Information and Communication Technology as a learning tool: experiences of students with blindness

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Declaration

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I declare that "**Information and Communication Technology as a learning tool: experiences of students with blindness"** is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references.

---------- 15 June 2013

Mrs Sindile Amina Ngubane-Mokiwa Date

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Abstract

The goal of this research was to explore how students with blindness (SwBs) use information and communication technology (ICT) for learning at the University of South Africa (UNISA). To do this the critical paradigm was used as a way of viewing the educational world. Underpinned by Transactional Distance Theory, Cultural Historical Activity Theory, Universal Design for Learning and Critical Theory, the study was qualitative and used narrative inquiry. The selection of the participants was made through purposive and snowball sampling and data collected through life stories, in-depth and telephonic interviews. The findings culminated in two major findings: 1) the use of ICT for learning; and 2) inclusive digital approaches. The first has emerging themes, for instance, (a) challenges with mathematical, scientific and accounting signs; (b) inability to access graphic learning material; (c) incompatibility of software; (d) lack of timely access to electronic learning materials; (e) high cost of ICT tools; (f) personal computers and laptops; (g) *my*Unisa and *my*Life; (h) voice recorders, Brailler, screen readers and videoconferencing; (i) electronic mail (e-mail); and (j) mobile telephones. The themes for the second major finding include: (a) authentic use of student-centred approaches; (b) inconsistency between policy and practice; (c) testing and re-testing of assessment tools; and (d) regular seeking of students' views and experiences. The proposed 'Inclusive Critical use of Technology' (ICuT) framework was developed to and can be used as an effective guide if it is foregrounded by applicable distance learning theories and appropriate technologies. The study recommends the use of inclusive and critical approaches when integrating ICT into teaching and learning.

KEY TERMS

Learning experiences; technology; open and distance learning; blind students; University of South Africa; student autonomy; information and communication technology; distance education; transactional distance theory; digital inclusion; universal design for learning; student-centred learning.

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ADA	Americans with Disabilities Act
CCTV	Closed-circuit television
CHE	Council of Higher Education
CMC	Computer mediated communication
DAISY	Digital accessible information system
DE	Distance education
DISA	Disability South Africa
DoE	Department of Education
ETQA	Education and training quality assurance
HEI	Higher education institution
HEMIS	Higher education management information system
ICT	Information and communication technology
ICuT	Inclusive Critical use of Technology framework
JAWS	Job Access with Speech (Software)
LD	Learning design
ODL	Open distance learning
PwDs	People with disabilities
PwNDs	People with no disabilities
SwBs	Students with blindness
SwDs	Students with disabilities
SwNDs	Students with no disabilities
SwVIs	Students with visual impairments
UDL	Universal design for Learning
UNISA	University of South Africa
UNCRPD	United Nations Convention on the Rights of Persons with Disabilities

CHAPTER ONE
INTRODUCTION

1.1 INTRODUCTION TO THE CHAPTER

This chapter provides the background, orientation and purpose of the study, the research problem, rationale, significance and philosophical stance. A description is given of the research design and methodologies applied the population from which the sample was chosen, and the research methods and data analysis techniques used.

1.2 BACKGROUND OF THE STUDY

The Constitution of South Africa (Act 108, 1996) upholds the fundamental rights of all South African citizens, with and without disabilities, to access higher education (The Department of Justice and Constitutional Development, 1996). Subsequently, the Department of Education (DoE) merged higher education institutions (Howell, 2005:viii) that prior to 1994 had been run on a racial basis, with those designated for Whites being well-resourced and those for Blacks characterised by a plethora of inadequacies. This racial equation disadvantaged people with disabilities more, because society tended to focus on the injustice of racial discrimination at the expense of people with disabilities (Howell, 2005:9).

The effects of the mergers also affected the University of South Africa (UNISA), which was merged with the former Technikon SA, Vista University and the distance education campus of VUDEC (Kilfoil & Groenewald, 2005:12). UNISA and Technikon SA had both made their own arrangements for students with disabilities, and the disability units from two of the three merging institutions had also to merge, which had different implications for the services they each provided to the students. Against this brief historical context, the focus of this study is on the learning experiences of students with blindness (SwBs) in their use of Information and Communication and Technology (ICT) for learning at UNISA.

Prior to reaching university level, most SwBs have undergone their primary and secondary schooling in special schools, unified by the common dominator of disability. In these schools they formed the majority and could unite to advocate the provision of better equipped services. The infrastructure accommodated them and the teachers were specially trained and retrained to attend to their learning needs. Able to consult with the learners to determine their capabilities and potential, the teachers were also required by the education system to be fully available to attend to the learners' educational needs. The teaching and learning resources were regularly assessed and updated accordingly. However, as Morgan (2008:134) states, this scenario was not the case with all special schools, particularly those in rural areas of South Africa. Learners with blindness were fortunate because after primary school they could attend one well-resourced special school for secondary school education. These resources were mainly ICT-based, for example Braille, note takers, screen readers and audio tapes, as the major independent means through which they could access learning materials. This is generally preferred to dependent methods, such as having a sighted person read, and early and non-optional exposure to ICT had resulted in most of the SwBs who enter university having ICT skills that are adequate for tertiary study.

1.2.1 University of South Africa's provision for students with blindness

UNISA has made policy provisions for the students with disabilities including a well-resourced library with ICT facilities to promote access to learning materials and a disability unit specifically designed to facilitate access to the university facilities. Both these support services are discussed in greater detail in Chapter 3. However, it must be noted that most higher education institutions which are supposed to cater for the learning needs of SwBs have infrastructural challenges, academic, administrative and supporting staff with no or limited expertise on disability issues (Fredriksson, Gajek & Jedeskog, 2009:3). As Fraser and Maguvhe (2008:86) argue, the higher education institutions have done very little to train teachers on how to teach learners with visual impairments.

Due to a paucity of studies on the use of ICT by SwBs in open distance learning (ODL) institutions, most of the literature used in this study is either from contact

universities or ICT projects and schools. There is also a shortage of studies on SwBs's learning experiences in ODL environments and how they use ICT for learning purposes at higher education institutions in South Africa (Minnaar, 2011:6). Howell (2005) has tackled issues of disability at higher education institutions in the country but did not focus on SwBs, who according to Fraser and Maguvhe (2008:1) are "the most vulnerable individuals in terms of the learning mediation." Anderson and Dron (2011:86) have pointed out the need for distance education educators to generate the habit of learning from and documenting the learning behaviours of distance students, whilst Mabunda (2010:224), a leader and academic at UNISA, has called for further research into the impact of ICT on all students' learning experiences. This study should therefore help in filling the gap that exists in research on the impact of ICT on students, but with particular focus on those with blindness.

Amory (2012) criticised ICT lecturers' lack of training on how to teach or design an interactive ODL environment. This also applies in this study, specifically their limited skills in teaching SwBs in an ODL setting. Another challenge is highlighted by Livingstone (2012), who posits that the presence of ICT is not a guarantee of effective learning but rather that it enhances learning. Livingstone (2012:11) argues that ICT needs to be matched with subject-specific needs. Means, Toyama, Murphy, Bakia and Jones (2010:2), in a study on online learning in higher education, argue that ICT can bring positive effects to learning based on the proper mix of time spent, a well designed curriculum and appropriately applied pedagogies.

This study therefore endeavours to contribute to the research on how the SwBs experience learning through ICT at UNISA. It uses five narrative case studies as a basis for designing a framework that will promote positive learning experiences at the University.

1.2.2 Learning through open distance learning and its demands

The ODL pedagogy and methodologies require the students to be "independent and critical thinkers" (UNISA ODL Policy, 2008:2) and to have an idea of how to coordinate and regulate their learning (Hannum, Irvin, Lei & Farmer, 2008:3) with limited guidance from the lecturer. The academic journey of most students in

distance learning is relatively isolated, but more so for those with blindness (Rovai & Wighting, 2005:98). Such challenges as “[lack of] capacity to address diverse needs and address barriers to learning and development” characterises higher education and the educational system in general (Howell, 2005:10), and it is the ODL environment in which the SwBs find themselves which this study seeks to investigate.

1.2.3 Blindness

The Global Estimates of Visual Impairments 2012 report revealed that there are 285 million people with visual impairment worldwide, of whom 39 million are blind. Of the South African population of 53 million, 1,091,022 citizens have visual impairment (Statistics South Africa, 2012), and a total of 554 students declared their blindness in 2012 at UNISA (Department of Institutional Statistics and Analysis, 2012). Blindness is defined as total loss of eyesight (Hollier, 2007:19), and produces different challenges, such as moving around in a disability-unfriendly environment, reading and writing, and following visual signs. In the educational setting, the SwBs face barriers to learning due to learning materials being designed in an inaccessible way. According to Hollier (2007:37), though society tends to be sympathetic to and pity people with visual impairments, and does not dislike them, it does fear the condition.

Fraser and Maguvhe (2008:86) point out the prejudices towards teaching SwBs and how these contribute to their isolation. Devlin and Pothier (2006:2) used the term ‘dis-studentship’ as a condition in which SwBs are deprived of the characteristics of regular studentship. Certain values differ from student to student, for example for some it is about registering and having a student number whilst for others it is more developmental in that they can fully participate in the university structures. It is also about being able to self-determine their progressive learning environment. According to Devlin and Pothier (2006:2), SwBs may be further disabled by exclusionary teaching and learning practices. A university might admit SwBs merely as part of its policy of “abstract rights” (Devlin & Pothier, 2006:3) but not have a proactive academic approach that enables them to succeed in learning or have a positive learning experience.

1.2.4 The potential that ICT presents for SwBs

The presence of ICT brings “hope” (Hollier, 2007:10) to the SwBs since it makes educational materials accessible. The SwBs can also access the Internet which gives them full access to information globally, increased independence, access to online services like online registration, banking and online shopping (Hollier, 2007:10). Besides all the advantages there are challenges that ICT imposes on the SwBs and this study aimed at investigating them. The next section presents the rationale for conducting this research.

1.3 RATIONALE

The rationale for the study is personal, contextual, and based on policy and scholarship. My personal rationale commenced in September 2010 when I was part of a Teaching and Learning workshop on dealing with students with disabilities. This generated an interest on how ICT could support the learning of SwBs at higher education institutions. I have a vested interest in the area of ICT and its competent use to enhance teaching and learning of SwBs at universities, UNISA in particular. I have constantly been faced with the misconception that technology improves the process of education, hence I seek to use research to create an understanding of students’ learning experiences and how they can be used to enhance the use of ICT in teaching and learning.

Secondly, my contextual reason is informed by the roles of higher education as prescribed by the Department of Higher Education’s three major roles of education, namely human resources development; high-level skills training and producing; and acquiring and applying new knowledge (National Plan of HE, 2001). Understanding the experiences of students in higher education is crucial as it can enable the SwBs to be an active part of the knowledge communities and be able to “function in an information society” (Somerville, Lampert, Dabbour, Harlan & Schader, 2007:4). As opposed to primary and secondary school, in which the SwBs had their parents to guide them through the process of registering for disability status, and ensuring that the accommodation was allocated accordingly, higher education requires that they go through different procedures on their own (Government Accountability Office (GAO),

2009). The GAO (2009) then argues that this is the first negative and tedious experience SwBs undergo in higher education. As Goode (2007:37) argues, they tend not to receive maximum or informed learning support and consequently there are fewer SwBs at higher education institutions. The presence of ICT allows the SwBs to be able to register, pay for their studies and study online.

Thirdly, the scholarship rationale is that the experiences of SwBs are sought because of the wide gap that exists in studies of the role of ICT in their learning. Those conducted in South Africa have tended to focus on institutional access for students with disabilities (Howell, 2005), not SwBs's experiences of learning through ICT. I also discovered a need to highlight the crucial role that ICT plays in ensuring that the "interaction between the learner and the learning content" (Zimmerman, 2012:1) leads to realisation of learning objectives from the students' perspectives. The current Minister of Higher Education, Blade Nzimande, at a Higher Education Disability Services Association (HEDSA) symposium at the University of Free State on 28 September 2010, stressed the importance of ensuring that students with disabilities have quality higher education, complete their degrees successfully and form part of the mainstream labour force.

Fourthly, the policy-based rationale arises from Section 1.2 of the UNISA ODL policy (2008), which states that:

> *The university commits itself to advancing social justice with an emphasis on redress, equity and empowerment of the previously disadvantaged groups in South Africa such as Blacks, women, people with disabilities, the rural and urban poor and adults who have missed out on opportunities to access higher education.*

In addition, Goal 5 of the UNISA Institutional Operational Plan (IOP) is to create an environment which makes learning possible for students with disabilities (UNISA, 2010). This research therefore aims, inter alia, to seek the students' learning experiences and use them to create a student-centred framework for best practices in the use of ICT for learning. The next section presents the statement of the problem.

1.4 THE PROBLEM STATEMENT

According to Minnaar (2011:6), Mabunda (2010:226), Fraser and Maguvhe (2008:86), Czerniewicz, Ravjee and Mlitwa (2006:61), Adams and Brown (2006:8) there is a dearth of research in the area of higher education experiences of students. Their observation only makes mention of lack of the general student populations' learning experience; in this study the problem is more specific to the SwBs. There is limited academic research on how students with blindness learn through ICT in an Open and Distance Learning context. In addition, there is an unproven assumption that ICT affords effective learning (Watling, 2011:492) and positive learning experiences for SwBs at higher education institutions including UNISA. Czerniewicz, Ravjee and Mlitwa (2006:3) raise the need for problematizing the contribution of ICT in higher education teaching and learning. Czerniewicz, Ng'ambi and Jaffer (2007) assert that most of higher education institutions bring in ICT based on technological possibilities or advancements and what is available in the market instead of creating ICT learning tools based on the students' educational needs (Czerniewicz, Ng'ambi & Jaffer, 2007:1). According to Mabunda (2010:223) the same problem of not using students' learning experiences to inform the use of ICT in learning also exists at UNISA.

The 'South African Higher Education responses to students with disabilities' report (Howell, 2005:vii) highlights the lack of research on the 'quality of students' teaching. This includes a specific focus on both the concrete experiences of students with disabilities at higher education institutions and the training of academic staff to deal with disabled students in a supportive manner. Most studies on higher education and disabilities focus on institutional access (Howell, 2005; DoE, 1996, 1997, 2001). This study endeavours to explore SwBs' experiences of learning through ICT in ODL facilitation spaces.

1.5 MAIN RESEARCH QUESTION

The main question of this study is:

> *How do the students with blindness learn through Information and Communication Technology at UNISA?*

From my observation, questions surrounding teaching and learning are normally ignored when it concerns students with disabilities, with the focus instead being put on their condition. All the institutions of higher education should treat the learning experience of all the students as an important aspect of improving educational practices. Therefore, the sub-questions that guide this study are:

1. What are the learning experiences of students with blindness using ICT for learning at the University of South Africa?
2. What ICT tools do the students with blindness use for learning at the University of South Africa?
3. How can the use of ICT for learning be improved at the University of South Africa?

1.6 OBJECTIVES OF THE STUDY

Collectively, this study seeks to explore the learning experiences of SwBs using ICT at UNISA, and to identify the types of ICT tools the University provides for them. It aims to work with the students to create a student-centred framework towards positive learning experiences. The abovementioned objectives will be addressed through seeking the students' experiences rather than conducting institution-based technical accessibility evaluations (Bocconi & Ott, 2013:2).

1.7 RESEARCH PARADIGM

The research paradigm that guided me as I conducted this study is a critical paradigm which aims at challenging power and control and bringing about positive transformation. Sim and Van Loon (2004:164) propose that critical theory should be

used to conduct principled interventions in any given scenario. These principles include being prepared to challenge dominant practices and views, and conducting thorough analysis of the situation at hand with the aim of emancipating the participants. In the case of this study the dominant practice is the use of vision-based approaches employed when teaching and learning through ICT at UNISA. Most curriculum designers and lecturers have no prior training or exposure to facilitating learning for SwBs and students with disabilities in general (Fraser & Maguvhe, 2008:85), so the learning experiences of students will enable them to hear firsthand the experiences of students.

1.7.1 Six dimensions of criticality

In this section I outline the elements that make the critical paradigm suitable for this study, as prescribed by Boje and Al Arkoubi (2009), namely rhetoric, tradition, power, objectivity, reflexivity and reality.

