a study at Rhodes University that aimed to investigate the extent of support for the participation of students with disabilities in the transformation processes of the institution. One of the themes that was discussed in the study is discrimination against students with invisible disabilities. In this research, a quote from the Office of the Deputy President (1997:6) claims: *“People in wheelchairs have the most popular representation of people with disabilities”*. From this quote, it is noticeable that when people think of disability, they think of physical impairments and individuals in wheelchairs, neglecting other types of disabilities, including learning disabilities. An argument that Israel (2017) makes is that supporting and enrolling only students with physical disability is because they are easier

to accommodate, which goes against the main principle of inclusive education to "...accommodate all children regardless of their physical, intellectual, social, emotional, linguistic or other conditions". Furthermore, Israel (2017) and Morina (2016:4) notice that higher learning institutions are responsible for catering to all student needs.

4.2.4. Awareness of disability support services

Students with learning disabilities should be aware of the available assistive technology in their university so that they can be able to utilise the provided assistive technology. Awareness is understanding a situation or an issue based on knowledge or experience (Ani & Ahiauzu, 2008). Akpojotor (2016: 3) states that it can also be seen as knowledge or perception of a situation, fact, consciousness, recognition, realisation, acknowledgement and concern about and well-informed interest or familiarity in a particular situation or development.

Raising awareness plays a vital role in accessing a disability unit, which often has assistive technology because it alerts students with learning disabilities on the available assistive technology. The study by de Beer *et al.* (2022: 7) revealed a general lack of awareness regarding the existence of a disability unit on campus. Whereas some were aware of the disability unit they did not feel the need to use the facilities offered by the unit, whilst some students lost hope as they perceived the support offered as ineffective (de Beer *et al.*, 2022: 6).

This study explored the availability of disability services from two universities, one with a fully fledged disability unit and the other is still in its infancy with limited services. When the students were asked about using the library and disability services like assistive technology, they answered:

"I don't even know if universities like (university name) offered such services...No, I don't really use the library. I prefer to study in my own room".

"Uhh no (mentions an office for student admission) is the one that I know, I don't know of any other ones...I study at home... I just feel more comfortable at home sometimes the library can be more destructive".

"I've seen it, but I don't use it. I don't know it was for like learning disabilities. I thought it was just for like disabilities, you know... so just being a bit more public about what they have access to and how they can get help, yeah".

Similar to de Beer (2022) students in this study do not use the assistive technology provided by the disability services at the library. It is evident that students with disabilities who have

disclosed their learning disabilities should be updated about where they can find assistive technology that can be useful to them. Cardinal *et al.* (2018: 1) notes:

“Depending on the topic, awareness-raising efforts may include the following activities: issuing press releases, briefings and commentaries; disseminating reports, studies and publications; making written or oral submissions to parliamentary committees and inquiries; working with the media; holding public meetings and events; convening conferences and workshops; and creating and contributing to educational materials”.

Awareness should take place to eliminate the stigma that might be present when students disclose their learning disabilities and to make the students aware of available resources that might be beneficial to them. This study shows a lack of awareness about available services. Insufficient awareness can lead to assumptions that can mislead the students. The disability room in this institution is not only poorly resourced, but it was found that students without any disability use it as well. The institution can provide assistive technology but if the information is not available the students will not be able to use it.

4.2.5. The role of disability units in enhancing student academic experiences

Mutanga (2017: 143) notes that the disability unit within the higher education institution has a role and responsibility to create equal opportunities for students with disabilities that will give them a fair chance of succeeding in their tertiary education. Ciobanu (2013: 170) argues that this role is also visible in the quality of student's learning experience and their academic success. In contrast to the limited services found in 4.2.1, the institution with a well established unit a student stated:

"The Disability office is very supportive, and if you reach out to them, they'll help you in any area... I am also on the disability emailing list..."

Vogel *et al.* (1999: 110) mention that when the faculty staff is willing to make accommodations for students with learning disabilities, this intensifies their success. Vogel *et al.* (1999: 98) examined faculty's attitude toward providing teaching and examination accommodations for students with learning disabilities in university. In the current study, a student mentioned joining the disability mailing list, in order to get communication for disability support, but the disability unit never did any follow-up communication:

"I didn't get introduced to anything...there was nothing different from me to the next person...I had to fight my case to try and get concessions, and that is my only involvement with disability services at (names the institution) ...".

In this institution, students are expected to reach out to disability services. This is part of the self-advocacy that was mentioned above. This, therefore, creates some neglect in the

disability unit. Even if the students have provided proof, they still have to fight to get their accommodations which they have a right to. It is evident that the students do not favour disclosing to the disability unit since it did not reach out to them after they disclosed their learning disability. The study by Matshediso (2010: 731) mentioned that twenty-five percent (25%) of the participants felt comfortable and welcome when they received support from the university and disability unit when they first arrived at the university, whereas seventy-five percent (75%) felt unwelcome as the support of the disability unit was not available. A student mentioned in this study that there needs to be a follow-up from the disability unit: "*I think, that they need to be able to reach out to students timeously*".

Rao (2004: 52) points out that there is a need for a good relationship between the disability unit or support services and the faculties, departments, and lecturers. In addition, Rao (2004) argues that meetings should take place regularly to discuss the necessary support that students with disabilities need. Similarly, students in a study by Mortimorea & Crozier (2006: 248) noted that communication could have been more present between the unit and academic departments. In line with this, a research participant in this study stated:

"they're not having direct communication with the lecturers, et cetera, which is a little bit impractical to expect. So, there is that on an official level. They're very supportive, but then on the everyday functional level in the university life this is lacking. And at the departmental level, there isn't that connection with the Disability Office and then the departments, so there's not much support unless you go up to your lecturers and say, hey, I'm a learning disability child it's recorded in my records like how can we work together and that you'd have to do in every single department".

As students with learning disabilities gain access to higher education institution settings, it will be necessary for colleges and universities to find innovative ways of supporting these youth, many of whom may come to college campuses without the requisite skills to successfully negotiate these systems (Gregg, 2007; Murray *et al.*, 2008: 73). Unlike K-12 public schools (Grade 12), colleges and universities are not required to develop individualised educational plans (IEPs) for students with disabilities. Students must self-disclose within these environments to receive any services. Furthermore, findings from studies of university students' perceptions indicate that students with disabilities often perceive that faculty, staff, and administrators lack information regarding disability issues, have "poor" attitudes toward students with disabilities, and are not receptive to accommodation requests (Dowrick *et al.*, 1998). This is consistent with the findings by Dalton *et al.* (2019: 4) who notes insufficient planning for inclusion, the challenge of equitable access to the online learning environment, the need for print resources to be

accessible and on time, the lack of appropriate assistive technology software to support access to online materials; assessment tasks must be accessible timely and connectivity issues to support access, as some of the critical areas that require urgent attention in creating a conducive learning environment.