1.7.1.1 Rhetoric

Also called 'critical thinking,' rhetoric signifies the ability to evaluate other peoples' use of language, arguments and other symbolic meanings in a rational and relevant manner. In the case of SwBs, language has been used in a demeaning and disempowering way which promotes negative perceptions of them, in turn leading to negative learning experiences. This is largely attributed to a medical discourse that viewed a person with a disability as deficient, poor, subservient, ignorant, and in need of service and rehabilitation. The language used depicts a power play between the service provider, the professional and the service recipient. In order to counter this tendency I made an effort to use respectful and empowering language when interacting with the research participants. The research report also promotes critical thinking and empowerment (Boje & Al Arkoubi, 2009:110).

1.7.1.2 Tradition

Tradition has been and continues to be used against vulnerable groups such as people with disabilities. It is usually easy to adhere to the commonly held so-called

institutional traditions rather than to question and oppose them. In my research design I have therefore moved away from the traditional data collection instruments and have used narrative inquiry so as to accommodate the SwBs (Boje & Al Arkoubi, 2009:110).

1.7.1.3 Power

Power has unfortunately been used to benefit the powerful few and majority groups, yet being critical means being able to question commonly held views, not accepting things at face value and always looking for the popular voice on given issues. I did not use my role of researcher to dominate the SwBs, but rather gave priority to their life stories. They had the power to participate voluntarily and withdraw if they wanted to, as prescribed by the ethical provisions (Boje & Al Arkoubi, 2009:110).

1.7.1.4 Objectivity

Objectivity requires one to understand that construction of knowledge is subject to different interpretations. As a researcher I have ensured that I remain objective by not approaching the study with preconceived ideas. It was also important to value every experience to which I was exposed, and to acknowledge that they were constructed in specific contexts (Boje & Al Arkoubi, 2009:110).

1.7.1.5 Reflexivity

Reflexivity dictated that I be critical towards myself and the way I approached things personally, relationally and collectively. Knowing that I could be having my own biases as the researcher I kept a research journal with reflections on the processes I took during data gathering. These enabled me to know how to deal with the data collected (Boje & Al Arkoubi, 2009:110).

1.7.1.6 Reality

Reality entails being critical, inquisitive about what I considered as the truth and true learning experience of the participants. This means that I thought about the research problem and the theoretical framework and let it guide me through the research process (Boje & Al Arkoubi, 2009:110).

1.8 RESEARCH DESIGN AND METHODOLOGY

This section provides an introduction and summary to orientate the reader to the design procedures that were followed in carrying out the study.

This is a qualitative study which used a narrative case study design. The sample of five SwBs was selected through snowball sampling and the data collected through life stories, in-depth interviews and telephonic interviews. According to Creswell (2013:183), qualitative research relies on the use of words and pictures to collect, analyse and present data. This approach was deemed suitable because it provided an opportunity for me to address the research problem without inconveniencing the participants. They were able to participate through conversation, which is a natural activity for them (Creswell, 2013:185). The study of related literature covers the main concepts in the study, namely ODL, ICT and blindness, as researched in other parts of the world.

Before going to the field to collect data, an interview guide was designed to give the research participants an idea of the study objectives so that they would include reference to ICT in their life stories. These were emailed to me and after reading through them I arranged face-to-face in-depth interviews. The interviews were recorded using a digital recorder and upon completion the recording was transcribed verbatim for analysis. The telephonic interviews were conducted more than five months after the in-depth interviews so as to check if the participants still held the same views.

Data analysis was conducted through categorical content analysis, with presentation being heavily based on extracts from the data collected. The discussion of findings made use of Transactional Distance Theory, Cultural Historical Activity Theory, Universal Design for Learning and Critical Theory, the four theories that frame this study. The literature reviewed is also used as a basis for the discussion of findings. The research design and methodology is fully outlined in Chapter 4.

1.9 CLARIFICATION OF CONCEPTS

This section clarifies terms commonly used in this study and as they are understood from the researcher's perspective.

1.9.1 Open Distance Learning

Open Distance Learning (ODL) is a blend of traditional distance education and a real-time interactive mode of learning. For Birochi and Pozzebon (2011:3) it is a new information-based form of education, whilst Pityana (2009:7) defines it as a form of education delivery that is cost-effective and far-reaching but without the need for costly infrastructural changes. ODL is facilitated through the use of group tutorials, tutorial letters, detailed feedback to assignments, telephonic and online support by lecturers (Gatsha & Evans, 2010:156). As an institution of ODL, UNISA decided to use online learning but due to most students not having access to and lacking ICT skills the lecturers still use paper-based approaches to learning.

1.9.2 Information and Communication Technology

Information and Communication Technology (ICT) is also called Computer Mediated Learning, E-learning, Educational Technology, Digital Learning (Innoelearning, 2003:02) and it is used for different purposes in corporate, military, residential and educational environments. ICT come in different forms, which include computers, radio, video, Braille machines, Braille printers, playstations, television, and projectors. Shelly, Gunter and Gunter (2011:215) have placed specific ICT tools as relevant to educational purposes into four categories, namely: personal computer software, personal computer hardware, network software and hardware, and Internet software

and hardware. The personal computer software consists of word processing, spreadsheets, databases, e-mail, Internet access, presentation graphics, and conversion of text to speech software such as *JAWS* (*Job Access with Speech)*, multimedia authoring and delivery and learning management systems. The personal computer hardware consists of but is not limited to computer processing unit, mouse, keyboard, monitor, memory sticks, printers (including the Braille printers), scanners, digital cameras, and projectors. The network software and hardware consists of but is not limited to communication drivers through the network, servers, wired and wireless facilities and other network devices. The Internet software and hardware consists of but is limited to software that enables synchronous and asynchronous communication through the Internet, information input and output, modems and other infrastructure.

It must be noted that not all ICT can be used for educational purposes and that there are some ICT tools that need to be specifically designed and used with the students' learning needs in mind (Bocconi & Ott, 2013:6, Bush & Mott, 2009; Collins & Halverson, 2009:5; Fuglerud, 2011:453). For the purpose of this study ICT refers to all the tools, including the assistive devices that can be used to mediate learning for the SwBs.

1.9.3 Students with blindness

In this particular study, students with blindness (SwBs) is a human rights-based term use to refer to those students who are completely blind. Literature varies on the appropriate term (Bolt, 2005:540; Oliver, 1996a), with 'visual impairments' often being used as a broader term to encompass a range of sight defects. The students indicated to me that they rejected the term 'students with visual impairments' because their vision was not impaired but fully lost. Referring to them as SwBs is therefore in compliance with the 'person before disability,' rule as prescribed by the UN Convention on the Rights of People with Disabilities (United Nations Convention on the Rights of Persons with Disabilities, 2006). The students will therefore be referred to as 'students with blindness,' abbreviated as SwBs.

1.9.4 Student

In South Africa, a ‘student’ is somebody who is studying at an institution of higher education, such as a university, whilst the term ‘learner’ is generally used for those who are in primary and secondary schooling. Since this study is about those who are pursuing their university or higher education they will be referred to as students.

1.10 DIVISION OF CHAPTERS

The study is organised into chapters as follows.

Chapter 1 has provided a general background to the use of ICT for teaching SwBs. In addition, it has presented the statement of problem, objectives and purposes of the study and the research questions. It has stated the significance of the study provided the research paradigm, briefly outlined the research design and methodology, and clarified the main concepts used.

Chapter 2 highlights the four theoretical frameworks that informed the framing of this study. I begin by presenting the Transactional Distance Theory (TDT), followed by Cultural-Historical Activity Theory (CHAT) followed by the Universal Design for Learning (UDL) and lastly Critical Theory. Tables and figures are used to depict how the theory applies to the study.

Chapter 3 presents a discussion on the concepts that relate to the topic, for instance, ICT and the policies that promote its use of ICT for the learning of SwBs, and the evolution of ODL. Literature on international developments is reviewed, focussing on the Western countries, Eastern countries, African countries, South Africa specifically and lastly UNISA.

Chapter 4 examines in greater detail the research methodology and design used in this study. The qualitative approach, case study design and narrative inquiry are explained in detail, and the sampling techniques and data collection procedures elaborated upon. The chapter also presents the ethical consideration adhered to during the study, and concludes with a discussion of data analysis approaches used.

Chapter 5 presents the research findings, with direct quotes and passages from the stories used to illustrate the words as they were said by the narrators. The findings are discussed in relation to the literature reviewed and the theories that underpin the study.

Chapter 6 concludes the study, bringing together the four theories that frame this study and the narrations from the SwBs to make recommendations. The proposed Student-centred Universal use of Technology framework is presented, followed by suggested avenues for further research.

1.11 CONCLUSION

This chapter has provided a general background to the use of ICT for teaching SwBs. In addition, it presented the statement of problem, objectives and purpose of the study; the research objectives and the research questions. The chapter discusses the significance of the study and outlines definitions of different concepts used in the study. Finally, it provides the research paradigm, research design and methodology, the division of chapters and conclusion.

CHAPTER TWO
THEORETICAL FRAMEWORK

2.1 INTRODUCTION

This chapter highlights the four theoretical frameworks that equally informed the framing of this study, namely Transactional Distance Theory (TDT), Cultural-Historical Activity Theory (CHAT), Universal Design for Learning (UDL) and Critical Theory. Tables and figures are used to depict how the theories apply, then the ideas of Michel Foucault, Hannah Arendt and Paulo Freire on critical theory are discussed, carefully linking them to issues of domination in the way ICT is used for learning.

2.2 TRANSACTIONAL DISTANCE THEORY

The first theory underpinning this study, Transactional Distance Theory (TDT) addresses the distance between the student and lecturer. Propounded by Michael Moore (1973, 1996), it is based on his previous theory of independent learning and teaching, the crux being student-centredness in facilitation of education, with the three essentials of structure, dialogue and autonomy (Moore, 1972:78; 1993:23). Moore and Kearsley (1996:664) argue that the structural distance is created by the designed course *structure*, with the interaction (*dialogue*) between the lecturer and the student constituting an important part of the learning process. In the case of paper-based learning this could be in form of written feedback on the assignment sheet, and the *dialogue* could also be exchanges in a discussion forum on *my*Unisa, an internet-based learning tool. Autonomy is about the students' capacity to learn independently. Moore (1972: 79) postulates that *autonomy* is determined by the student's personality, learning styles, prior experience and the way he or she engages with the learning material.

The learner's capacity has much to do with personality, learning styles, prior experience, and the content to be learned. Figure 2.1 (below) depicts the Transactional Distance as explained by Moore (1972, 1973).

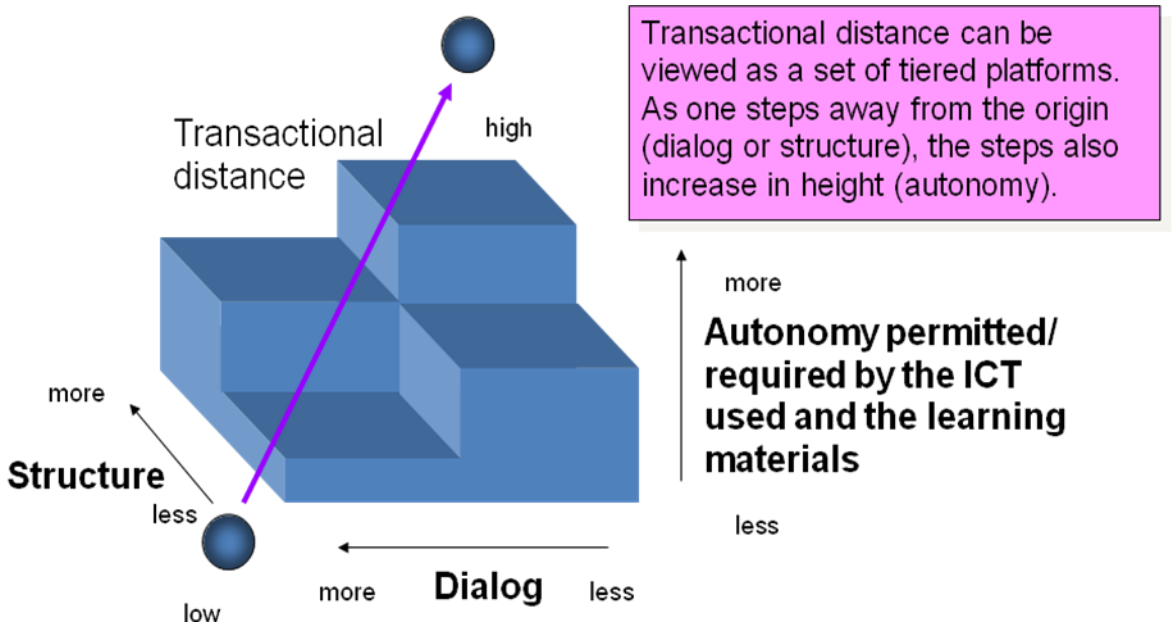

Figure 2.1: A 3D Transactional distance (Adapted from Moore, 1972, 1973)

2.2.1 Structural distance

According to Moore (1972:23), structural distance is caused by the way the learning material is designed, so as to enable the student to reach his/her learning goals. If there is continuing dialogue between the student and lecturer and the learning content and system is well-structured the transactional distance is reduced. Conversely, if there is less communication (dialogue) and the learning is not well designed the transactional distance widens. The process of TDT is reciprocal and requires all the parties in the learning system to play a positive and active role. Figure 2.2 (below) depicts the relationship of cause and effect between *dialogue* and *structure*.

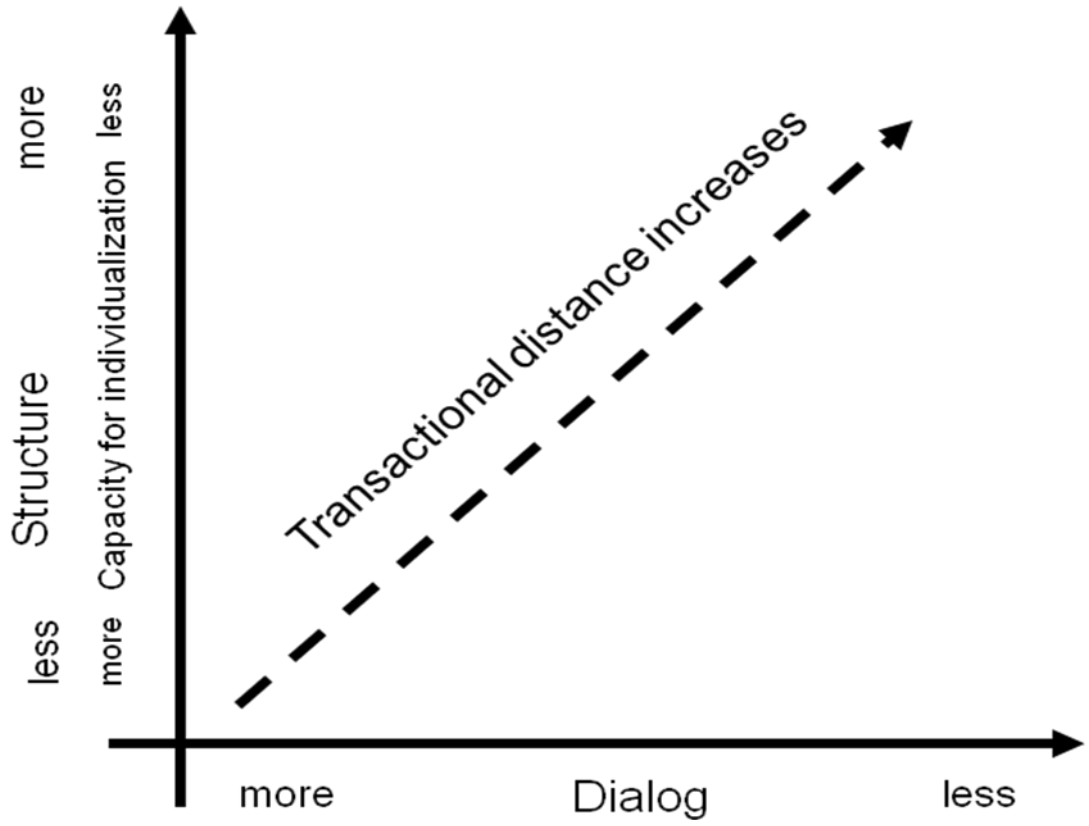

Figure 2.1: Dialogue + Structure determines TDT (Moore, 2006)

2.2.2 Dialogue

Moore (1993:24) argues that *dialogue* is about the interaction between the students and the lecturer, the communication that takes place between the lecturer and student and the reaction that this process provokes. It becomes effective if the student does not take too long to respond to the lecturer and vice versa. Figure 2.3 (below) depicts the degree at which the student and the lecturer can interact.