4.3. ASSISTIVE TECHNOLOGY FOR INCLUSIVE HIGHER EDUCATION

Assistive technology plays a role in enabling inclusivity in higher education. Inclusive education involves recognising and removing barriers and providing appropriate accommodation to enable successful participation within mainstream education (United Nations 2016; World Health Organization, 2011). Assistive technology in education is defined as any device or service that will increase the ability of the student to participate in academic activities successfully (OCALI, 2013: 11; Bennett *et al.*, 2018: 161; Stumbo *et al.*, 2009: 100). The provided assistive technology should make sure that the person who is using it, receives it at the most convenient assistive technology solution for that person (De Witte *et al.*, 2018:468). Ndlovu (2021: 1) mentions that governments internationally, in Africa and South Africa specifically, have committed to facilitating education by making it possible for everyone to access education, including individuals with disabilities. Ndlovu (2021: 1) states that South African stakeholders try by all means to include students with disabilities through assistive technology.

Rohwerder (2018: 19) notes that assistive technology benefits students with disabilities because it can improve the independence and participation of people with disabilities. Assistive technology has turned into a necessary tool in higher education. Furthermore, it can provide different formats associated with academic needs, namely, reading, writing, and calculation (Heiman & Shemesh, 2012: 309).

4.3.1. Assistive technology as accommodation tool for studying

In this study respondents identified the kind of assistive technology that their university provides for use:

"PowerPoint slides. And if it's a big class, or big lecture venue, then they'll use an audio enhancer..."

"The major assistive technology that the university has given us is Grammarly very helpful and you get the premium version... Yeah, I haven't used anything else in terms of their assistive technology, just Grammarly".

PowerPoint provides various possibilities when instructing persons with learning disabilities. This software has various features, such as the "record narration" feature, which is used to insert speech that matches the text and pictures so that when a slide appears, the audio can match the text (Coleman, 2013: 6). Communication devices can assist in amplifying the sound of the teacher's voice and cancel out noises in the lecturing, which can disturb the students (Akpan & Beard, 2013: 116). Another student mentions that Grammarly is a digital writing assistant or software that can assist the user with spelling and grammar mistakes (Fitriana & Nurazni, 2021: 17; Karyuatry *et al.*, 2018). They can also use computer applications like word processors to check spelling and grammar. Moreover, adjusting font size and colour can assist students with learning disabilities understand the context better (Akpan & Beard, 2013: 116).

The students with learning disabilities in this study expressed the kind of challenges they experience in their university by stating:

"Because, I get worried sometimes that, you know, my, disability will affect the way that maybe people understand my writing... I think I would like a reading assistive technology, and maybe reading for my spelling, something like instead of writing, I would like to be able to type exams because they cannot see my handwriting... It is almost unreadable. And secondly, my spelling is almost, you know, you can't understand that. So, I would like maybe reading and writing assistance".

"I hate writing. My handwriting is like a four-year-old writing I can't spell the B's, Ds and Qs get mixed up, it's embarrassing... I have massive issues with spelling and dyslexia and I tend to join words together and leave words out and I can read a sentence about ten times, and I would still not pick up the problem just because I'm putting words into my brain that are not on the page. So Grammarly has been essential for me at university and I still get comments on my grammar and my spelling from people even after it's gone through Grammarly...So, our Grammarly which would be for spelling and grammar and all of those kinds of things, which is just an editing assistive technology...".

These students have dyslexia which affects their writing skills. A study by Mortimorea & Crozier (2006) aimed to compare the challenges students face with dyslexia and those who are not diagnosed with dyslexia. The findings of this study were that students with dyslexia experience more challenges compared to their peers with no dyslexia. Students with dyslexia in this study used more learning and study skills than their peers that do not have dyslexia. Challenges are found in note-taking, organising essays, and expressing ideas in writing.

There are similarities between the current study and the study by Mortimorea & Crozier (2006) regarding challenges and experiences by students with learning disabilities in expressing ideas in writing. In this study, the student is doing an advanced post-graduate degree, and no longer writes exams, but used to struggle in undergraduate studies. Now she is

in postgraduate, and most of the time, the student types her assignments, tests, thesis, and using computers and laptops. The other student is still doing an undergraduate programme, and does handwritten exams, which can be challenging because of his dyslexia. According to the participants undergraduate students cannot type their exams in this institution.

Abed & Shackelford study at King Abdulaziz University, in Saudi Arabia showed that postgraduate students reported receiving some academic support but needed more. This is due to the increased workload and demand in post-graduate studies compared to the undergraduate programmes (Abed & Shackelford, 2020: 42). Similar to the study by Abed & Shackelford (2020), postgraduate students in the current study experience a heavy workload compared to undergraduate students. However, the difference between the study at hand and Abed & Shackelford (2020) study is that undergraduate students still need help because they handwrite exams with no assistive technology compared to postgraduates. The postgraduate students type their submissions with the help of assistive technology like Grammarly that their institutions provide.

It is clearly evident the students need access to adequate assistive technology and often rely on the ones they have personally purchased for themselves, which speak to their unique needs of learning disabilities. The respondents stated:

"I have asked for speech audio technology, things that read. But they don't have too many of those resources here, they're very expensive. So, I had to purchase my own one of the reading ones".

"Sometimes lecturers tend to go quite fast and I cannot write fast and that is difficult so I guess if they could allow students to record lectures maybe that will work..."

"I think I would like a reading assistive technology, and maybe reading for my spelling, something like instead of writing exams, type exams, I'd like to be able to type exams so that they can see my handwriting. Absolutely, almost unreadable. And secondly, my spelling is almost, you know, you can't understand it. So, I would like maybe reading and writing assistance".

The above statements show that there is a particular assistive technology that the students with learning disabilities need to ensure inclusion but is not provided. In addition, sometimes assistive technology can be available for students but they do not use it because of the design, which does not meet the needs of the students and assist them in the areas of difficulties due to their impairment. For example, a student in the study requires reading and writing assistive technology, whereas another student said they need a recording device because of lecturers going fast. If there was only provision for recording devices, this would be excluding the student needing reading and writing material. Therefore, this can be seen as a barrier that

excludes students with learning disabilities. The institution needs to research different learning disabilities and the various assistive technology that speaks to their areas of difficulty (Rao *et al.*, 2003). The provision of assistive technology is, also, complicated considering not only these diverse needs but the cost involved for each individual student.

4.3.2. Universal design for learning and assistive technology

Universal design for learning enhances accessibility and produces several diverse and flexible methods of teaching students. In this study, one of the things that a student with learning disabilities mentioned is that assistive technology should be open to everyone with or without learning disabilities. One of the reasons for this is that some students are not registered as learners with a learning disability because they did not disclose their disability due to the stigmas associated with disclosing. The second reason is that sometimes students are not even aware that they have learning disabilities and end up thinking that other 'normal' people also experience them. Assistive technology, therefore, should be integrated with universal design for learning into mainstream education, ensuring that no student with a learning disability is left behind. Ndlovu (2021:15) suggests that assistive technology should be included in universal design for learning because the goal is to enable students with or without disabilities to access learning. This study, therefore, supports these views to better the chances of students with learning disabilities. A student that was interviewed stated:

"So also, another thing about that is (this institution) purchases things like Grammarly and speechify on demand, so if there is like a high demand for it ... I also think the assistive learning technology do not need to be only available for students with learning disabilities and they should be encouraged to lots of students".

4.4. ATTITUDES OF VARIOUS UNIVERSITY STAFF MEMBERS ON THE PROVISION OF ASSISTIVE TECHNOLOGY FOR STUDENTS WITH LEARNING DISABILITIES

The survey contained questions about the provision and accessing of assistive technology for students with learning disabilities. The staff included lecturers, ICT specialists and librarians. Sixty percent (60%) of staff members showed a positive attitude. Twenty percent (20%) were non-committal in their responses. Twenty percent (20%) of staff did not know about assistive technology and students with learning disabilities.

4.4.1. Staff positive attitudes and experiences on the provision and use of assistive technology by students with learning disabilities

Providing assistive technology to a student is a form of inclusion. Staff members in higher education institutions frequently engage with students with learning disabilities in the library, lecture halls, or around campus. De Witte *et al.* (2018: 468) argues “The term assistive technology provision entails everything that is needed to ensure that a person with disabilities who might benefit from assistive technology actually obtains it and is the most appropriate AT solution for that individual”.

When a lecturer was asked about the provision of assistive technology to students with learning disabilities, the lecturer stated:

"Staff don't ignore the students and they try to make a plan. I do know there was a lecturer in computer science, who was making videos and then for certain parts of the work said no. I think it's difficult to know whether it's adequate".

The lecturer stated that assistive technology is provided for students with disabilities if they ask and that some colleagues use videos to accommodate students with disabilities. An example is a lecturer who stated that they have to redo their lecture to accommodate a blind student with co-morbidities in their classes. These findings are similar to what Murray *et al.* (2008) state in their study. Murray *et al.* (2008) conducted research in a private university in the Midwestern in the United States of America. This research study examined university staff members' attitudes toward students with learning disabilities at the postsecondary level. One of the findings was that staff members showed positive attitudes towards students with learning disabilities by providing them with various accommodations (Murray *et al.*, 2008: 83).

The Information Communications Technology (ICT) specialist stated that the available devices that are provided in the disability unit was commissioned by the Student Affairs Services. They asked permission to be granted space in the library to cater for disabled students. The assistive technology that is found in this unit is:

"in most cases a magnifier, so the text on the screen is bigger. There is a piece of software that will read the text back to them... there is also hardware that was made available like a special keyboard, for instance, that will allow them to see the keys on the keyboard if they have sight issues quite easily or specialised software that will help them with their various disabilities. We support those machines so if anything goes wrong with those, we make sure that those machines are always up and running".

The ICT staff member mentions that the assistive technology they provide students caters to various disabilities. The ICT specialist mentioned that the *“equipment does not come cheap, OK, so in that regard I must commend the Student Affairs Services. Like I said earlier they did get some sort of funding”*. This shows that the Student Affairs Services does provide assistive technology, albeit on a limited scale.

An ICT specialist from the university with a disability unit stated that the disability unit does provide assistive technology to students with learning disabilities. The ICT specialist stated:

“For example, a C-pen that can assist with spelling for students with dyslexia. It can write in different languages even Afrikaans when you scan. Since students with dyslexia struggle with reading, instead they can just listen to the C-pen read out for them. The students are also provided with a tape recorder. This tape recorder can create bookmarks for the students whenever they want to make an important note. This will allow you to listen specifically to those pointers”.

Another participant added:

“So perfect for that type of support the aim of the technology is to make you dependent not on anyone, but to make you feel I can do it by myself to give you back your dignity you know, when you are less depended on others”.

4.4.2. Staff negative attitudes and experiences on the provision and use of assistive technology by students with learning disabilities

A librarian was asked about the assistive technology in the library. The participant stated that the disability unit with assistive technology, has been established at the library over a decade ago, and no student with disabilities has utilised it. In addition, they have decided to open it to the general student population. The librarian, also, mentioned that if students with disabilities would come out and express the need for assistance, we will gladly assist them. The librarian then stated that the unit was always closed for the longest time, but recently they have opened it towards the end of 2022. The librarian stated:

“We ended up opening it to the public now, because it has been there but no one uses it. For example, we have computers that are meant for disabled students, if I can use that term and then since 2010. No one came in there. I think another thing it is also we as the library are not trained enough, but no one ever comes. For instance, if there was someone coming to us asking for help, but no one ever comes”.

The librarian also hinted that this is a waste of money because assistive technology has been provided, but no one uses it. This shows a negative attitude toward students with disabilities because some are unaware of the assistive technology provided for them. As stated by the ICT specialist of the institution:

“The responsibility is squarely on the Student Affairs Services to first of all, identify students with disabilities and make them aware of the unit that is in the library”.

This shows that other staff members are not concerned about students with disabilities and claim that creating awareness is not their responsibility. This attitude towards students with learning disabilities creates a fragmentation in the provision of assistance to students with learning disabilities. In a study by Van Jaarsveldt & Ndeya-Ndereya (2015: 210) on the e-learning needs of students with disabilities at a South African university note that some lecturers avoided taking responsibility for providing students with disabilities support, showing a lack of involvement; instead, they referred them to the disability unit. This raises questions about who should be at the forefront of championing this. It is obvious that this is a multi-stakeholder task but needs to be channelled properly.

Therefore, the argument by Van Jaarsveldt & Ndeya-Ndereya (2015) is similar to what the lecturers and library staff members stated in this study. Opening the space to the public may show that the university does not consider the students with disabilities and that they have given up on them without even trying to create awareness and publicise the available assistive technology. It is clear that more work needs to be done with staff, the student body and the general public to eliminate issues such as stigmatisation associated with individuals with disabilities and the normalisation of disability.

The librarian stated that if the students do not disclose their disability, it is hard to give them the help they need:

“It is difficult to give them that service, without knowing if this person ... and also if there was a way where we can be informed so that they can know where to go. I think maybe in future the library should have a librarian set aside for that. Where they know that if they come, they can go and talk to that person. I think also where the place is set, it is too much in the open, therefore some people do not want to be in that exposure...Maybe make it tinted so that it will not be visible to other people because there is that stigmatisation”.

The librarians assume that if the disability unit can be hidden from the rest of the public, the students with disabilities will start using it. This can be seen as a negative attitude because it deems disability as something that embarrasses a person with a disability or makes non-disabled students in the library embarrassed. This reinforces the ableist culture. The demand for assistive technology is low due to a lack of awareness about assistive technology (Tangcharoensathien *et al.*, 2018: 85). A conclusion can be reached that the students do not use the assistive technology available in the library because there is a lack of awareness about it and / or possibly not relevant to their needs.