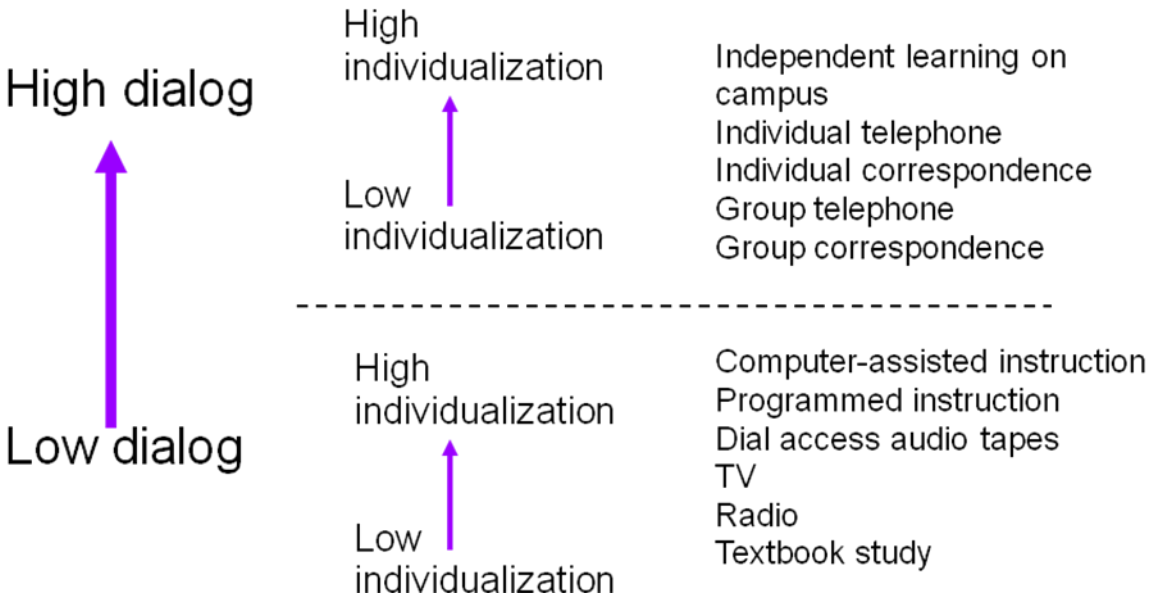

Figure 2.2: Dialogues between the student and the lecturer (Moore, 2006)

In the case of this study, the way the SwBs communicate with their lecturers and the way their learning material is designed determine the transactional distance. The higher the dialogue the less the transactional distance, which supports the students' chances of having a positive learning experience and succeeding in their studies. The lower the dialogue the higher or wider the transactional distance, which lessens the chances of the students having a positive learning experience and succeeding in their studies.

2.2.3 Autonomy

Moore (1993:31) defines *autonomy* as the different ability levels of the students and the extent to which they can engage with their learning material and develop critical thinking. Moore (1993:31) postulates that student autonomy is also about them generating ability to self-regulate and self-direct their learning. Figure 2.4 (below) depicts how the ODL student becomes autonomous.

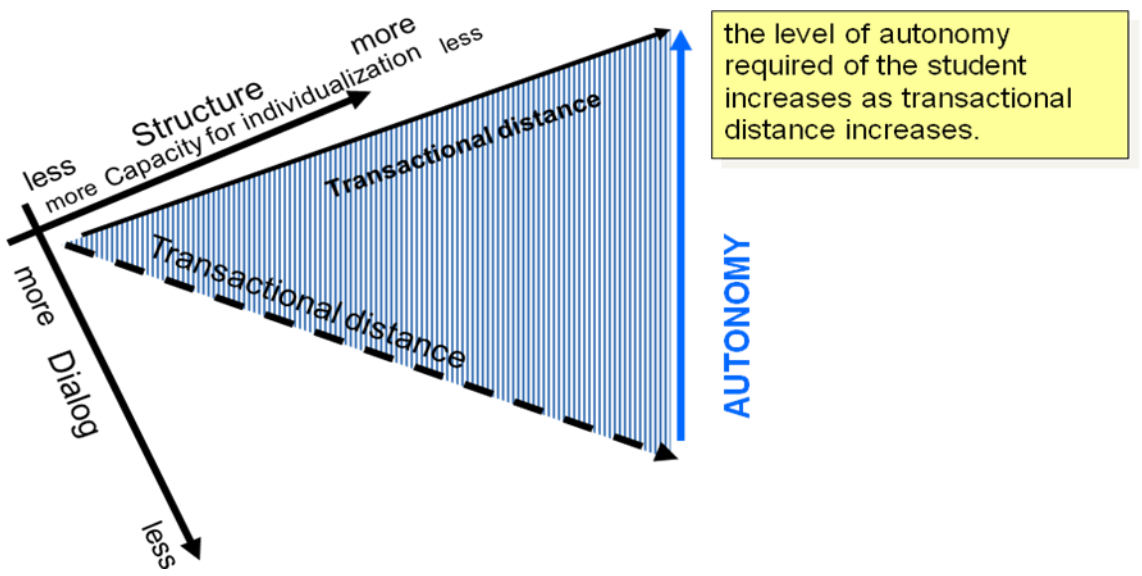

Figure 2.3: Autonomy and transactional distance (Moore, 2006)

Moore (2006) argues that when the student becomes autonomous then the transactional distance increases because he or she can learn without depending greatly on the lecturer. ICT offers increased opportunities for interaction between the students and academics, hence increasing student autonomy.

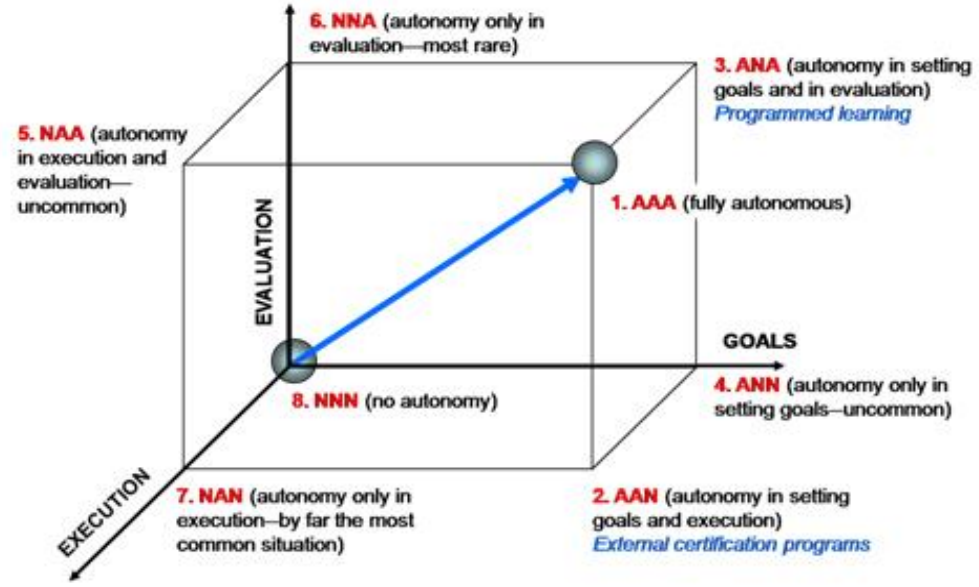

Figure 2.4: Determinants of autonomy (Moore, 2006)

2.2.4 Applicability of Transactional Distance Theory to this study

Transactional Distance Theory (TDT) is suitable for framing this study because it is holistic in its approach. Crawford (2009:10) posits that it provides a lens for analyses of both the organisational and the transactional matters of learning, without neglecting the students, the learning institution or society. The TDT is also suitable because it can be used to examine ways and means of enhancing the learning process. It makes both the student and the lecturer realise the importance of bridging the gap created by the geographical and pedagogical distance so they can plan accordingly. It also highlights the importance of ensuring that learning material is designed properly, giving the student a chance to engage and become a critical thinker. In taking away the responsibility of directing the learning process from the lecturer it puts it on the student who should thus determine his/her own fate. The next section presents the second theoretical framework that underpins this study.

2.3 CULTURAL-HISTORICAL ACTIVITY THEORY

This theoretical framework of Cultural-Historical Activity Theory (CHAT) was used to frame the study on the use of ICT for the learning of SwBs. Propounded by Lev Vygotsky (1933, 1978); it was introduced as a subject-object-tool combination. Vygotsky is well-known for having propounded psychology-based theories that focused on the processes taking place inside the human mind. Prenkert (2010:643) postulates that the main idea promoted by CHAT is the idea of mediation that is the epitome of human consciousness and actions. Vygotsky (1978:40) argues that for human activity to take place there needs to be an established structure in which mediation tools are going to be used, whilst according to Amory (2012:2), CHAT requires that the learning activity adopt a user-friendly approach when working on the object and careful thinking about the role of technology.

Roth (2007:655) however warns that no mediation process is linear or one-sided, but rather all the actors should be able to play a relevant and active role. Vygotsky (1978) proposes that not all human activity is mediated by the same tools, but that they may be cultural, psychological or technological. Mediation tools at times are determined by the specific needs, knowledge and skills of mediatees (learning

andragogies), and this will apply to SwBs. Specific individual cases require ICT mediating tools that are used to facilitate the processes in ODL. Vygotsky (1978) saw mediation artefacts as existing in the environment, for example tools, signs, subjects and objects, and argued that interaction between these would lead to an outcome. CHAT focuses on culture and society (external factors) and how they interact with human activity. It is a useful framework to use to analyse activities because, as Kaptelinin and Nardi (2006:31) argue, it is mainly about the interaction between the *subject* (S) and the *object* (O). They contend that an activity is different from other forms of activity because of certain distinct features, namely that the subject should have needs to be fulfilled within the activity and that both the activity and the subject should interact with an aim of fulfilling the need (object).

In revisiting the seminal theories that underpin distance education, Birochi and Pozzebon (2011:10) point out the importance of mediation theory in ensuring that there is effective communication within distance education. The mediation theory is a mechanism that has actors who should conform to an organisational structure for communication to take place effectively. I argue that Birochi and Pozzebon's proposition has a direct link with the CHAT theory, which is also based on mediation processes; however I will not discuss the mediation theory in detail.

CHAT as a theory pertains to psychological, cognitive and learning systems (Miettinen, Samra-Fredericks & Yanow, 2009:1317), and as all-encompassing it ensures that all the elements of an activity know their roles and account for them, thus creating a cultural trail of how to work towards achieving desired goals. Table 2.1 (below) depicts the way CHAT frames this study, each element of which is assigned to one in the current study.

Table 2.1: The elements in the activity system of the use of ICT for learning

Element	An example of the element
Subject or actor	The SwBs
Outcome	Positive learning experiences at UNISA
Object/motive	The use of ICT for learning

Tools/Instruments	Information and Communication Technology, curriculum
Rules	Rules that guide the facilitation of learning for the SwBs, e.g., UNISA ODL policies, Universal Design for Learning and UN Convention for Persons with Disabilities
Community	Academics, ICT personnel and other support staff
Division of labour	Roles in teaching and learning and supporting SwBs through ICT

In the case of this study, the educational actors using ICT as the mediation tool would keep track of how they work towards giving the SwBs positive learning experiences. In accord with critical theory ideologies the SwBs will also need to be involved in directing how they want their learning activity mediated.

Luria (1976), another prominent originator of CHAT, looked at the role of language in the organisation of objects within the environment, after which Leont'ev (1981) worked with Vygotsky (1978) to foreground CHAT as an activity beyond individual contribution. He argued that the community and the different roles it plays (division of labour) has a collective impact on the activity. This makes CHAT more systemic and holistic in its approach. The first phase of CHAT is known as the First-Generation, developed by Vygotsky (1978) and based in the idea that all human action is mediated through artefacts. At this stage the theory could be used to analyse the individual (*subject*) within an activity (Beatty & Feldman, 2012:285), but this posed a limitation to researchers who wanted to analyse the activity beyond the individual. Alexei Leont'ev (1981) then addressed this limitation by developing the Second-Generation (illustrated in Figure 2.6 below). This stage takes as the activity the relationships between the people (*subject*) and the community in which they live and their history. The second phase of CHAT looked at the interplay between the *subject* (individuals), the community, the rules, division of labour, the activity, and the historical and cultural aspects. Leont'ev (1981) argued that CHAT is about the subjects, the way they mediate with the instruments and the objects to achieve the desired outcome. He insisted that all human actions make sense when looked at from a specific context. However, Engeström (2001:135) pointed out that Second-

Generation CHAT is unable to help “understand dialogue, multiple perspectives and networking of individual activity systems.”

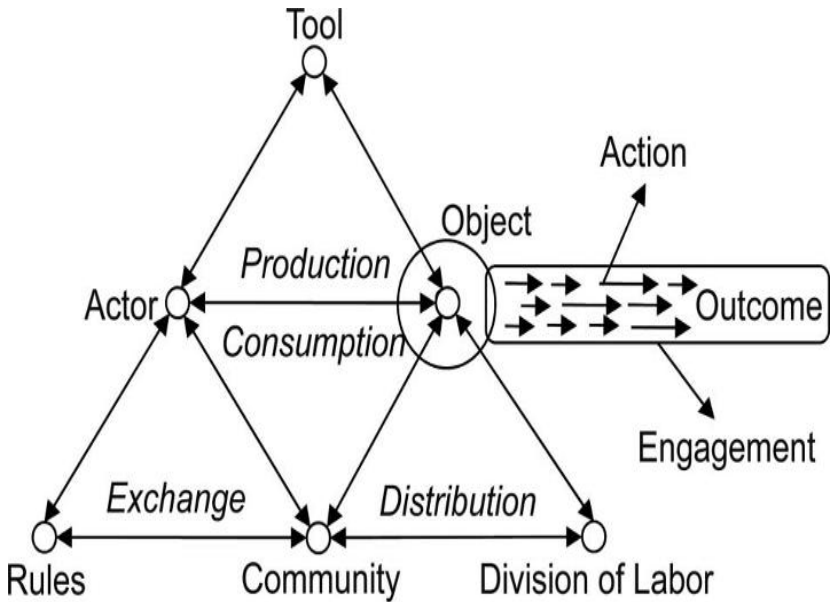

Figure 2.6 Second-Generation CHAT illustration by Engeström (1987: 8)

Engestrőm developed the Third Generation CHAT (illustrated in Figure 2.7 below), to include networking systems with joint object and challenges (Nussbaumer, 2012:40; Amory, 2010:70). CHAT is normally used to interrogate learning development proportions as opposed to the usual customary dimensions and as Engestrőm (1987:37) posits, it provides “bridges between imagined, simulated and real situations that require personal engagement with material objects and artifacts (including other human beings) that follow the logic of an anticipated or designed future model of the activity.”

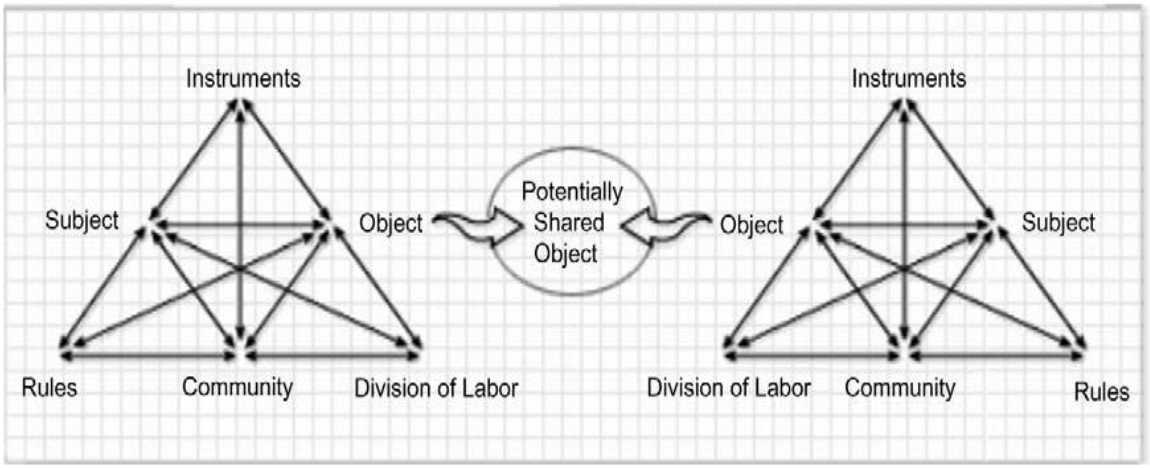

Figure 2.7: Third-Generation CHAT (Center for Activity Theory and Developmental Work (n.d.:3)

This theory frames the way ICT is used to facilitate learning for SwBs. In this study CHAT is used to understand how SwBs use ICT (*instruments/tools*). It was also used to unpack the rules guiding the learning activities, which include the UNISA ICT, ODL policies, and other guiding documents. It further looks at how the community (academics, administrators and other support staff) applies the rules in mediating learning. Lastly, it addresses how the *object* mediates through ICT to achieve the outcome. Kaptelinin and Nardi (2006:36) argue that the main root in CHAT is the word 'activity,' which according to Quek and Shah (2004:222) means purpose-driven, transformation-driven and interaction-driven learning.