These views are the same as the perceptions shown in a research study by Mayat & Ladeleout (2011) in the Department of Civil Engineering at the University of kwaZulu-Natal in South Africa. This study explored the perceptions of academic staff towards the admission of students with disabilities and the type of accommodations they should receive once they are accepted into an undergraduate Civil Engineering programme (Mayat & Ladele, 2011). Academic staff showed positive attitudes; however, their views about disability gave an impression of focusing on the limitations of individuals with a disability. One of the participants stated that a student with disabilities could be an embarrassment to students without disabilities (Mayat & Ladele, 2011: 57). These views serve as a barrier for individuals with disabilities. Moreover, these sentiments suggest insufficient awareness of disability and show society's misconceptions about disability (Mayat & Ladele, 2011). Bruno & Fangnwi (2019: 9) claimed that disability should be seen as empowerment and rights, not pity and charity.

What the institution with a disability unit mentioned was that the students with disabilities do not know what assistive technology they need for learning. Therefore, they choose what is suitable for them. When the disability unit chooses what assistive technology is suitable for the students with learning disabilities, it disempowers them. It also shows that the 'normal' person or the person in power still has the higher authority when it comes to what is suitable for students with learning disabilities (Ndlovu, 2021: 12; Scior & Werner, 2016). The argument here is that this should be a joint effort and not be a top-down exercise which further marginalises students with disabilities.

4.5. TRAINING OF STAFF MEMBERS

Training plays a vital role in the academic staff members because they engage with students with learning disabilities daily. This, therefore, means that the academic staff members influence how the students with learning disabilities experience higher education. Murray (2008) mentioned that faculty staff never received training on learning disabilities. In this current study, the library staff member expressed similar views about the need for library staff members to be trained:

“Even if it's just one module. Let's say I just have some basics, on sign language, for instance you know in university they even give us some basic computer lessons to learn. Just imagine there can be some basic lessons on that. Yah...I am thinking that as librarians we are not trained to deal with our disabled students and also as librarians we are not informed”.

In this study, the library staff members never received training on the topic of disabilities and working with students with various disabilities. This is similar to several research studies on disability. These disability studies state the need for training or workshops and the development of strategies to support students with learning disabilities in university (Savera & Daniela, 2016; Mull *et al.*, 2001; Ndlovu, 2021; Ngubane-Mokiwa & Zongozzi, 2021). Training, therefore, will heighten the quality of teaching and learning received by students with disabilities. Available evidence (Abdella, 2018; Leyser *et al.*, 1998; Lombardi & Murray 2011; Murray, 2008; Mbuva, 2019). suggest that instructors that receive training are willing to support students compared to those who do not. The staff members therefore can get lessons provided by the institution, in order for them to know about learning disabilities, and how to cater or assist someone with a disability without offending them.

A staff member mentioned that at least some colleagues have experience when it comes to issues associated with disclosure and confidentiality due to their previous experience as health professionals. They believe that this background is beneficial to dealing with students with disabilities, however, for other staff members there is a serious need for training. A useful starting point would be to create an inclusive training environment, irrespective of one's orientation.

When it comes to the training of lecturers, a person responsible for UDL training at the institution without a disability unit mentioned that they do not train lecturers on dealing with students with disabilities specifically. They believe in universal access instead of singling students with disabilities only. A staff member from the institution with a disability unit mentioned that the students and the staff members throughout the institution do receive training frequently. This training is on how to use the assistive technology that is provided at the institution. The staff member mentioned:

“So yes, we train the staff on any assistive technology that we have because they are the people who deal with students”.

4.6. ISSUES OF FUNDING

Manase (2023: 3) states that financial constraints significantly influence the students' ability to access assistive technology to increase higher education success. Moreover, in South Africa, students from poor backgrounds have a high chance of dropping out due to their financial background. Government has a responsibility to provide enough funding to

universities in order for them to secure resources for students with disabilities, (Mutanga, 2017a: 3). Mutanga *et al.*, (2018: 2) further states that the transformation of the university and implementation of higher education policies on disability and inclusion is a challenge for South Africa, especially the rural institutions that are poorer and lack resources.

All the ICT Specialists in this study did acknowledge that the equipment does not come cheap. The division of Student Affairs Services did receive funding to buy four computers that are installed in the disability unit at the library. Whenever funding is made in this institution, a decision must be made to choose between the hardware or software. One ICT specialist elaborated:

“Each computer needs to have its own license, with one year user package, which can be a very expensive exercise. The disability unit added two of these in the disability unit”.

Similarly, the library staff mentioned that the Student Affairs Services is trying its best to secure funding. Also, one of the managers at the Student Affairs Services mentioned that students get funding from NSFAS, which explains why they do not use the facilities and disclose their disabilities, but use their own money to purchase assistive technology. This claim could not be corroborated in this research. One of the reasons that can be attributed to the under-utilisation of the assistive services by the students is a lack of awareness of available services.

At the institution with a dedicated disability unit a student once requested an expensive assistive technology. That student was taken to the Office of the Premier in the Eastern Cape. The device was bought through the disability unit working with the Premier Office and the university. Staff members from the institution with a dedicated disability unit mentioned that there is a challenge of students not knowing what assistive technology they need. This means that staff members in the disability unit are required to be proactive. They explained:

“The students with disabilities did not even know about assistive technology that can be bought through NSFAS funds...there was a student struggling with buying a wheelchair and did not know they could use the NSFAS money. They therefore got all the information from the disability unit and got assisted”.

“In 2022 the disability unit bought assistive technology that cost an estimated 1.8 million ...there were a lot of students with disabilities. We had to provide a wide range of assistive technology ...The institution is fully equipped when it comes to assistive technology”.

4.7. CONCLUSION

The analysis chapter tackled students' experiences with learning disabilities regarding access and use of assistive technology. Furthermore, the data analysis examined staff attitudes and experiences regarding the provision of support services including assistive technology to students with learning disabilities. Students are expected to disclose their learning disabilities through the application process for admission. The burden of proof rests with the students to provide proper supporting evidence to their respective institutions, that they suffer from such a learning disability in order to receive appropriate accommodations. It is evident in this study that disclosing for students with learning disabilities can be challenging because even if they disclose, they have to engage in self-advocacy in order to access suitable accommodations, such as spelling or time concessions and assistive technology. It was found that students disclose more than once to other stakeholders (lecturers, tutors and other relevant stakeholders) in the university. The study found that after the students with learning disabilities disclose, they are neglected, and experience negative attitudes and stigma. The study showed that sometimes it is hard and expensive to get accommodations as a student with learning disabilities. It is for this reason that students with learning disabilities expressed that they do not feel supported by the institutions.

The findings indicate that the disability services offered to the students at the two institutions are qualitatively different. This study reveals glaring gaps at institutional level in the nature and extent of support services available to students with learning disabilities: lack of adequate resources including funding, inaccessible assistive technology, lack of training and expertise and staff attitudes in dealing with students with learning disabilities. The study realises that one of the reasons why the needs of students with learning disabilities are not met is because awareness about disability services is lacking. One of the issues this study raises is the need to integrate assistive technology and universal design for learning. This will be an action towards mainstreaming learning disabilities.

CHAPTER FIVE CONCLUSION

5. INTRODUCTION

The primary goal of this study is to examine the experiences of students with learning disabilities in accessing assistive technology at South African universities. Two interrelated sub-objectives informed this study, namely, to explore students' perceptions and experiences with learning disabilities in accessing assistive technology, and to explore the attitudes and experiences of various key university staff members (academic, library and ICT staff members) on assistive technology for students with learning disabilities.

This study identified a variety challenges and constraints that students with learning disabilities are faced with at the two universities. These are not unique to these two institutions but other studies corroborate these findings (Abed & Shackelford, 2020; Cole & Cawthon, 2015; de Beer *et al.*, 2022; Duma, 2019; Mantsha, 2016; Mutanga, 2015; Tugli *et al.*, 2013; Phukubje & Ngoepe, 2017; Zongozzi, 2020). These issues are not insurmountable but can be seen as part of the learning curve that institutions need to address as a matter of urgency, if universal access, democratic participation and inclusion are to be achieved. There is a need to remove societal and educational barriers, existing power and institutional structures to ensure positive academic outcomes for individuals with learning disabilities.

This discussion covers the following themes: disability disclosure in higher education, disability awareness, the role of assistive technology in higher education, disability units as provision and support centres and concluding remarks with specific reference to available research and scholarship on disabilities.

5.1. Disability disclosure in higher education

The question of disability disclosure needs urgent attention to increase both the representation of those living with disabilities, improve service delivery and achieve the reliability of statistics.

Students with learning disabilities are faced with several challenges when disclosing. One of the challenges that they are faced with is that the nature of their disability is invisible. This makes it hard for this group of students to disclose disability; even if they do, they must certify their disability. Students need to be motivated and assured that after disability

disclosure they will obtain accommodations that suits their disability needs. Sometimes students are afraid to disclose in higher education because learning disabilities and accommodations like assistive technology are not an ongoing popular topic of discussion. When students with learning disabilities disclose their disabilities, they put themselves in a vulnerable position, hoping to receive appropriate academic support and accommodations for their entire university years. It is evident that when students disclose their learning disabilities, they sometimes get accommodations like time and spelling concessions, and assistive technology, where one is allowed to type instead of using their handwriting, which can have spelling errors and be hard to read. The literature states that although learning disabilities cannot be cured or fixed with proper assistance and intervention, individuals with learning disabilities can perform and obtain the desired results successfully (Ali & Rafi, 2016: 111).

It is evident from the findings that students who disclose their learning disabilities can be faced with ableist retaliations such as stigmatisation, prejudice, and negative attitudes that encourage non-disclosure (Goffman, 1963). Ableist retaliations from the university community result in the exclusion of students with learning disabilities. Students in this study are experiencing ableism. The same ableism deems persons with able-bodied and able-minded as 'normal' while attaching negative values to persons with disabilities (Annamma *et al.*, 2013: 1279).

The study observed that in primary school and high school, learners with learning disabilities are identified by the teachers. Moreover, the teachers must provide necessary accommodations for the learners. Therefore, there is a significant change in the transition from basic education to higher education. A key anomaly in the provision of accommodations identified by the students in this study, is the delay in the provision of available services. In instances like this, students with learning disabilities have a responsibility to develop self-advocacy skills. Self-advocacy means that students with learning disabilities must know about their learning disabilities fully and understand the type of assistive technology and other accommodations they require and their disability rights in South African universities. This forms the basis of social exclusion with the likely impact on academic outcomes. A study showed that sometimes students with learning disabilities are uncomfortable (and sometimes get discouraged) trying to convince their professors about their disabilities (Madaus *et al.*, 2003; Tsagris & Muirhead, 2012).

5.2. Disability awareness

The lack of awareness of learning disabilities and available assistive technology in the university is a social barrier that accelerates the exclusion of disabled students. A study in Saudi Arabia by Abed & Shackelford (2020: 42) concluded that improved awareness is needed for both undergraduate and postgraduate students with learning disabilities among faculty and administrators. Awareness involves the university's ongoing ability to engage in various topics to educate the rest of the university. Awareness can take place in various forms. This can be done with workshops and posters around the university educating about different types of learning disabilities together with available assistive technology in the university. Gasser *et al.* (2013) state that disability awareness creates positive attitudes toward students with disabilities. Universities, therefore, have a responsibility to create an inclusive environment for students with learning disabilities through awareness. This will eliminate issues of prejudice, stigmatisation and negative towards students with learning disabilities.

Another form of raising awareness is training university staff and students. The university staff must be trained in dealing with students with learning disabilities. Available studies (Abdella, 2018; Leyser *et al.*, 1998; Lombardi & Murray 2011; Murray, 2008; Mbuva, 2019) state that instructors that receive training are willing to support students compared to those who do not. Training, therefore, plays a part in creating an inclusive higher education system because it assists staff members in understanding the needs of students with learning disabilities. When staff and students do not understand the needs and how to include students with learning disabilities, they are likely to create an ableist teaching and learning environment that excludes them. Training, also, involves teaching students and staff members how to use assistive technology. These arguments were shared by both staff and students in this study.

5.3. The role of assistive technology in higher education

Assistive technology plays a significant role in the inclusion of students with learning disabilities in higher education. Universities must ensure that they provide adequate assistive technology that accommodates different types of learning disabilities. This research study made use of the social model for disability and universal design for learning. Together they are designed to facilitate the inclusion of students with learning disabilities and create a

conducive learning environment. This study advocates for the integration of assistive technology and universal design for learning in higher education. This will benefit students who do not disclose for various reasons, such as the fear of stigmatisation, and students who do not know they have learning disabilities.

It is evident from this study that the availability of assistive technology is not useful for students with disabilities if it does not match their disabilities. Assistive technology like Grammarly has been a helpful writing tool for students with learning disabilities who have writing problems. This is because Grammarly can assist in identifying their spelling mistakes, their grammar and improve the coherence of their writing, which enhances access to higher education for students with learning disabilities (Fitriana & Nurazni, 2021: 17; Karyuatry *et al.*, 2018).

5.4 Disability units as provision and support centres

The challenges that the students with disabilities battle with involve service delivery. This is mostly common in universities that do not have dedicated disability units, which was reflected in the current study. Disability units are usually responsible for the provision of assistive technology in higher education. The issue here is that universities must have relevant visible structures. The findings of the current study have shown that a dedicated disability unit provides better targeted services implemented through their vision and mission, to its students compared to the one which implements services in a piecemeal uncoordinated manner. Additionally, the disability unit provides all the necessary information about students with disabilities and communicates it to the university at large.