It is suitable for this study because it allows for easy and recordable tracing of processes involved in facilitating higher education for SwBs, as well as looking at multifaceted situations (Nussbaumer, 2012:37) such as this research, where it takes different role-players to design and deliver learning through the use of ICT. As much as the third phase of the CHAT mostly applies in the analysis of organisations and larger institutions (Nussbaumer, 2012:39), I used it to frame this study because of the different role-players and levels that all contribute towards mediation of the SwBs' learning experience at UNISA and how they are constructed.

2.3.1 Principles of Cultural-Historical Activity Theory

Engeström (2001:136) presents five principles of CHAT (Beatty & Feldman, 2012: 286), as outlined in this section.

Firstly, the system is a collective, that is one should look at the mediation of the tools and objects and "interpret the background of the entire activity system" (Engeström, 2001:136). In the case of UNISA, that it is an ODL institution means that there are many people involved in the process of ensuring that the learning of the SwBs takes place, including administrators, academics, ICT personnel and other supporting staff. All these people should fulfil their assigned role so as to ensure the smooth running of the ODL learning system.

Secondly, it is important that all the voices and views of the actors involved in the activity system should be heard. In this particular case, the SwBs should be given an opportunity to share their prior knowledge and learning style, and be able to link these with the learning goals. Nussbaumer (2012:9) and Engeström (2001:136) assert that knowing the students' background can assist in creating positive learning experiences.

Thirdly, according to Beatty and Feldman (2012:286) and Engeström (2001:136), it is important that all the actors understand the history of the problem being addressed as this helps them to be better prepared to solve it. In the case of this particular study it is important that the actors have background knowledge on how the SwBs learn and how they can improve as distance learners. I argue that the best way of knowing how the SwBs learn is through continuously engaging them and making them the driving force behind creating positive learning experiences.

Fourthly, for any system to work effectively it must first undergo challenges which serve as springboards for better ideas and approaches towards smooth running of the system. Therefore, the first step towards bringing positive change is to acknowledge challenges and hiccups in the learning activity (Beatty & Feldman, 2012:286; Engeström, 2001:137). In the case of UNISA and the SwBs, the actors should acknowledge if they have not taught blind learners before and therefore have limited knowledge on how it is done. As Fraser and Maguvhe (2008:85) stated, most teachers "are not aware of what should be done to accommodate blind and visually-impaired learners," so more efforts should be made to acquire knowledge and skills on how to teach SwBs. Knowing challenges beforehand opens opportunities for innovation.

Fifthly, as the world is dynamic and ever-changing, actors should expect the unexpected, and changes can be brought about by challenges and uncertainties that arise. Beatty and Feldman (2012:286) and Engeström (2001:137) point out that expansive change might be born out of rethinking and refocusing the goals of the activity. In this particular case it is important for the actors within the UNISA learning activity to accept that there will be fast and continuing changes in the way that ICT is

used for teaching purposes. They should equip themselves with adequate skills to attend to diverse groups of students equally.

2.3.2 Linking Cultural-Historical Activity Theory and the use of information and communication technology in learning

Cultural-Historical Activity Theory (CHAT) was considered suitable to frame this study because it provided me with the conceptual tools needed to look closely at the nature of the objects being researched and the use of ICT. According to Roth and Lee (2007:191) it is “an accommodating framework rather than a neat set of propositions.” Since most academics, administrative and support staff have limited knowledge of how to deal with the SwBs, who themselves are new to the ODL environment, each has to be flexible and prepared to learn for the sake of progress. CHAT is also suitable because it allowed me to probe the role of the tools in the continual learning activity (Nardi, 2012:8). Wilson (2006) substantiates the applicability of CHAT as a theoretical framework that makes it possible to understand more profoundly the use of information and information needs, whilst Roos (2012:n.p.) argues that the use of CHAT allows one to examine problems that combine different areas. This study is of such a nature because it looks at the use of ICT in the learning of SwBs which covers different areas, including academic, administrative, technical and learning support roles. Roos (2012: n.p.) points out that most studies are systems-oriented, meaning that they examine the impact of the tools without looking at the user dimension (students). Similarly, this study is more user-oriented and holistic in approach.

The use of ICT for learning purposes is considered a focused, transformative, dynamic and developmental activity which needs student-centred monitoring and evaluation. CHAT is appropriate for analysing human activity according to needs and objectives, and I argue that its use is appropriate for analysing learning activity according to the students’ learning needs and goals. CHAT is relevant in framing this study because it affords me a holistic view of the phenomenon under scrutiny. According to Allen, Karanasios and Slavova (2011:778), CHAT provides a good framework for studies of technological and information practices because it explains the mediation of different activities within an activity and allows for the development of practical solutions towards the realization of the outcome. There are many role-

players involved in a student's learning, but if one of them does not fulfil his or her role it affects the entire experience. All the role-players should therefore work towards ensuring that the students gain access to higher education without any barriers.

2.3.3 The applicability of Cultural-Historical Activity Theory to this study

The activity theory dictates that during an activity the *subject* should have a purposeful mediation with the *object*, and the interaction between the two leads to the outcome (Roos, 2012: n.p.). The next section illustrates the applicability of CHAT to the activity of learning through ICT at UNISA.

2.3.3.1 Mediation between the subject and the object

The main activity taking place in this activity system illustrated in Figure 2.2 (above) involves the SwBs (*subjects*) and the *object*. The two are involved in the learning activity of learning mediation through the use of ICT with the goal of creating positive learning experiences for the SwBs. Inside the activity triangle there is implicit mediation (Nussbaumer, 2012:43) happening, and although it might be difficult to see, the SwBs are aware of its effects. This implicit mediation happens through the division of learning courses that are delivered through the use of the *tools* (ICT). The main focus would be on how it can be ensured that the different role-players within the learning activity make appropriate and maximum use of ICT to provide positive learning experiences of the SwBs. This research touches on different actors (tools, community, rules, and division of labour), with the focal point being the SwBs (*subjects*) and how they use the tools (ICT).

2.3.3.2 Object-driven activity

Engeström postulates in Illeris (2009:64) that the *object* should always be the focal point in an activity, and that object-driven activities are usually characterised by uncertainty, different interpretations, meaning making and opportunities for change (Illeris, 2009:64). In this learning activity the *object* is the use of ICT for the learning of SwBs at UNISA. Learning through ICT should happen in such a way that it encourages a fruitful engagement between the SwBs and their learning material. In

making the *object* the focal point there should be careful consideration given to proper interaction between the actors and the *subject* (*mediation*). It should also enable the SwBs to easily access their learning material and learning environment. The learning environment could be in the form of the *my*Unisa discussion forum, videoconferencing, podcasts or any other technology-enhanced media. The use of any of the ICT tools should facilitate or mediate achievement of the desired goal of affording the SwBs' access to learning.

2.3.3.3 Tools in the mediation role

UNISA is in the process of going fully online, hence the medium of teaching and learning will be ICT tools. An important aspect to note about this is that the SwBs make use of the same ICT used by the sighted students, but the software to enable them to access the information is different. In addition, the SwBs have specific devices that help them to convert normal text to other accessible formats, as discussed in detail in Section 3.2.3. They use computers with speech such as *JAWS*, interfaced speech synthesisers, closed-circuit television (CCTV), taped materials, reading machines, talking machines, Braille text, talking calculators, instruments with auditory (and not visual) readings, and touch and voice-based interfaces (Fraser & Maguvhe, 2008:85). It is therefore important that differences in the information access are taken into consideration when designing their curriculum and planning for ICT integration (Beatty & Feldman, 2012:292). UNISA makes use of tools such as the *my*Unisa discussion forum (Van den Berg, 2012: 71), videoconferencing (Wilson, 2004:1), vodcasts (Greeff & Barker, 2012:170), e-portfolios (Prinsloo, 2011:6) and electronic mail (e-mail) to facilitate interaction between the students and the university.

2.3.3.4 Rules in the activity

This learning activity also has rules that guide it, for example, the Open Distance Learning Policy which mainly pledges UNISA's preparedness to cater for students with diverse needs by accessing learning material through tactile means (Braille) or through audio means (*JAWS*), to promote social justice and to address the inequalities of the past (Unisa ODL Policy, 2008:1). They also include the draft ICT 5-

year plan and strategy 2011-2015, which mainly guides the university stakeholders on how to integrate ICT in ODL so as to ensure effective teaching and learning (Prinsloo, 2011:3). Another rule that guides this learning activity is the UNISA Curriculum Policy.

2.3.3.5 The role of the division of labour

This learning activity also includes the division of labour, which needs to be carefully monitored. Delegating specific, clear and feasible tasks to the actors will ensure that the SwBs are able to have positive learning experiences. This can be achieved through continual monitoring and evaluation of the c*ommunity (*staff) performance through eliciting students' learning experiences (Mabunda, 2010:224). The actors need to realise that the UNISA system is interconnected and necessitates clear actor responsibilities and reporting mechanisms (Beatty & Feldman, 2012:290). In the case of this learning activity the division of labour is mainly about sharing responsibilities and being sufficiently responsible to ensure that students get good quality service. This in turn will give them the outcome of positive learning experiences. Figure 2.8. (below) presents the CHAT as it applies to this study. Each element of CHAT is assigned a role that it plays in the activity.

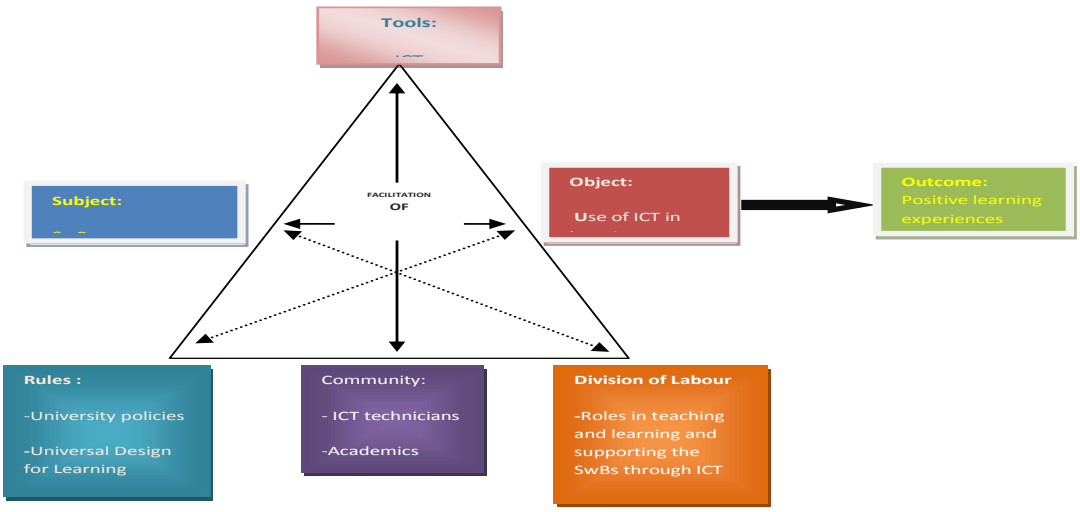

Figure 2.8: The Cultural Historical Activity Theory as it applies in this study (Adapted from Engeström, 1987: 78)

2.3.4 Critique of Cultural Historical Activity Theory

As much as Roos (2012:n.p.) argues that for positive change to take place there should be contradiction\ and tensions within the learning activity system, I argue that there should be a way to ensure that the tension and contradictions do not affect the students. Distance education proponents (Guri-Rosenblit, 2009:106; Fraser & Maguvhe, 2008:84) emphasise the loneliness or social isolation that the distance students experience, and the current study shows that this is worse for the SwBs. Therefore, any unclear instructions, contradictions and tensions (Roos, 2012: n.p.) without constant interaction with the SwBs could cause more confusion for them. The more the SwBs are confused and feel lonely the greater the chances of negative learning experiences, and consequently non-degree completion leading to dependence. Taylor, Sharples, O'Malley, Vavoula and Waycott (2006:141) found that CHAT does not address the learning scenario adequately, claiming that it does not fully highlight the processes of learning through technology.

The next section presents the third theoretical framework that underpins this study, namely the Universal Design for Learning.

2.4 UNIVERSAL DESIGN FOR LEARNING

Originally called Universal Design (Ralabate, 2011:n.p.), Universal Design for Learning (UDL) came about as an objective to afford access to education for diverse learners (Orkwis & MacLane, 1998:7). This theory is used to frame the inclusive integration of ICT to facilitate teaching and learning in an ODL setting. It was originated by architect Ronald Mace, who was using a wheelchair (Mace, 1998:23) and who created Universal Design (UD) to address physical barriers which prevented people with disabilities from freely accessing their desired spaces (McGuire, Scott & Shaw, 2006:167). The main objective of UD was to encourage design professionals (architects, landscapers, interior designers) to design for diverse users. They were prompted to ensure that their designs catered for children, the elderly, people with disabilities, pregnant women and any other person with ability different from the norm (McGuire, Scott & Shaw, 2006:2). In this study the UDL is used to highlight the need for ICT to promote teaching and learning of students with diverse needs.

Due to the appeal of UD, such as captions on films for people with hearing impairments or in noisy areas such as airports and buses (McGuire, Scott & Shaw, 2006:167), UD was adopted for educational purposes and termed Universal Design for Learning (UDL). The concept arose in 1998 with an aim of escalating the proactive design approaches in curriculum development (McGuire, Scott & Shaw, 2006:169). Center for Applied Special Technology (CAST), the pioneers of UDL, mainly worked on "promoting access, participation, and progress in the general educational curriculum for all learners" (McGuire, Scott & Shaw, 2006:169). In their promotion of fully accessible curriculum CAST also develops digital learning tools (McGuire, Scott & Shaw, 2006:169) that can be used to teach learners with different learning needs and styles (Ralabate, 2011:n.p.).

In South Africa, The Higher Education Opportunity Act of 2008 pronounced UDL as a logical plan that could lead to best educational practices. According to Ralabate (2011:n.p.), UDL is a product of human rights and special education legislation, both of which promoted the design of education in a way that would promote access to education for students with diverse needs. The problems brought in by non-usage of UDL call for change in the way the curriculum is designed, allowing learning design to be presented in a flexible way that allows all types of students to actively engage with the curriculum, hence minimising barriers to learning (Rabalate, 2011:n.p.).

I have read and understood UDL to determine how ICT is used for the learning of SwBs at UNISA. It promotes the design of usable products and provision of services to all human beings, as a proactive rather than reactive design. I contend that the application of UDL in a learning environment requires the teacher and the academics first to accept that not all students learn in the same way but need to understand that using UDL is not extra work but that addressing diversity beforehand will avoid delays. These delays could be caused by last minute efforts to retrofit the curriculum to accommodate all students (Ralabate, 2011:n.p.). Ralabate (2011:n.p) suggests three preliminary steps should be followed when applying UDL within a learning environment, discussed as follows.

2.4.1 Identifying significant and appropriate goals

Identifying significant and appropriate goals involves thinking carefully about the practical benefit of the knowledge or skills that the teacher wants the students to acquire and that should be appropriate to them. As in the case of a student with blindness who is doing a course in Social Work, the student can use ICT in the form of a digital recorder to record their field notes and get them transcribed to text for reporting purposes instead of transcribing them manually. Teaching students about alternative data collection tools would benefit both the SwBs and the sighted students.