5.5 CONCLUDING REMARKS

In a general sense the field of learning disabilities is evolving globally. Developed countries perform better both in terms of research, the development, access and usage of assistive technology. Although research on learning disabilities is largely based on developed country perspectives, there is a growing body of research that is emerging in South Africa (Duma, 2019; Johnson, 2013; Manase, 2021; Mantsha, 2016; Mazibuko, 2019; Morrison, *et al.*, 2009; Mutanga, 2013, 2015, 2017; Ndlovu, 2021). It is clear that research in South Africa whilst still emerging contributes to the scholarship on disability studies. However, the field of learning disabilities alone, and access to assistive technology, by students with learning

disabilities in higher education is under-researched, especially in South Africa. Available studies rather focus from early childhood education to high school. The key themes that are explored on learning disabilities in higher education in South Africa include, comparative studies of students with learning disabilities and those without learning disabilities, barriers, challenges, strategies and the support students with learning disabilities receive from higher education institutions, experiences of students with learning disabilities and assistive technology, lack of digital skills to use assistive technology, the inability to access learning material in different formats.

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APPENDIX ONE PERMISSION LETTER



Rhodes University Human Research Ethics Committee
PO Box 94, Makhanda, 6149 South Africa
Email: ethics-committee@ru.ac.za
www.ru.ac.za/research/research/ethics
NHREC Registration No. REC-241114-045

30 September 2022

Ms Lindokuhle Maswana
Department of Sociology
Rhodes University

Dear Ms. Maswana,

REQUEST FOR GATEKEEPERS PERMISSION TO CONDUCT RESEARCH WITH RHODES UNIVERSITY STUDENTS

Name of research proposal: The Use of Assistive Technology in Inclusive Education: Understanding the Experiences of Students with Learning Disabilities at South African Universities

This serves to confirm that you have been granted permission to conduct your proposed research at Rhodes University as requested.

Kindly be advised that the University is not obliged to make any arrangements in terms of this research, and that the onus is on the researcher. It is also your responsibility to protect the integrity of the University in the manner in which you collate and engage with the data.

Please note that where necessary, permission must be sort from the HR Director for staff-related matters.

This letter is valid from 30 September 2022 to 30 September 2023.

Sincerely,

Dr Janet Hayward
Chair: Rhodes University Human Research Ethics Committee

**AUTHORITY TO GRANT GATEKEEPER'S PERMISSION TO CONDUCT LOW AND MEDIUM-
RISK RESEARCH IN RELATION TO STUDENTS AT RHODES UNIVERSITY HAS BEEN
DELEGATED TO THE RELEVANT RESEARCH ETHICS COMMITTEE CHAIRS AS APPROVED BY RHODES UNIVERSITY SENATE
ON 19 AUGUST 2022**

APPENDIX TWO
ETHICAL CERTIFICATE



Rhodes University Human Research Ethics Committee
PO Box 94, Makhanda, 6140, South Africa
t: +27 (0) 46 603 7727
f: +27 (0) 46 603 8822
e: ethics-committee@ru.ac.za
NHREC Registration number: **RC-241114-045**
<https://www.ru.ac.za/researchgateway/ethics/>

Email: g22m3104@campus.ru.ac.za g22m3104@campus.ru.ac.za

Review Reference: 2022-5889-7150

Dear lindokuhle maswana

Title: The Use of Assistive Technology in Inclusive Education: Understanding the Experiences of Students with Learning Disabilities at South African Universities

Researcher: lindokuhle maswana

Supervisor(s): Ms Babalwa Sishuta

This letter confirms that the above research proposal has been reviewed and **APPROVED** by the Rhodes University Human Research Ethics Committee (RU-HREC). Your Approval number is: 2022-5889-7150 Approval has been granted for 1 year. An annual progress report will be required in order to renew approval for an additional period. You will receive an email notifying you when the annual report is due.

Please ensure that the ethical standards committee is notified should any substantive change(s) be made, for whatever reason, during the research process. This includes changes in investigators. Please also ensure that a brief report is submitted to the ethics committee on the completion of the research. The purpose of this report is to indicate whether the research was conducted successfully, if any aspects could not be completed, or if any problems arose that the ethical standards committee should be aware of. If a thesis or dissertation arising from this research is submitted to the library's electronic theses and dissertations (ETD) repository, please notify the committee of the date of submission and/or any reference or cataloguing number allocated. Sincerely,

Dr Janet Hayward

Chair: Rhodes University Human Research Ethics Committee, RU-HREC

cc: Ethics Coordinator

APPENDIX THREE CONSENT FORM



RHODES UNIVERSITY
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PARTICIPANT INFORMED CONSENT DECLARATION (To be signed by research participant/s)

Project Title: The Use of Assistive Technology in Inclusive Education: Understanding the Experiences of Students with Learning Disabilities at South African Universities

Lindokuhle Maswana from the Department of Sociology, Rhodes University has requested my permission to participate in the above-mentioned research project.

The nature and the purpose of the research project and of this informed consent declaration have been explained to me in a language that I understand.

I am aware that:

1. The purpose of the research project is to examine the experiences of students with learning disabilities (LDs) in accessing and using assistive technologies at various South African universities.
2. Rhodes University has given ethical clearance to this research project, and I have seen/may request to see the clearance certificate by contacting the Ethics Coordinator (ethics-committee@ru.ac.za)
3. By participating in this research project, I will be contributing towards a better understanding learning disabilities and assistive technology at higher education.
4. I will participate in the project by being a participant in this research study where I will to be interviewed by the researcher through an in-depth semi-structured interview, that will take plus minus one hour.
5. My participation is entirely voluntary and should I at any stage wish to withdraw from participating further, I may do so without any negative consequences.
6. I will not be compensated for participating in the research, but my out-of-pocket expenses will be reimbursed.
7. There are no risks associated with my participation in this project as the researcher will not be encroaching in my private / private life.
8. The researcher intends to publish the research results in the form of master's thesis paper however, confidentiality and anonymity of records will be maintained, and my name and identity will not be revealed to anyone who has not been involved in the conducting of the research.

Rhodes University, Research Office, Ethical Review
Ethics Coordinator: ethics-committee@ru.ac.za
t: +27 (0) 46 603 7727 f: +27 (0) 86 616 7707
Room 204, Main Admin Building, Drosty Road, Grahamstown, 6139



RHODES UNIVERSITY
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9. In terms of the Protection of Personal Information Act (No. 4 of 2013) it remains my right to request the researcher to provide me with a detailed explanation of exactly how confidentiality and anonymity of the data will be achieved. I may also request to know exactly how my personal information will be stored securely, for how long it will be stored.
10. If any data collected from me for this research project is to be used by the Researcher for any further study, I am to be informed in writing and my written consent requested again. I need not give consent for the new research if it is incompatible with the initial purpose of the present study (POPIA, s15(3)). Equally, I can simply reject the request. In such cases, a formal request needs to be made to me by the researcher via the Ethics Coordinator (ethics-committee@ru.ac.za).
11. In terms of the POPI Act, I possess the right to receive feedback about this research. This will take the form of being called and emailed the full outcome of the research study unless *I elect not to receive this feedback*.
12. Any further questions that I might have regarding the nature of the research and/or my participation in it will be answered by Lindokuhle Maswana, available at: g22m3104@campus.ru.ac.za.
13. By signing this informed consent declaration, I am not waiving any legal claims, rights, or remedies. A copy of this informed consent declaration will be given to me, and the original will be kept on record by the researcher.
14. I *agree* to the researcher's use of voice recording of my comments and opinions during interviews, the purpose of which is to ensure the accurate recording of my views/responses. Furthermore, I have the right to request a copy of the interview transcriptions to confirm that my opinions are accurately recorded

I,, have read the above information / confirm that the above information has been explained to me in a language that I understand and I am aware of this document's contents. I have asked all questions that I wished to ask, and these have been answered to my satisfaction. I fully understand what is expected of me during the research.