2.4.2 Appraise various learner needs

This step involves using different student-centred techniques to understand the students' prior knowledge, learning styles, strengths and weaknesses and other aspects that will enhance the learning process. Knowing the different learning beforehand helps the teachers with curriculum design, delivery and assessment in a universal manner. For example, knowing that there is a student with blindness and hearing impairment in the class leads the teachers to provide an alternative to the graphic element of the course, for example captions on the *PowerPoint* presentations. In accommodating students with disabilities, they also benefit from knowing alternative ways of teaching and learning.

2.4.3 Evaluating barriers within the existing curriculum

UDL requires teachers to engage with the current curriculum and ascertain that there are no barriers within it. Fraser and Maguvhe (2008:1) recommend that teachers refrain from designing curriculum based on visual approaches to learning. Ralabate (2011:n.p.) encourages teachers to refrain from focusing on identifying each student's learning difficulties whilst focusing on removing various kinds of barriers in the curriculum so that it accommodates diverse learning needs. Ralabate (2011:n.p.) it was revealed that instead of lecturers of one course designing the course with UDL principles in mind they would discourage any student with blindness from registering for the course. The students reported that these lecturers would blatantly refuse them

registration, stating that they could not manage to do the course because they were blind (Ralabate, 2011:n.p). This is a typical example of having the students fit into the curriculum rather than having the curriculum facilitates learning for students with diverse needs.

2.4.4 Universal Design for Learning principles

Also known as “design for all, barrier free design or inclusive design” (Seale, 2006:268), Universal Design for Learning (UDL) encourages course, device, system and process designers to design with disability in mind such that their products can serve both people with and without disabilities. The UD principle regarding images requires the designers to avail ALT tags for all images used (Thompson, 2005). This principle not only benefits the users with blindness but even those who cannot afford to download the images, which includes those with handheld devices, those with text-based browsers and voice-based system users. Secondly, UD principles require that all course and system design should not need modifications or adaptors to work. With regard to disabilities, Thompson (2005) recommends that all designs be attuned to those who use ICT assistive technologies, and that UD be about the designing of technology, products and services to accommodate the needs of a majority of prospective users without making any adjustments.

However, proponents such as Vanderheiden (1996) and Bohman (2003) call for a design that caters for the majority. Vanderheiden (1996) argues that there are not ‘universally designed products’ but rather universal design as a process which brings about practical and functional devices, systems and processes for different groups of people. Bohman (2003) states that although images are not necessary when designing for people with blindness, they do no harm as long as text alternatives are provided. Images may also be formatted in such a way that they have audio tags that tell the students what is on the picture. Ralabate (2011:n.p.) is of the view that universal design should not be centred on making technology accessible but more about people and their specific needs. This argument is more practical in a learning institution, in which the SwBs have declared their disability and clearly specified what their needs are. It is also possible to take care of these needs when the academic staff members have the expertise on how to facilitate learning for students with and

without disabilities. UDL is a framework that addresses the learning needs and goals of all students. These learning networks form the three principles of UDL, discussed as follows (Ralabate, 2011:n.p).

2.4.4.1 Provide multiple means of representation

Ralabate (2011:n.p) discusses this principle by expanding the task of provision of multiple means of representation through making use of ICT to customise the way information is displayed. This involves the provision of alternative representation through auditory information for the SwBs and visual information for the students with hearing impairment. In the case of language and symbols used there should be proper definition of vocabulary and symbols used, whilst mathematical and scientific language ICT can be used to decode and clarify key concepts (Ralabate, 2011:n.p.). It is also important that learning content be presented in such a way that it activates prior knowledge, emphasises critical features and the way they relate to the learning outcomes, and enhances meaning-making and the practical application of knowledge or skill (Ralabate, 2011 n.p.).

2.4.4.2 Provide multiple means of action and expression

In the case of SwBs one has to think carefully about the activities the student should perform as part of learning. Ralabate (2011:n.p.) postulates that the tasks to be performed, the way the student is expected to navigate around the learning environment and the way in which he or she is going to make use of ICT needs to be considered carefully. It is also essential to ensure that students have good command of their communication, composition and problem-solving tools (Bocconi & Ott, 2013:330; Ralabate, 2011:n.p.).

2.4.4.3 Means of engagement

UDL should be applied in such a way that it gives the students a variety of choices on how they want to learn while still conforming to the set learning outcomes and objectives. Ralabate (2011:n.p.) highlights the importance of learning environments that centre on significant and authentic learning with different levels of learning

demands and support. The students should be able to make use of ICT to engage, learn and apply the learnt knowledge in real life. Another important element of facilitating means of engagement is the provision of opportunities for self-regulation which would reduce social isolation and help the SwBs cope well with ODL (Ralabate, 2011:n.p.).

Reeves, Herrington and Oliver (2004:55) outline nine indications of what a learning environment should have, which are: 1) authentic tasks that have real-world relevance; 2) learning tasks that are ill-defined and include a number of subtasks; 3) complex learning tasks that require students to undertake complex investigations; 4) a learning environment that provides the students with an opportunity to investigate the tasks from different perspectives; 5) provision of collaborative and reflective opportunities; 6) integration across different subject areas; 7) assessment that is integrative; 8) possible products that include more than one iteration; and 9) allowance of competing answers and solutions.

2.4.5 Accessibility and usability of Information and Communication Technology

Central to the discussions on universal UD is how learning designers understand accessibility and usability of ICT. Fichten, Asuncion, Ferraro and Wolforth (2009:550) assert that accessibility has no meaning without usability, meaning that they both depend on each other. The researcher is not going to make a judgement of what matters more than the other, but rather discuss both the concepts and see how they relate to the findings from the field. Shaw (2000) stresses the importance of thinking of accessibility in terms of access to the curriculum. The researcher wishes to extend this idea into thinking of accessibility in terms of how ICT is used to facilitate access to curriculum and mainly enable effective learning. Shaw (2000) argues that academics need to think more and be supported in their effort to design and deliver effective learning to a diverse student population. In bringing about accessibility, three approaches are put forward, namely, universal, instructional and holistic design. Seale (2006:71) argues that universal design entails “designing curricula that aim to include the whole student population from the outset... this is forethought rather than an afterthought.”

The Centre for Universal Design at North Carolina State University suggests seven principles of universal design: 1) equitable use; 2) flexibility in use; 3) simple approaches; 4) intuitive approaches; 5) perceptible information; 6) tolerance for error; 7) low physical effort and size and space for approach and use. Burgstahler (2002:5) sees universal instructional design as the creation of instructional materials and learning activities that enable the students to realise their learning objectives, regardless of the difference in their learning abilities. However, Seale (2006:273) criticises universal instructional design for taking a uniform approach to differing situations.

Different authors view holistic design differently, for instance, Schenker and Scadden (2002) state that it should consider collaborative pedagogy before accessibility when designing for learning, with an aim of availing accessible learning experiences for the students. Some view accessibility in relation to technical access to ICT tools. Iwarsson and Stahl (2003:59) and Richards and Hanson (2004:73) argue that usability is about the way the users experience the designed products and whether they satisfy their needs. Brajnik (2000) states that usability is an effective, efficient and satisfactory approach to learning facilitation which aims at ensuring that learning objectives are achieved. Nielsen and Pernice (2001) call for the serious engagement of users to guarantee universal accessibility, whilst Brajnik (2000) warns against tendencies of higher education stakeholders to make access to higher education for people with disabilities a legal matter. They instead suggest that it is presented as an issue of ICT best practice, educational and social justice and equity.

2.4.6 Universal Design for Learning and how it conceptualises this study

UNISA has a wide range of students with different learning styles, visible and invisible disabilities, and different educational and socio-economic backgrounds. This then requires that the course instruction, materials and content accommodate all without adaptation (Universal Design, online). This calls for a proactive approach to learning design with or without the use of ICT to facilitate learning. It requires that one has working knowledge of how to design accessible learning. Using UDL approaches avoids reactive learning design approaches which make the students feel as though

they are an afterthought. The use of UDL is a crucial element in an ODL environment in which the students need to be self-regulating due to the physical distance between them and the lecturers. They need to understand themselves and how they learn so that they are able to effectively use the available technologies to engage with their learning materials and seek learning support accordingly.

2.5 CRITICAL THEORY

Critical Theory was propounded by Max Horkheimer in 1937 with a descriptive and normative approach to social inquiry (Hosking, 2008:2). Horkheimer posits that Critical Theory is a good base for studies questioning domination as the crux of the study, whilst Morrel (2009:101) asserts that Critical Theory is useful when challenging the dominance that exists within institutions. The researcher argues that Critical Theory should be used when integrating ICT for learning; this means that one should think about diverse learning needs. The core principles of critical theory are that the study should be looking at a problem that affects a society and should aim at emancipating the oppressed society; in the case of this study the SwBs. Critical Theory promotes research that questions oppression and finding ways of emancipating the oppressed. This research aims at challenging oppression at both the conceptual and the institutional level.

In this study the unequal distribution of benefits is in the use of ICT that does not afford the SwBs positive learning experiences. Literature reviewed reveals that teaching SwBs and students with other disabilities requires one to have specific skills and a positive attitude towards people who are different from the norm. Villegas (2007:372) argues that once the teacher believes the student is capable of learning and excelling in studies there will be unbiased treatment, leading to successful learning and positive learning experiences.

Bohman (2010:n.p.) posits that SwBs should refrain from accepting the educational services they receive as acceptable without critically scrutinising them and making sure that they serve their learning goals. He argues that Critical Theory is a proper lens for questioning issues of oppression and discrimination. According to Lather (1992:89), Critical Theory is normally used by researchers who are concerned about

issues of social injustices and how the societal practices and setup perpetuates them. An example is cultures that continue to project SwBs as helpless beings who can only know the world through the approaches of sighted people. According to Kincheloe and McLaren (2005:304), these attitudes are not damaging until the people with disabilities start accepting them and their "social status as natural, necessary, or inevitable." Once such status has been accepted and continues to be tolerated, students with disabilities will take longer to complete their degrees, they will not adhere to deadlines and might even submit substandard work. Horkheimer (1993:13) argues that Critical Theory must be used in an explanatory, practical and normative way, meaning that anyone using it should identify an authentic problem that exists in the research context, identify the change agents and suggest realisable paths to the transformation agenda. The suggested path to transformation is the regular seeking of the SwBs' learning experiences. It is important to solicit the learning experiences of SwBs and collectively work towards empowering them. This will make the SwBs feel that they have not been discriminated against, but rather that they have contributed to the development of equitable access to education.

In arguing for critical discourses, Denzin in Denzin, Lincoln and Smith (2008:943) propose that Critical Theory is aligned with the principle of *Whakapapa,* which embraces a holistic view of the world whereby everything is interrelated. The meaning to be extrapolated from the term is that if one aspect of society is affected the entire society feels the effect too. Kaupapa Māori, the proponent of the *Whakapapa* principles, encourages critical researchers to be guided by the following eight questions (Smith, 2000:239): 1) What research do we want done? 2) Who is it for? 3) What difference will it make? 4) Who will carry it out? 5) How do we want the research done? 6) How will we know it is worthwhile? 7) Who will own the research? and 8) Who will benefit? Smith (2000:229) posits that responding to these questions gives the oppressed greater control over their own lives, but that using the eight questions effectively to guide one's research also requires the use of the moral and human rights lenses. The eight principles necessitate the critical researcher asking him/herself three crucial questions, which are: 1) Who is this work for? 2) What right do we have to undertake it? and 3) What responsibilities come with it? In my case I have conducted this study for and with the SwBs as a scholarly exercise which will make their learning experiences known. There is a saying used by people with

disabilities, ‘nothing about us without us’. With this in mind the research design that was employed did not take away the right of the SwBs to tell their story.

Critical theorists such as Michel Foucault, Hannah Arendt and Paulo Freire also looked at the way society controls individuals, the nature of power and how authority is used to include and exclude people. Their ideas are used in this study to look at how the SwBs are excluded through exclusionary use of ICT in teaching and learning. In the next paragraph, I examine their views and relate them to the learning experiences of SwBs.

2.5.1 Michel Foucault

A French born proponent of Critical Theory, Foucault has written widely to promote the idea of opposing the influence of societal power (Foucault, 1975; Hoy, 1986). According to Lemke (2002:50), Foucault thought and deliberated on issues of how power is used over the powerless and how those ruled over can mobilise to stand against societal influence. His thoughts identify with this study which stands to explore how the SwBs learn through ICT. Getting answers to this research question is crucial because it will inform the ODL institution on how to best integrate ICT for teaching and learning. Reflecting on how ICT facilitates their learning will allow the SwBs to take control of their learning experiences. Foucault calls this being true to oneself regardless of how society constructs one. As will be seen from the data collected in Chapter 5, most SwBs have grown up being perceived as helpless beings due to their impairment, but Foucault would argue that they can and should question the labels they are given by society.

Growing up during the unstable times of World War II, Foucault believed that it was impossible to have order within society. However, I argue that it is possible to have order in the 21st century but that the way the society is organised does not accommodate people with different abilities. Society is designed by sighted people for sighted people, and common, easy to use and cheaper ICT tools are designed by sighted people for sighted people. On the other hand, Assistive Technologies (ATs) are on the market but very expensive and not easy to maintain unless by a specially trained person. In his works on *Madness and Civilisation* (1973) and *The Birth of the*

Clinic written (1975), Foucault highlighted the way differently abled people are turned into objects of scrutiny and medical practices. In a related study conducted at the University of KwaZulu-Natal, Kasiram and Subrayen (2013) report that the students with visual impairments said how they were regarded as stupid because they moved around with gadgets (ICT) to help them learn. They even went to the extent of disabling the audio functions in the shared computers within the Learning Area Network (LAN). He saw this as a power scenario in which those who think and do things differently are considered and labelled 'insane' because they do things differently from the norm. He posited that those with medical knowledge turned the bodies and minds of the medically illiterate into objects of tests that warranted correction so as to fit into the 'normal' society. This idea is echoed in the medical model of disabilities which was phased out when it was realised that it disempowered people with disabilities.

However, some authors criticise Foucault's theory for disregarding legal and societal norms, for example Hoy (1986:135) who states that he failed to see clearly that "the problem is that the legal means for securing freedom also endanger it." This argument relates to the inclusion as exclusion discussion, which highlights that some people have a perception that by including students with disabilities one is excluding those without disabilities (Prinsloo, 2001:344).

2.5.2 Hannah Arendt

Born in Germany, Arendt wrote on critical and political theory, for instance on the nature of power, authority, totalitarianism and politics. According to Arendt (1958:7-9) society comprised unique beings that together form a structured unit. She also argued that the rules leading to freedom were not automatically there but needed to be constructed by members of the community (Arendt, 1958:32-33). This study makes the same argument that there is a need for academics to be mindful of how they integrate ICT into learning such that the SwBs can also learn effectively. In *The Human Condition* (1958) she discussed the difference between political and social dynamics, labour and work, and the connotations that these bring. On the construction of rules that govern society she wrote that they were made by a few powerful members who aimed at creating a common world (Arendt, 1958:39-40).

This power of the elite over society is also addressed by Foucault (1972/1977). As much as Arendt's discourse touches on social issues, she aligned herself with the political discourse which she argued was more existential and easily identifiable. A discourse on how to best use ICT to facilitate for inclusive teaching and learning is very much needed by UNISA students who have no lecturer to attend to all their learning needs, but rather use the available ICT tools to facilitate learning.

I argue that existentialism might not be possible for the people with disabilities if the societal setup is exclusionary and does not allow them to be who they want to be without extra assistance. Arendt points out that for people to have progressive lives they need to search for answers from within themselves, examine their lives through their real learning experiences and direct their path towards change.

Arendt (1958:72) made progressive statements with regards to disability and the rights of people with disabilities. For instance, she argued that since people with disabilities are a critical illustration of "universal human frailty" (Siebers, 2007:n.p.) they should have access to fully respected human rights. Though she based her arguments on the rights to political participation, I use the same argument for full access to disability-friendly and self-directed higher education. Her other notable contribution is her argument that human rights are at risk when people do not recognise international law and tenets of humanity (Arendt, 1958:46). This is the reason most countries that recognise the rights of people with disabilities have signed, and are implementing the United Nations Convention for People with Disabilities (UNCRPD, 2006).

2.5.3 Paulo Freire

A Brazilian philosopher, teacher and political activist who fought oppression through education, Freire (1972) promoted non-oppression in society. Freire asserted that education should not be viewed as a neutral act but rather a political one that seeks to promote power and value interests. ICT should also not be viewed as an add-on but as a powerful tool that can facilitate digitally inclusive teaching and learning. Although Freire (1972) focused most of his thoughts on eliminating oppression in society I adapted his thoughts to an educational context, which also forms a crucial

part of society. In *The Pedagogy of the Oppressed*, Freire (1972) condemns oppression and unjust societies, arguing that they are the cause of dehumanisation of the oppressed (Freire, 2000:43). This statement is in agreement with Devlin and Pothier (2006:1), who asserted that being registered as a student but not being afforded the privileges of being a student amounts to 'dis-studentship.' There is a need for all the learning activities to be designed in such a way that students with different abilities are able to interact with them. Freire (1972) also makes a call which is relevant to the SwBs at UNISA, where arguing that the marginalised should critically reflect on the historical conditions of the educational institution and their learning experiences so that they can transform those conditions to be educationally just. He encouraged reflection on past experiences and believed that they should go hand in hand with action leading to transformation. Freire (1972) promoted the exercise of seeking students' learning experiences, stating that they were instrumental in disclosing oppressive living and learning conditions. He argued that all knowledge construction should not be vague but should have a connection with authentic life experiences of the people (Freire, 1998:36), which resonates with the critical nature of the study. As the aim of this study is to seek the learning experience of SwBs, Freire calls for "new social consciousness... intervention in reality termed *conscientização*" (Freire, 2000:109).

These ideas apply to this study since the SwBs are still marginalised. The marginalisation comes in the form of exclusionary curriculum design and other innovation practices that make it hard for the SwBs to interact easily with their learning material. Freire indicates that:

> *… the struggle to bring dignity to the practice of teaching is as much a part of the activity of teaching as is the respect that the teacher should have for the identity of the student, for the student himself or herself and his or her right to be (Freire, 1998:64).*

Several authors, such as Devlin and Pothier (2006:4), have used Critical Theory to understand the lived experiences of people with disability, but of particular interest to this study are Avgerou and Walsham, who managed to relate it to ICT. Avgerou (2005:106) points out that Critical Theory has not been properly or methodologically

used to problematise the spread of ICT within society. On the other hand, Walsham (2005:112) states that Critical Theory should be used to look for what is not right and to question issues of power, alienation, disadvantaged groups and structural inequality. In this study I use Critical Theory to look at the case study of SwBs and to argue against educational inequality which manifests in the way ICT is used to facilitate teaching and learning at UNISA. Devlin and Pothier (2006:2) suggest that disability is not about provision of medical and health care or being compassionate towards the people with disabilities, but rather about "politics and power (lessness), power over and power to." The two proponents also argue that Critical Disability Theory, unlike other critical theories such as Feminism, Critical Race Theory, Gay/Lesbian/Queer Theory and others provide a fertile ground for questioning the principles of Liberalism, which is an ideology that underpins the organisation of society. It must be appreciated that concerned authorities within the higher education institutions have contributed towards affirmative action in favour of PwDs.

Technology can be used to directly or indirectly empower or oppress people, and as Adam and Kreps (2006:204) note, technological design may be implicated in construction and maintenance of disability. They go on to assert that the segmented way in which Critical Theory has been applied in technological discourses has been the reason ICT continues to be pedagogically inaccessible and not fully useful for the learning of SwBs. In this regard, Cohen, Manion and Morrison (2011) call for critical pedagogy, arguing that approaching learning issues through critical pedagogy will allow lecturers to work together with students on their lived experiences to bring positive change to the learning environment. They warn against institutes of learning imposing a curriculum that promotes inequality in knowledge acquisition amongst the students. Allowing the students to share their experiences on how they experience learning by using ICT will enable UNISA to move from having passive recipients of curriculum to having critical students who actively participate in how their learning takes place.

According to Hollier (2007:19), it is not the disability that dictates how people live in society but the social construct of it. Therefore, at this ODL institution in South Africa it is not the blindness that dictates how the SwBs experience the university but the way the ODL institution in South African society constructs blindness. Researching

the learning experiences of SwBs will give an insight into the way the educational community perceives students with blindness and how they perceive themselves. Kerosuo (2010:1) calls the learning experiences a “fertile ground for [higher educational] change.” The idea of change is echoed by Jayram and Scullion (2000:17), who claim that experiences are good in revealing the physical barriers, and by Healey, Bradley, Fuller and Hall (2006:34), who assert that experiences are the best way of getting to know the hidden barriers. It is hoped that getting to know the SwBs’ experiences of how they learn through ICT will expose the hidden barriers.

2.6 CONCLUSION

This chapter has presented the four theoretical frameworks that underpin this study, namely Transactional Distance Theory, Cultural Historical Activity Theory, Universal Design for Learning and Critical Theory and how these theories frame the use of ICT for teaching and learning. Although they are developed by different proponents from different times they all address issues of how students can best learn through ICT in an Open Distance Learning context. They are student-centred and seek to find ways of how a distance student can learn regardless of distance. They all promote the development of the student as an independent critical thinking being who can use his/her unique abilities to learn and develop. The background of each theory was unpacked and the proponents and principles of each outlined. A discussion on how each theory is relevant to the study was presented. The next chapter provides a discussion of the concepts and literature relating to the study.

CHAPTER THREE
LITERATURE REVIEW ON LEARNING THROUGH ICT

3.1 INTRODUCTION

In the previous chapter the four theories that frame this study were discussed, namely Transactional Distance Theory, Cultural Historical Activity Theory, Universal Design for Learning and Critical Theory, and how each theory applies to the use of ICT for teaching and learning. This chapter presents a discussion on the concepts that relate to the topic under research, that is Information and Communication Technology (ICT) and the policies that promote its use for the learning of students with blindness (SwBs) in the evolution of Open and Distance Learning (ODL). The related literature is also reviewed from Western, Eastern and African countries, before focussing on South Africa specifically and UNISA particularly.

3.2 INFORMATION AND COMMUNICATION TECHNOLOGY CHARACTERISATION

ICT, also known as Educational Technology, has been used for different purposes including learning within schools. ICT should facilitate equitable learning opportunities for all students (Robinson, 2008:6), including both students with and without disabilities. ICT plays a role during the learning process (with provision of accessible learning materials) and the formative and summative assessment processes. UNESCO (2010) stipulates that one should be careful in the process of selecting ICT in the form of Assistive Technology (AT) to ensure that it suits the students' learning goals.

An advantage that ICT has brought to the ODL system is the possibility of learning "anytime, anywhere" (Tinio, 2003:06), as this gives the student a choice of either learning synchronously or asynchronously. *Synchronous* learning involves sharing of learning resources by many learners concurrently, whether in the form of an online chat, teleconference or a discussion forum. *Asynchronous* learning, meanwhile, involves learners accessing learning at different times and at their own convenience. Louw, Muller and Tredoux (2008:42) and Bytheway, Sadeck, Dumas, Chigona,

Chigona, Mooketsi, Rega and Fanni (2010:n.p.) assert that using ICT for teaching and learning improves the quality of education and curriculum delivery. It also affords students an opportunity to access learning materials from distant resource centres, such as online libraries and websites. Kotzé, Wong, Jorge, Dix and Silva (2009:8) warn that when designing learning for SwBs one has to ensure that the experience is comfortable and productive. Amongst the various techniques that are used to ensure students have a positive learning experience and progress in the ODL system are orientation sessions, group tutorials, detailed feedback to assignments, tutorial letters, trial examinations, individual telephonic support by lecturers or tutors and weekend tutorials (Gatsha & Evans, 2010:156). It is imperative that in providing learner support within an ODL setting extra care is taken to ensure that they are creating positive learning experiences. However, as Figure 3.1 (below) indicates, AT may be excluded from the conceptualisation of ICT, in a way that prevents the people without disabilities from learning more about it, and enforces the notion of digital exclusion.

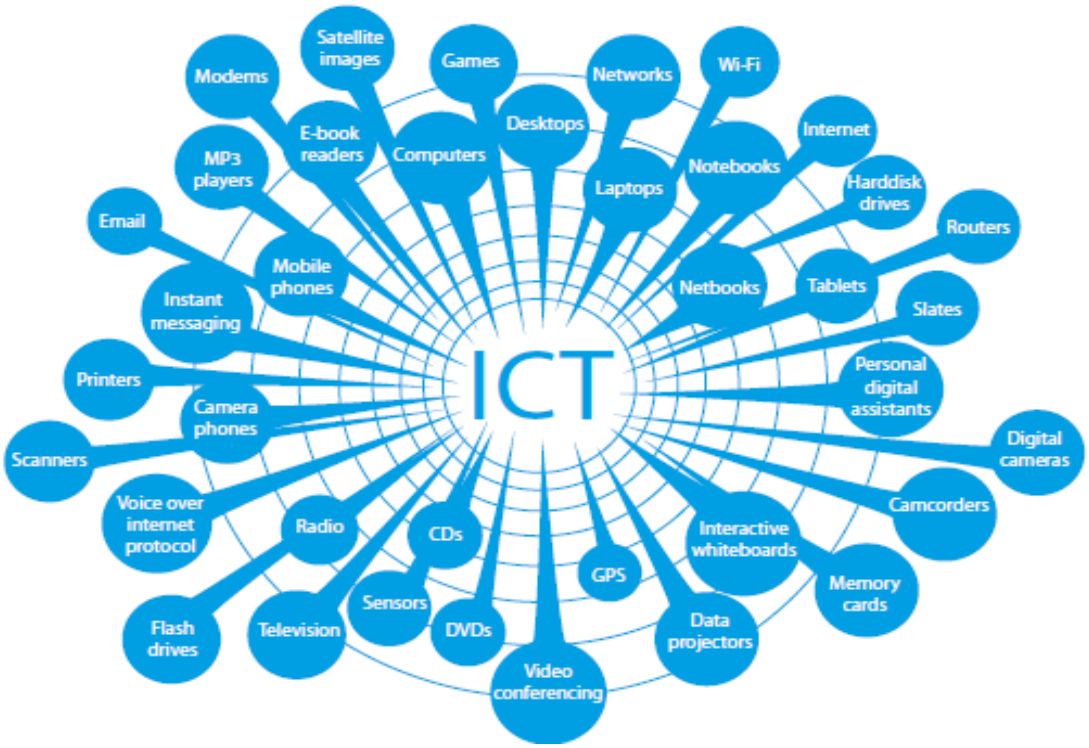

Figure 3.1: The character of ICT (Source: Anderson, 2010:04)

SwBs have long been sidelined in accessing higher education and ODL has been designed to afford them the opportunity to gain quality higher education (Pityana, 2009). This has been done through the extensive use of ICT such as recorded notes,

Braille and, more recently, DVDs, talking and interactive websites, and enlargeable digital texts.

3.2.1 Policies promoting the use of Information and Communication Technology for the learning of students with blindness

This section presents international, national, higher education and UNISA policies that promote the use of ICT for learning purposes. It should be noted that in some cases I could not locate the actual policy but instead was referred to an international policy that regulates all countries as disability issues are normally discussed at international arenas.

3.2.1.1 International Information and Communication Technology policy and people with disabilities

The United Nations Convention on the Rights of Persons with Disabilities (UNCRPD) was adopted by the UN General Assembly on 13 December 2006 to promote non-discrimination, equal opportunity, full and effective participation and accessibility. The key statement relevant for ICT and people with disabilities is within Article 9:

> *To enable persons with disabilities to live independently and participate fully in all aspects of life, States Parties shall take appropriate measures to ensure to persons with disabilities access, on equal basis with others, to the physical environment, to transportation, to information and communications, including Information and Communications Technologies and systems, and other facilities.*

In line with the research problem of this study this policy obliges signatory governments to protect the rights of Persons with Disabilities (PwDs), therefore including SwBs, to higher education. South Africa subscribed to the Convention and therefore has an obligation to enable the SwBs access to ICT facilities.

3.2.1.2 Article 3 of the Convention

Article 3 of the Convention promotes the provision of accessible information to persons with disabilities, to “Provide accessible information to persons with disabilities… design, development, production and distribution of accessible information and communication technologies and systems.” The educational institutions are obliged to adhere to international treaties that their governments have signed and pledged to uphold. This article provides for the design of accessible educational materials, in a universally accessible format, and delivery in an accessible and usable way. The inclusive use of ICT can make this a possibility.

3.2.1.3 The Convention and People with Disabilities

The Convention (UNCRPD, 2006) calls upon all the governments to promote and ensure non-exclusion from the education system, and that the learning environment is genuine rather than characterised by accommodative policies with academic and support staff who are exclusionary in their practices (Kasiram & Subrayen, 2013:70). Reasonable accommodation of the individual’s requirements is provided (UNCRPD, 2006), normally during the summative assessments when the students might require more time to write their examinations. This also applies to giving more time to the students to perform their tasks and availing them of a chance to be set alternative tasks if necessary.

PwDs should be able to receive the support required to facilitate their effective learning (UNCRPD, 2006), from an informed perspective by which the student is not made to feel as though they are not important. They learn life and social development skills to facilitate their full and equal participation in education (UNCRPD, 2006). Since at the end of the higher education they should join the workforce they should be well prepared to deal with society.

Peer support and mentorship can be provided through learning Braille in groups, advising each other on alternative scripts, and augmentative and alternative modes. Opening opportunities to teach each other, and providing means and formats of communication and orientation, and mobility skills, are forms of peer support and

mentoring (UNCRPD, 2006). The SwBs should be able to learn from each other through peer-to-peer support, but this is often difficult in the case of ODL students who do not live in close proximity to each other. This can to some extent, be counteracted by ICT, with the opportunity for virtual or online peer-to-peer support.
The education of persons, in particular, children who are blind, deaf or deaf blind is delivered in the most appropriate languages, modes and means of communication for the individual (UNCRPD, 2006). As much as an individual learning programme (ILP) would benefit the students, the current trend is that the use of ICT should allow them to learn in an open environment.

The training of education staff should include disability awareness and the use of augmentative and alternative modes or formats of communication, educational techniques and materials to support people with disabilities (UNCRPD, 2006). This is a crucial point because UNISA has conducted limited research on the use of ICT to facilitate learning (Mabunda, 2010:223) of SwBs and the student population at large.

3.2.1.4 South African Constitution

The South Africa Constitution states in Section 29 (The Department of Justice and Constitutional Development, 1996) that:

> *Everyone has the right- a) to a basic education, including adult basic education; and b) to further education, which the state, through reasonable measures, must make progressively available and accessible. Everyone has the right to receive education the official language or languages of their choice in public educational institutions where that education is reasonably practicable. In order to ensure the effective access to, and implementation of, this right, the state must consider all reasonable educational alternatives, including single medium institutions, taking into account-equity; practicability; and the need to redress the results of past racially discriminatory laws and practices.*

Though the Constitution does not mention SwBs specifically in the provision, this section does relate to them amongst all PwDs. They should therefore be able to receive higher education in formats that they can access, and in an equitable way, without being made to feel that the tertiary institutions are making an exception by admitting them as students.

3.2.1.5 UNISA's Open Distance Learning Policy

The Open Distance Learning Policy mainly pledges UNISA's preparedness to cater for students with diverse needs, such as accessing learning material through tactile means (Braille) or through audio means (*JAWS*), promoting social justice and redressing the inequalities of the past (UNISA ODL Policy, 2008:1). These rules also include the ODL policy and the Draft ICT 5-year plan and strategy 2011-2015, which mainly guide the University stakeholders on how to integrate ICT in ODL to ensure effective teaching and learning (Prinsloo, 2011:3).

3.2.2 Opportunities from Information and Communication Technology

The services that the SwBs can access include access to voice synthesisable library books, voice readable graphics and, on request, learning material in Braille. They can also access the Internet, with access to information globally, increased independence, online services such as registration, banking and shopping (Hollier, 2007:51). However, access is dependent on the web pages having accessibility features such as a 'plain text' version and audio format. The Draft White paper on E-education (2003) highlights issues of participation in the digital era, the impact of ICT on access, cost effectiveness and quality of education, and how to integrate it into the teaching and learning environment. The use of ICT with applicable pedagogical approaches could provide the SwBs with an opportunity to construct their knowledge. Laurillard (2004:2) highlights four kinds of impact on the experience of learning with ICT:

(i) Cultural impact - using the forms of communication and information search technique that the students use in their everyday life.