I have not been pressurised in any way and I voluntarily agree to participate in the above-mentioned project.

Rhodes University, Research Office, Ethical Review
Ethics Coordinator: ethics-committee@ru.ac.za
t: +27 (0) 46 603 7727 f: +27 (0) 86 616 7707
Room 204, Main Admin Building, Drostdy Road, Grahamstown, 6139

APPENDIX FOUR INVITATION LETTER FOR STUDENTS

Invitation Letter

Hello, my name is Lindokuhle Maswana. I am a registered Master of Arts student in the Department of Sociology at Rhodes University. **The proposed research topic is: The Use of Assistive Technology in Inclusive Education: Understanding the Experiences of Students with Learning Disabilities at South African Universities.** This is a research project in partial fulfilment of the requirements of the above degree. I am conducting this research for my master's minor dissertation.

I have selected you to participate in this study because a crucial part of my study, which is explore students' perceptions and experiences with learning disabilities in accessing assistive technology. The study will be conducted on a suitable date between 20 October and the 1st of November 2022.

If you agree to participate, I would like to ask you to be available for an interview session lasting plus minus 1 hour. This will be arranged for a time, date and location of your convenience in-person with appropriate. The interview can take place in-person, telephonically or virtually.

Students who are interested may request to be contacted or contact the following person:

Lindokuhle Maswana (Researcher)

067 811 6926 (WhatsApp)

lindokuhlemaswana@gmail.com

or

Ms Babalwa Sishuta (Supervisor)

046 603 8361

b.sishuta@ru.ac.za

APPENDIX FIVE
INVITATION LETTER FOR UNIVERSITY STAFF MEMBERS

Invitation Letter

Hello, my name is Lindokuhle Maswana. I am a registered Master of Arts student in the Department of Sociology at Rhodes University. **The proposed research topic is: The Use of Assistive Technology in Inclusive Education: Understanding the Experiences of Students with Learning Disabilities at South African Universities.** This is a research project in partial fulfilment of the requirements of the above degree. I am conducting this research for my master's minor dissertation.

I have selected you to participate in this study because a crucial part of my study, to examine the attitudes and experiences of university staff members on assistive technology for student with learning disabilities. The study will be conducted on a suitable date between 20 October and the 1st of November 2022.

If you agree to participate, I would like to ask you to be available for an interview session lasting plus minus 1 hour. This will be arranged for a time, date and location of your convenience. The interview can take place in-person, or virtually depending on the method you are most comfortable with.

Staff members who are interested may request to be contacted or contact the following person:

Lindokuhle Maswana (Researcher)

067 811 6926 (WhatsApp)

lindokuhlemaswana@gmail.com

or

Ms Babalwa Sishuta (Supervisor)

046 603 8361

b.sishuta@ru.ac.za

APPENDIX SIX

GUIDING INTERVIEW QUESTIONS FOR STUDENTS

Research Topic: The Use of Assistive Technology in Inclusive Education: Understanding the Experiences of Students with Learning Disabilities at South African Universities

Part 1: To be completed by students

Demographic Question

1. Please briefly talk about yourself

Exploring students' perceptions and experiences with learning disabilities in accessing assistive technology

1. How do you disclose your disability in your university?
2. What do you understand about assistive technology?
3. Do you have access to assistive technology?
4. Which assistive technology can you access at your university? (Do you pay for the assistive technology devices on top of your tuition fees?)
5. Did you know about assistive technology before coming to university?
6. How were you introduced to assistive technology in your university?
7. How would you describe the type of assistive technology that you use?
8. Who is in charge of the provision of assistive technology in your university?
9. How does the process of receiving assistive technology work?
10. How is assessment done in your faculty by your lecturer?
11. How does the university respond to students with learning disabilities? (In your opinion, how should the university respond to students with learning disabilities)
12. Do you need additional support beyond the assistive technology?
13. What assistance do you receive from the disability unit to operate the assistive technology?
14. What are your likes about using assistive technology?
15. What are your dislikes about using assistive technology?
16. What kind of assistive technology would you design if you were given a chance to?

17. How is assistive technology assisting you? (Is this enough for you? Elaborate)
18. Does the provided assistive technology influence how you participate in class (in what ways)
19. In what ways is the assistive technology you use suitable for your studies and learning?
20. Has assistive technology improved your educational performance? (Explain further).
21. Are you able to use assistive technology outside the university? (How has this impacted you?)
22. In what places do you make use of assistive technology?
23. Do you have any information that you would like to add relevant to the study?

APPENDIX SEVEN

INTERVIEW GUIDE FOR DISABILITY UNIT / ICT STAFF MEMBERS

1. The survey starts by asking for demographic information. **Please mark with an X for all your answers in the boxes provided**

1.2 What is your gender?

Female Male Non-Binary None disclosure

1.3 What is your race?

Black White Coloured Indian Asian None Disclosure

1.4. What is your position in the disability unit

1. Examining the attitudes and experiences of disability unit staff members on assistive technology for student with learning disabilities.

Please indicate the extent to which you agree or disagree with this statement:

1.1 All students with learning disabilities are aware of the assistive technology in the disability unit:

Strongly agree	Agree	Disagree	Strongly disagree
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1.2 All students who are registered in our university with learning disabilities do request of assistive technology:

Strongly agree	Agree	Disagree	Strongly disagree
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1.3 The university provides adequate assistive technology for students with learning disabilities

Strongly agree	Agree	Disagree	Strongly disagree
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1.4 Students with learning disabilities are assisted with how to use the assistive technology in the disability unit:

Strongly agree	Agree	Disagree	Strongly disagree
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1.5 Students with learning disabilities request assistive technology that cater for their learning disabilities

Strongly agree	Agree	Disagree	Strongly disagree
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1.6 The university provides all kinds of assistive technology for students with learning disabilities:

Strongly agree	Agree	Disagree	Strongly disagree
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1.7 The students with learning disabilities pay for these assistive devices on top of their tuition fees:

Strongly agree	Agree	Disagree	Strongly disagree
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1.8 Please share any additional information you think it's important which has not been included in the questionnaire.