(ii) Intellectual impact - gained through using the interactive technology that allows engagement, such as social networking tools.

(iii) Social impact - allowing students to take charge of their own learning and minimising social difference.

(iv) Practical impact - with learning better managed and quality assurance easy to monitor. Learning resources can be shared and large numbers of students can learn any anytime, anywhere.

The most important aspects of ICT of benefit to the SwBs and the student population at large are the student-centred approach 'learner is doing' (Laurillard, 2004); active learning (Laurillard, 2004); student sense of responsibility (Seymour & Fourie, 2004:5); and promotion of digital inclusive learning (Ruijs, Peetsma & van der Veen, 2010:02). The discussion of the six prospective functions of ICT will be discussed in the next section.

3.2.3 Functions of Information and Communication Technology

According to Amory (2012:5), there are six prospective functions of ICT or educational technology. These prospective functions would afford more opportunities for interaction during learning and are discussed as follows.

i) Information streaming

ICT is useful in information streaming as it can be used to design and deliver learning materials (Amory, 2012:5). This function is more crucial in an ODL setup, in which there is no physical contact between lecturer and student. The digital interaction between the student and the lecturer drives the learning process.

ii) Communication facilitation

ICT is also helpful in facilitating communication between the students and lecturers and between the students themselves. This can be either asynchronous or synchronous in nature (Amory, 2012:5). Depending on the students preferences they

can choose from a variety of ICT, such as email, telephone or the discussion forum on *my*Unisa.

iii) Transforming information

ICT is used for transforming information from one format to the other. At UNISA learning materials are transformed into audio, audio visual, and Braille formats (Amory, 2012:5). This function is pertinent in the process of teaching and learning since it allows every student to have accessible learning materials.

iv) Possibility for collaboration

ICT also makes collaboration possible and more efficient, through co-writing and co-construction of documents. An example of a collaborative tool is *Google Docs*, which allows different writers to work on one document at the same time (Amory, 2012:5). For this function to work, the computer will have to be speech-enabled. It can work well if all the collaborators are aware and respect each other's differences.

v) Useful professional tool

ICT is a useful professional tool (Amory, 2012:5) for technology-based learning as it is used for different professional purposes at UNISA. All these potential benefits make the experiences of using ICT for learning more effective, particularly for SwBs.

vi) Student-centred engagement

ICT also gives an opportunity for more student-centred engagement; however, it is my observation that ICT loses its usefulness if it is not accessible with ATs that give the SwBs access to them. Waits and Lewis (2003), in a study on whether the United States institutions fairly followed the guidelines when designing their learning portals, found that 33% of them did not know if their websites followed accessibility guidelines, 28% fairly followed them and 18% followed them to a minimum.

3.2.4 Information and Communication Technology services offered by the UNISA library to Students with Blindness

According to Fenton, Brooks, Spencer and Morgan (2010:190), asset-based approaches highlight the positive side of the individual, institution, community, social system and population. In this particular case, this section draws the attention of the reader to positive provision that UNISA makes for SwBs. UNISA is an ODL institute with students spread across South Africa, the African continent and some parts of the world. Its ODL nature dictates that the library is a crucial player in the learning process. The students learn on their own and therefore make extensive use of the library, which provides the following digital tools to facilitate access to paper-based resources housed in the library and electronic resources that can be accessed from other libraries globally and other digital resources. This section presents the library's assistive devices that afford the SwBs access to its resources. It must be noted that there are other devices that assist students with other disabilities, though they will not be discussed since they are not relevant to this study.

3.2.4.1 EasyConverter

EasyConverter is an AT that enables the SwBs to convert print to text, convert text to MP3, convert text to Digital Accessible Information System (DAISY) and convert text to Braille. It also converts text to large print for the students with visual impairment including blindness (http://www.yourdolphin.com/).

3.2.4.2 Dolphin Pen

The *Dolphin Pen* is portable software that the SwBs can insert into any Dolphin Pen compatible personal computer and be able to do their work as on their usual workstation. A beneficial feature of this AT is that each user can access their own software and programs and once they remove their Dolphin Pen another user can insert one with different user-specific software and programs (http://www.yourdolphin.com/).

3.2.4.3 Plustek BookReader

The *BookReader* scans the books at high-speed and has natural voice synthesis. Its accurate optical character recognition feature makes conversion easy and reliable for the SwBs. It is also user-friendly (www.plustek.com/).

3.2.4.4 ClassMate

The *ClassMate* takes notes of material written on the board and provides a copy to the student with visual impairments. In the case of ODL, the SwBs can use it to collate written material during the tutorial sessions and other contact sessions (http://www.familyconnect.org/).

3.2.4.5 Book Sense

The *BookSense* is a compressed and lightweight portable DAISY player. This multi-function DAISY reader is compatible with a wide range of audio formats including DAISY and MP3. It has a built-in text to speech engine which enables a wide range of electronic documents to be easily accessible (http://www.hims-inc.com/products/booksense/).

3.2.4.6 Eye Pal

The *Eye Pal* is a device that scans printed material and instantly converts text to speech or sends the information to a Braille Display for the Blind and Deaf-Blind.

Faster than flatbed scanners, the *Eye-Pal* takes only 3-7 seconds from the keystroke to speech or Braille output (www.abisee.com/products/eye-pal.html).

Though UNISA has all the above mentioned facilities for SwBs, they are only available on the main campus. According to SwBs' experiences, when they require prescribed and recommended books they first request them then have to wait for them to be converted to accessible formats at the main campus and mailed (Braille) or emailed (electronic formats) to them. This causes delays for the students. The effects of this centralised system are presented and discussed in Chapter 5.

3.3 OPEN DISTANCE LEARNING

Pityana (2008:5) states that ODL and distance education institutions "focus on opening access to education and training provision, freeing learners from the constraints of time and place, and offering flexible learning opportunities to individuals and groups of learners." Open Distance Learning (ODL) institutions are distance education institutions that have opted for combining or blending the traditional distance education and real-time or just-in-time interactive mode of open distance learning. According to Hydenrych and Prinsloo (2010:3), some authors tend to discuss ODL and distance education as the same concept (Belawati & Baggaley, 2009:12), but they stress that while ODL institutions are also considered to be distance education institutions not all distance education institutions align themselves with ODL approaches. Different institutions have adopted the ODL model but are forced to make use of the traditional distance education model by their students, who sometimes have not mastered the new learning mode. Either way, both distance education and ODL are about the transfer of knowledge to students who are geographically separated from their teachers (Campbell, 2003:13).

According to Pityana (2009), ODL is the form of education delivery that is cost effective and far-reaching without a need for costly infrastructural changes. As discussed above, the SwBs have long been sidelined in accessing higher education but ODL has afforded them the opportunity to gain quality higher education (Pityana, 2009). This has been achieved through extensive use of ICT, such as recorded

notes, Braille and, recently, DVDs, talking and interactive websites, and enlargeable digital texts.

3.3.1 Difference between Distance Education and Open Learning

In drawing a clear distinction between distance education and open learning, Komba (2009:n.p.) argues that distance education is a mode of learning which gives the student freedom to choose when, where and how to learn. The main issue about distance education is that the student requires Grade 12 or Matriculation certification in order to gain access. The South African education system is such that the learner must attend Grade R (kindergarten) plus 12 years of schooling, of which seven are primary and five secondary. At the end of Grade 12 he or she attains a Matriculation certificate as a pass to tertiary education, dependent on grades. Distance education has restrictions on how the students should participate and engage in learning in order to achieve a set accredited qualification.

On the other hand, open learning is a broader concept which covers different forms of education and skills development. Komba (2009:n.p.) posits that open learning can take place within various modes of education and that openness is looked at in terms of "intake, participation, progression, completion and achievement." In the case of this study, I submit that UNISA does not follow the open learning mode but the distance education mode, blending it with the new technologies. Here distance education is implemented through the use of ICT tools and print media based approaches in order to enhance the students-to-lecturer and student-to-student interaction. It must be noted that the SwBs make use of ICT widely due to the positive impact it is making in affording them access to information and learning. Therefore, combining the open and distance learning modes brings more advantages for the SwBs.

3.3.2 Techniques towards positive learning experiences in the Open Distance Learning system

Different techniques are used to ensure that students' progress in the ODL system, for example, orientation sessions, group tutorials, detailed feedback to assignments,

tutorial letters, trial examinations, individual telephonic support by lecturers or tutors and weekend tutorials (Gatsha & Evans, 2010:156). However, for the ODL system to work effectively a great deal of careful planning is necessary. Research has proved that the student-centred approaches which are more interactive and encourage critical thinking are more efficient in bringing about efficient learning (Gatsha & Evans, 2010:165). Table 3.1 (below) illustrates the lifecycle of the ODL, formerly known as distance education. However, it should be noted that it does not reflect how students with disabilities in general have featured in the generations of distance education. Taylor (2001) focuses on the technology (Table 3.1) used within the distance education fraternity and the one by Anderson and Dron (2011:81) which focuses on educational, social and psychological development (Anderson & Dron, 2011:80). The second one by Anderson and Dron is not displayed because it does not address ICT. Therefore, I have fitted in the ICT for the SwBs. If the ODL and distance education discourse is to recognise all the students and their diverse learning needs, the ODL institutions should be proactive and better prepared to serve all the students adequately. I argue that the generations of distance education should recognise the different forms of ICT used to facilitate learning.

Table 3.1: Generations of distance education (adapted from Taylor, 2001:3; Fozdar & Kumar, 2007:3)

Generation model	**Delivery technologies**
First generation correspondence model	Print **ICT for SwBs** (*Braille formats for the SwBs)*
Second generation multimedia model	Print, audio tapes, video tapes, computer-based learning, interactive video **ICT for SwBs** *(Audio tapes, Braille)*
Third generation model	Tele-learning, audio teleconferencing, video conferencing, audio-graphic communication, broadcast TV/radio **ICT for SwBs** *(Braille, audio tapes, audio teleconferencing, radio)*
Fourth generational model	Flexible learning, interactive multimedia (IMM) online, Internet-based access to www resources, computer-mediated communications **ICT for SwBs** *(Braille, computer accessed through JAWS, radio, audio teleconferencing, audio tapes)*

Fifth generation model	Intelligent flexible learning, interactive multimedia (IMM) online, Internet-based access to www resources, computer-mediated communication, using automated response systems, campus portal access to institutional process and learning material **ICT for SwBs** *(Braille, computer, JAWS, ScreenReaders, SmartPhones, email, accessible discussion forums, audio teleconferencing)*

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The next section presents the review of literature from the Western countries, Eastern countries, African countries, South Africa and lastly UNISA specifically.

3.4 GLOBAL VIEWS ON THE EDUCATION OF SWBS

This section examines several research studies conducted on learning of the SwBs, based on literature from Western, Eastern and African countries, South Africa and UNISA.

3.4.1 Western countries

Bocconi and Ott (2013:1) conducted a study on ICT and universal access in education in Italy, aimed at evaluating and documenting the accessibility of educational digital resources. The results revealed that most of the educational software did not cater for the learning needs of the SwBs and students with low vision. It also found that the educational software was poor in its compliance to accessibility needs of SwBs. The conclusion was that most of the accessibility standards tended to conflict with the educational goals of the SwBs (Bocconi & Ott, 2013:6).

In Norway, Fuglerud (2011) made a study of the barriers to and benefits of use of ICT for people with visual impairment (PwVIs), the objective being to identify the benefits of and barriers posed. The findings revealed that most of the PwVIs did not have adequate skills to use ICT, and Fuglerud (2011:453) pointed out that mere provision of assistive technology such as screen readers was not enough to enable them to use ICT. The study also disclosed that most educational systems and learning management systems were not easily accessible by the PwVIs (Fuglerud, 2011:453), and that most accessibility guidelines focussed on technical aspects rather than looking at usability. Fuglerud's study also found that the PwVIs were challenged by frequent changes and technical problems and lack of or limited ICT skills. Fuglerud (2011:458) stressed the importance of continual training, since the PwVIs did not have the luxury of reading instruction manuals or trial and error. All the troubleshooting instructions were in non-audio formats and so inaccessible (Fuglerud, 2011).

Brandt (2011:113) conducted a study on the experiences of disabled students, also in Norway, aimed at focusing on the policy goals so as to identify the barriers that the disabled students encountered in higher education. The findings were presented into two categories, organisational/structural accessibility and educational/study-related accessibility. The former included obstacles on modularisation, faculty and faculty administration and advisory service for disabled students, and internationalisation. The latter included obstacles around teaching methods, evaluation and assessment methods and curriculum (Brandt, 2011:112).

Soderstrom and Ytterhus (2010: 305) conducted a study, also in Norway, on the use and non-use of ICT Assistive Technologies by young people with visual impairments. This study relates to the current research as it looked at issues of identity and social construction brought by the use of ICT Assistive Technologies. The findings revealed that the partially sighted youngsters tend to switch between using and not using ICT Assistive Technologies since they felt that it made them look different and distinctive (Ravneberg, 2009:102) from their peers. The blind youngsters had no option but to use the ICT ATs since it gave them access to the learning material.

Asuncion, Fichten, Barile, Nguyen, Martiniello, Budd, Ferraro, Wolforth and Malik (2008:2) conducted a study on how students with visual impairments experience accessibility of eLearning at colleges and universities in Canada. This mixed-method study revealed that the SwBs could easily access *WebCT*, *Blackboard*, other course/learning management systems, web-based discussion fora/bulletin boards, course web pages, emails and course-related files in *Word*. On the other hand, they indicated that they were having challenges accessing live online chat, videoconferencing, *PowerPoint* presentations viewed online using a browser, online content that used *Flash*, and CD-ROM tutorials used in class or computer laboratories.

A doctoral study conducted in the UK on e-learning and blindness by Evans (2009:189), aimed at evaluating the learning experiences of blind and sighted students with an aim of informing policy and practice. The results of the study concluded that both groups had similar learning experiences, though the blind

students took twice as long to complete the given tasks. They also highlighted the importance of ensuring that learning is accessible and usable by all students.

Dale (2010:208) conducted a narrative exploration into the experience of living with visual impairment and its effect on identity. The results of this emancipatory study revealed that society had negative attitudes towards people with visual impairments and lack of proper support within the education and employment systems, including those meant to cater for the visually impaired. She concluded by attributing the negative traits to a world dominated by sighted people who make no effort to understand PwDs.

In a study on designing interactive learning environments for learners with visual disabilities, Sanchez (2007:151) revealed that the use of authentic situations could facilitate effective learning for the SwBs, learning material should be text-based with text-to-speech plug-ins and Braille display, appropriate use of speech synthesisers and no of use decorative text to avoid confusion for the partially sighted students.

The Centre for Study of Learning and Performance and Services for Disabled Students at Concordia University in Canada conducted a study on how a faculty took into account the needs of students with visual disabilities during ICT integration into their courses. This study targeted faculty members who were dealing with SwBs, and of the professors who responded to the online questionnaire, 83% reported to be using technology such as email for communication, videos and *PowerPoint* for demonstrations in class and having a course website. Some 72% reported not taking into account the needs of SwBs when developing technologies to use in their courses, whereas 16.5% reported partial consideration and 12% full.

Based on an appraisal of the visual impairment research, Duckett and Pratt (2007:10) recommended that research be more empowering and include an element of “greater inclusion of visually impaired people.” Webb (2006:490) conducted a study on the experiences of adult speakers of other languages learning English through ICT, finding positive experiences such as high motivation to learn and use the software provided to increase fluency in English, which they felt was a necessity. The adult learners also reported that ICT enabled them to learn successfully, increased their

confidence and provided them with an opportunity to learn independently. They experienced different learning settings since they did not have to be in a physical class. The findings from a comparison study by Norwich (1994:97), on the interrelated factors influencing attitudes towards integration between the United States of America (USA) and England showed slightly more positive attitudes in the latter. Those results have a bearing on this research study since they point to the importance of professionals having positive attitudes towards integration.

Another study conducted on teachers' attitude in six countries revealed that cultural differences such as religion and large classes could inform the teachers' attitudes. Leyser, Kapperman and Keller (1994:7) stated that though the cultural differences were considered as having implications for the attitudes they had not been scientifically investigated as the cause. They had reports that teachers who had undergone training as special needs educators had more experience and more positive attitudes. Jenkinson (1997:41) stressed the importance of teachers realising that attitude has a great impact on the success of integrated learning.