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2. Examining the attitudes and experiences of disability unit staff members on assistive technology for student with learning disabilities

- 2.1 How do students disclose their learning disability in this university?
- 2.2 How is disability awareness done by the disability unit?
- 2.3 What resources are available to students with learning disabilities?
- 2.4 How many students do you have with disabilities?
- 2.5 How many of those students have learning disabilities? (Please name these learning disabilities)
- 3.5 Who decides what kind of assistive technology must be provided (what criteria do they follow to decide)?
- 3.6 Is the university keeping up trends with of the latest technology?

APPENDIX EIGHT

INTERVIEW GUIDE FOR STUDENTS AFFAIRS SERVICES / ICT STAFF MEMBERS

1. The survey starts by asking for demographic information. **Please mark with an X for all your answers in the boxes provided**

1.2 What is your gender?

Female Male Non-Binary None disclosure

1.3 What is your race?

Black White Coloured Indian Asian None Disclosure

1.4. What is your position in the student affairs services

2. Examining the attitudes and experiences of student affairs services members on assistive technology for student with learning disabilities.

Please indicate the extent to which you agree or disagree with this statement:

2.1 All students with learning disabilities are aware of the assistive technology in the disability unit:

Strongly agree	Agree	Disagree	Strongly disagree
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2.2 All students who are registered in our university with learning disabilities do request of assistive technology:

Strongly agree	Agree	Disagree	Strongly disagree
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2.3 The university provides adequate assistive technology for students with learning disabilities

Strongly agree	Agree	Disagree	Strongly disagree
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2.4 Students with learning disabilities are assisted with how to use the assistive technology in the disability unit:

Strongly agree	Agree	Disagree	Strongly disagree
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2.5 Students with learning disabilities request assistive technology that cater for their learning disabilities

Strongly agree	Agree	Disagree	Strongly disagree
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2.6 The university provides all kinds of assistive technology for students with learning disabilities:

Strongly agree	Agree	Disagree	Strongly disagree
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2.7 The students with learning disabilities pay for these assistive devices on top of their tuition fees:

Strongly agree	Agree	Disagree	Strongly disagree
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2.8 Please share any additional information you think it's important which has not been included in the questionnaire.

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3. Examining the attitudes and experiences of student affairs services staff members on assistive technology for student with learning disabilities

- 3.1 How do students disclose their learning disability in this university?
- 3.2 How is disability awareness done by the student affairs services?
- 3.3 What resources are available to students with learning disabilities
- 3.4 How many students do you have with disabilities?
- 3.5 How many of those students have learning disabilities? (Please name these learning disabilities)
- 3.6 Who decides what kind of assistive technology must be provided (what criteria do they follow to decide)?
- 3.7 Is the university keeping up trends with of the latest technology?

APPENDIX NINE

INTERVIEW GUIDE FOR LIBRARY STAFF MEMBERS

The survey starts by asking for demographic information. **Please mark with an X for all your answers in the boxes provided**

1.2 What is your gender?

Female Male Non-Binary None disclosure

1.3 What is your race?

Black White Coloured Indian Asian None Disclosure

1.4. What is your position in the library

2. Examining the attitudes and experiences of library staff members on assistive technology for student with learning disabilities.

Please indicate the extent to which you agree or disagree with this statement:

2.1 All students with learning disabilities are aware of the assistive technology in the disability unit:

Strongly agree	Agree	Disagree	Strongly disagree
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2.2 All students who are registered in our university with learning disabilities do request of assistive technology:

Strongly agree	Agree	Disagree	Strongly disagree
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2.3 The university provides adequate assistive technology for students with learning disabilities

Strongly agree	Agree	Disagree	Strongly disagree
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2.4 tudents with learning disabilities are assisted with how to use the assistive technology in the disability unit:

Strongly agree	Agree	Disagree	Strongly disagree
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2.5 Students with learning disabilities request assistive technology that cater for their learning disabilities

Strongly agree	Agree	Disagree	Strongly disagree
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2.6 The university provides all kinds of assistive technology for students with learning disabilities:

Strongly agree	Agree	Disagree	Strongly disagree
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2.7 The students with learning disabilities pay for these assistive devices on top of their tuition fees:

Strongly agree	Agree	Disagree	Strongly disagree
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2.8 Please share any additional information you think it's important which has not been included in the questionnaire.

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3. Examining the attitudes and experiences of library staff members on assistive technology for student with learning disabilities

- 3.1 How do students disclose their learning disability in this university?
- 3.2 How is disability awareness done by the disability unit?
- 3.3 What resources are available to students with learning disabilities?
- 3.4 How many students do you have with disabilities?
- 3.5 How many of those students have learning disabilities? (Please name these learning disabilities)
- 3.5 Who decides what kind of assistive technology must be provided (what criteria do they follow to decide)?
- 3.6 Is the university keeping up trends with of the latest technology?

APPENDIX TEN

INTERVIEW GUIDE FOR UNIVERSITY LECTURERS

The survey starts by asking for demographic information. **Please mark with an X for all your answers in the boxes provided**

1.2 What is your gender?

Female Male Non-Binary None disclosure

1.3 What is your race?

Black White Coloured Indian Asian None Disclosure

1.4. What is your position in the faculty

2.Examining the attitudes and experiences of university lecturers on assistive technology for student with learning disabilities.

Please indicate the extent to which you agree or disagree with this statement:

2.1 All students with learning disabilities are aware of the assistive technology provided by the student affairs services:

Strongly agree	Agree	Disagree	Strongly disagree
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2.2 All students who are registered in our university with learning disabilities do request of assistive technology:

Strongly agree	Agree	Disagree	Strongly disagree
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2.3 The university provides adequate assistive technology for students with learning disabilities

Strongly agree	Agree	Disagree	Strongly disagree
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2.4 Students with learning disabilities are assisted with how to use the assistive technology in the disability unit:

Strongly agree	Agree	Disagree	Strongly disagree
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2.5 Students with learning disabilities request assistive technology that cater for their learning disabilities

Strongly agree	Agree	Disagree	Strongly disagree
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2.6 The university provides all kinds of assistive technology for students with learning disabilities:

Strongly agree	Agree	Disagree	Strongly disagree
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2.7 The students with learning disabilities pay for these assistive devices on top of their tuition fees:

Strongly agree	Agree	Disagree	Strongly disagree
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2.8 Please share any additional information you think it's important which has not been included in the questionnaire.

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3. Examining the attitudes and experiences of university lecturers on assistive technology for student with learning disabilities

- 3.1 How do students disclose their learning disability in this university?
- 3.2 How is disability awareness done by the disability unit?
- 3.3 What resources are available to students with learning disabilities?
- 3.4 How many students do you have with disabilities?
- 3.5 How many of those students have learning disabilities? (Please name these learning disabilities)
- 3.6 Who decides what kind of assistive technology must be provided (what criteria do they follow to decide)?
- 3.7 Is the university keeping up trends with of the latest technology?