Four institutional surveys conducted in the UK on SwBs' experience of teaching, learning and assessment revealed that the students were confronted by barriers such as inaccessible modes of teaching, residence, fieldwork in inaccessible areas, note taking, confidence, and the time it took them to finish performing their tasks (Teachability, 2000). For McLean, Heagney and Gardner (2003:223), lack of curriculum flexibility and lack of inclusive teaching and learning in higher education remain the main barriers to students with disabilities actively owning their learning at higher education. Uys and Siverts (2001:1) state that technologically-based education is a "way to address the increase in the world demand of tertiary education," and that the move from traditional teaching approaches to the technological learner-centred approaches has "major systematic implications" which need cautious organisation.

In a study conducted at the University of Helsinki, Finland, into workers' experiences of organisational deadlock, capturing the experiences "led to a successful change of organizational and leadership practices" (Kerosuo, Kajamaa & Engeström, 2010:117). Meanwhile, Healey et al.'s (2006:4) research study in the UK on the

experiences of [disabled] students of learning at university had a specific aim of exploring the barriers to learning. They revealed the enduring misconception that the issues of disability should be researched by the disability advisory services, and stated that undertaking this research study divulged the importance of making the disability issues part of the mainstream learning and teaching debate. The main findings were that the modes of teaching were not accommodating the students with disabilities, and there was fieldwork which formed part of the learning process which the students with mobility challenges could not easily access. Students were supposed to take notes yet some with physical impairments found it difficult and were encouraged to participate in the discussion, which raised a problem for the students with hearing impairments.

ICT has been seen to bring opportunity for progress in the Information Age but, as Hollier (2007:60) mentions, this creates a barrier for the SwBs, who have difficulty accessing the fancy graphics and meeting the high demand for clicking. According to Adams and Browns (2006:15), the entire higher education population has a role to play in ensuring that the SwDs' learning and general life experience at higher education is positive. They argue that the absence of positive experiences could lead to their disempowerment as they are not well-equipped to face life after higher education. Riddell (1998:213) conducted research on the experiences of SwDs in higher education and found unfavourable experiences as they were expected "to fit into the university regime with little reciprocal adjustment." This lack of support frames this research study as it characterises the experiences of the students with disabilities.

3.4.2 Eastern countries

AlSoufi (2011:17) conducted an empirical study in Bahrain on the challenges faced by a blind ICT student at the Arab Open University. The data was collected through two means, firstly through monitoring his progress at first year level with regard to overall performance and capability to handle technical elements of the course, and secondly through analysis of the IT courses to envisage if the SwBs would pass them. The results revealed that fewer blind people were studying IT because of the global increase in IT majors and the SwBs not wanting to have a heavy load. It also

divulged that most blind people did not do IT courses because of the barriers that exist in the traditional IT syllabus. AlSoufi (2011:24) found challenges to include heavy reliance on graphics and pictorial illustrations, using the AT to read science and mathematical elements of the course, and difficulties in teaching the SwBs to write their own computer programs.

Goyal, Purohit and Bhagat (2010:42), in Mumbai, India, conducted research on the factors that affect the use of ICT in management education. This quantitative study, conducted through questionnaires to students and teachers, revealed such factors as not all the courses having their website; no national government policy on the implementation of ICT; no electronic library reserves; the time taken to upload and download materials; lack of evaluation strategies for the existent ICT; no structured ICT training for students and teachers; no technical support from the institute; no collaborative effort on current online courses; and lack of reliable financial support, specifically available to promote ICT use.

Research conducted on students with disabilities, their instructors and the staff members at a university in Hong Kong aimed at finding what people thought about and how they reacted to SwDs. The results revealed that they had a feeling of disgrace for having a disability, whilst the students felt differently about identifying themselves as having a disability (DePoy & Gilson, 2011:n.p.). Studies like this relate to the current study because they give the reader an idea of the possible state of mind of the SwBs.

3.4.3 African countries

Habulezi and Phasha (2012:1558) conducted a study on provision of learning support to learners with visual impairment in Botswana. The results revealed a need for adjustments to the physical structure of the school, and curricular change to enable the students to access the curricula in accessible formats; pedagogical practices which would encourage interaction between the students and the lecturers; and community.

A study in Zimbabwe by Badza and Chakuchichi (2009:4) looked at how the Zimbawe Open University was dealing with SwBs. It probed the challenges for learner support for SwBs using a case study method with eight students. The results revealed three themes, knowledge and perception of ODL; student experiences; and pedagogical concerns and recommendations for the Zimbabwe Open University. The way the students perceived ODL is important because it determines their learning process and whether they are prepared to study on their own, with limited guidance from the lecturer. This study relates to Transactional Distance Theory, which states that once the student has positive learning experiences through undergoing interactive learning he or she would have a shorter transactional distance, resulting in successful learning.

A research study conducted by Akakandelwa and Munsanje (2012:44) to determine the provision of learning and teaching materials for pupils with visual impairment in basic and high schools in Zambia employed a survey approach with questionnaire, interviews and review of related literature. The results revealed that most schools were not providing sufficient or appropriate learning and teaching materials for this group of pupils. It further disclosed that most pupils with visual impairment performed badly in mathematics and science, causing them to drop the subjects. This was the result of lack of appropriate learning and teaching materials. The practice of not providing accessible learning materials to the students with visual impairment runs against international and national policies, therefore they have a right to register complaints until the oppressive educational practices are rectified.

Gatsha and Evans (2010:160) conducted a study in Botswana of the perceptions and experiences of distance learners with disabilities. This mixed method study aimed at investigating the impact of learner support in a distance and open learning context. The methods used to collect data were interviews, journals, document study and observations. The results revealed that 72.1% of the learners were content with the learning support provided by the institution, though the non-implementation of policy and mismanagement proved to be disadvantageous to the learners. As Devlin and Pothier (2006:2) had pointed out, having policies that promote access to education but with educational practices that are against the SwBs is contradictory and denies them their rights.

3.4.4 South Africa

The research on how SwBs learn using ICT in South Africa is limited, as I discovered from a search online, through the library and face-to-face inquiries. Academics with blindness, such as Maguvhe and Gumede, indicated that indeed there was a need for more research into the use of ICT for the SwBs' learning. Below is the presentation of research studies conducted in South Africa. Due to scarcity of research on how the SwBs learn in higher education, I had to open my review into all learning environments instead of keeping it strictly on ODL.

Fraser and Maguvhe (2008) conducted a study on teaching life sciences (biology) to blind and visually impaired learners in 11 special schools in South Africa. They used structured and focus-group interviews to interrogate the phenomenon under study, and the results revealed that learners experienced difficulties because of lack of vision, lack of confidence and lack of motivation. Fraser and Maguvhe (2008:84) specifically highlight 'tabulation,' inability to do practical work and go on field trips as persistent problems for the learners with blindness. The challenges that the learners experienced were mainly due to non-use of Universal Design for Learning, critical and inclusive approaches to learning.

Kasiram and Subrayen (2013) conducted a study on the social exclusion of students with visual impairments at a tertiary institution in KwaZulu-Natal. The study was qualitative in nature and found that students with visual impairments were excluded from development opportunities. They indicated that they experienced psychological abuse, which involved absence of reasonable accommodation and exclusionary practices during lectures, which made them feel that having a visual impairment was a confinement. The students revealed that they felt socially abused due to lack of acknowledgement of differences by sighted students, reflecting disrespect. They also indicated that they suffered financial abuse from fellow students who demanded payment for assistance, and experienced emotional and sexual exploitation, abuse of power and unpleasant living experiences (Kasiram & Subrayen, 2013:69-70).

Mashinini (2008) conducted a study on the challenges of ICT policy for rural communities in South Africa, framed through grounded theory. The results revealed

lack of leadership in the implementation of policies and that non-compliance with policies in the rural communities. Other challenges were poor infrastructure, unattractive investment opportunities owing to travelling distances, a scattered population and a shortage of skilled labour (Mashinini, 2008:129). Howell (2005) highlights the barriers that most higher education institutions have, such as not having a system that addresses the limiting institutional practices and attitudes. She mentions the unaccommodating access points which look for the "eligible few from the ineligible many" (Wolfendale, 1996:1) and lack of access to certain courses due to certain impairments (Odendaal-Magwaza & Farman, 1997).

Laurillard (2004:5) conducted an inquiry into the issue of relevant innovation which would make students with disabilities emerge from higher education "intellectually confident, capable of taking the initiative in information-acquisition." She then called on all higher education institutions and academics to "manage learner's interaction with academia," such that they can formulate their higher education experiences. Laurillard's findings and recommendations are applicable to all the students with disabilities, including the SwBs who are the focus of this study.

3.4.5 UNISA

Liebenberg, Chetty and Prinsloo (2012) conducted a study on student access to and skills in using technology in an ODL context. The study took place at UNISA and was quantitative in nature, with data collected through the use of surveys. The results revealed two issues relating to the study, namely, access and capabilities, notably adequate technological skills (Liebenberg, Chetty & Prinsloo, 2012:260).

Minnaar (2011) conducted a literature-based (metasynthesis) study of student support in e-learning courses in higher education. The results disclosed that technical problems and pedagogical challenges, which she called 'panic attacks' (Minnaar, 2011:88), as well as human contact issues. In the case of technical problems of infrastructure and access, there was a need for multiple tools and for ICT competence to follow the courses, and there was poor access to them. Lecturers were not sure how they should design and facilitate learning through e-learning, and e-learners were worried about the accuracy of the remarks posted online. In the case

of human contact, some of the studies she reviewed talked about human contact or presence and she postulated that most students questioned the truth or reality of having a lecturer or tutor present online anytime they were needed (Minnaar, 2011:88-100). Though this study did not look at the students directly, the results have an impact on how ICT is used to facilitate learning of SwBs at UNISA.

A study on different factors influencing the adoption of technology in learning conducted by Venter and Prinsloo (2011) focused on UNISA's Department of Decision Sciences. The data was collected through an online questionnaire and telephonic interviews, and revealed that compulsory assessment that leads to a final mark increases the students' interest in adopting technology in their learning. The authors concluded that students need to be pressurised to use technology (Venter & Prinsloo, 2011:56-57).

Ferreira and Venter (2011) conducted research into the barriers to learning at an ODL institution, UNISA in particular. The quantitative data was collected through survey questionnaire and the qualitative data through open questions. The results disclosed that 49% of the students who did not have their mother-tongue as the language of learning at UNISA experienced language barriers to learning. UNISA uses English and Afrikaans as the languages of learning. The results also revealed a conflict between the University's development plans and the students' preferred learning approaches. In 2008 UNISA introduced an open and distance learning policy which aimed at promoting the use of modern ICTs for teaching and learning. The students also reported that time management, inadequate study skills, work commitments, administrative problems, lack of contact with fellow students and communication problems with the relevant personnel were barriers to learning (Ferreira & Venter, 2011:86-89).

Mabunda (2010) carried out a study of the challenges and implications of teaching through ICT for ODL universities in South Africa. She made use of observation, reflections, experiences and reports regarding the way lecturers perceived and used ICT in their teaching. The results revealed that, regardless of the lecturers' wish to make use of ICT the number doing so to support their teaching was still less. Mabunda attributed this underutilisation to lack of prolonged and highly developed

ICT skills, and staff misconceptions of *my*Unisa as a communication (information dissemination) rather than a teaching and learning tool. The staff reported having a heavy workload (too much administration, many modules, many students, many assignments and exam scripts to mark), which limited their opportunity of using ICT to facilitate learning. In particular, the study highlighted discrepancies between the use of satellite broadcasts, SMS-mediated teaching and videoconferencing, as these were not used to the maximum unless for communication purposes, such as reminding students of the due dates for assignments (Mabunda, 2010:232-234). This study did not necessarily look at the students experiences but its results are crucial to the problem of how the SwBs learn through ICT at UNISA.

Wilson (2004) carried out research on videoconferencing at UNISA in a study aimed at summarising action research projects that focused on investigating how the synchronous discussions take place at UNISA. This qualitative study was conducted through the use of interviews and written reflections with results that revealed 10 key factors for effective visual conference use: 1) session types, 2) virtuality of the environment, 3) presentation expertise of staff, 4) reasons for using it, 5) perceived need and effect, 6) planned authentic interactive experiences, 7) integrated use of technology in institutions, 8) costing strategies and policies, 9) ethos and support and 10) stable connections based on international protocols (Wilson, 2004:5).

Venter and Lotriet (2005) conducted a study on accessibility of South African websites to visual disabled users, motivated by a wish to find solutions to inaccessibility of the web by the people with visual impairments (Venter & Lotriet, 2005:1). Through this study they highlighted the following important issues that arise when the people with visual impairments access the web:

- Screen readers can only read text that is printed (not painted) to the screen and are most commonly used in the case of total blindness.
- Braille embossers translate computer-generated text into embossed Braille output for blind users, but cannot transfer graphics or any other non-textual elements.

- Screen magnifiers magnify a portion of the screen up to factor 16, for easy viewing, which is useful for users with poor vision.
- Speech recognition systems enable the user to give voice commands for entering data, as opposed to using a keyboard. The systems need to be trained to 'understand' the language and grammar of the user, but this a time-consuming process that often delivers unsatisfactory results.
- Some other commonly used techniques include switching off graphics display in the browser and increasing the font size on a page. This is only possible if both the browser and the website allow such changes (Venter & Lotriet, 2005:2).

The findings revealed that 83% of the respondents deemed creating an accessible website imperative. When asked what approaches they used to make their website accessible, some were not very clear about the guidelines.

This literature review is rather limited because of a dearth of publications on the use of ICT for learning of SwBs in an ODL institution. Therefore, Mabundas' (2010:240) advice that more research be conducted on how students at UNISA are experiencing learning through the use of ICT is confirmed. Once all the studies have been discussed from different perspectives there will be greater chances of using evidence-based information to inform the educational practices. Table 4.1 (below) provides a summary of the studies that have been conducted at UNISA and the angles they took.

Table 3.2: Presentation of studies done at UNISA indicating the difference in research problems addressed

Author	Title	Angle	Year
Liebenberg, Chetty and Prinsloo	Student access to and skills in using technology in an Open and Distance Learning context.	Competence in the use of technology	2012
Van den Berg	Students' perceptions of the role of lecturers in online discussions	Perceptions	2012
Nyoni	A 21st century collaborative policy development and implementation approach: a discourse analysis.	Policy	2012
Minnaar	Student support in e-learning courses in higher education – insights from a metasynthesis "A pedagogy of panic attacks"	Student support	2011
Venter & Prinsloo	A paradox between technology adoption student success: A case study	Technology and student success	2011
Ferreira & Venter	Barriers to learning at an ODL institution	Learning in an ODL context	2011
Mabunda	Information and Communication Technologies for teaching and learning: Challenges and implications for ODL universities.	ICT and learning	2010

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Venter and Lotriet	Accessibility of South African websites to visually disabled users.	Accessibility of websites	2005

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3.5 CONCLUSION

Not all the studies that have been reviewed address the issue of SwBs learning through ICT, due to the scarcity of literature on this topic, and that none address how SwBs use ICT for learning in an ODL context. There is adequate literature from European countries, though they also tend to focus on general students with disabilities. However, since their research looks at how to use ICT to facilitate learning, their results are useful in addressing main research question. I therefore use the results of the studies conducted at UNISA and internationally to discuss the findings of this current study.

This chapter has presented the different concepts that relate to this study. A discussion on what ICT is and how it benefits the SwBs was presented, then ODL was unpacked, with an indication that the SwBs have not featured in the generations of distance education. Drawing on the critical theorists Foucault, Freire and Arendt, whose thoughts were fully discussed in Chapter 2, this is an indication of neglect in documenting how the SwBs learn in the ODL context. The lack of proper research and documentation could be the reason behind the 'policy deficit' as proposed by (Gokool-Ramdoo, 2009:1). The next chapter presents the research design and methodology.

CHAPTER 4
RESEARCH DESIGN AND METHODOLOGY

4.1 INTRODUCTION

As discussed in Chapter 1, this study emerged from an attempt to answer the research questions which explore the learning experiences of SwBs using ICT at the University of South Africa. This exploration includes establishing the types of ICT that the SwBs use for learning and using their experiences to create a student-centred framework for improving learning. This chapter describes the research design and methodology employed.

4.2 RECAP OF RESEARCH PROBLEM

Despite SwBs having overcome barriers in order to access higher education there has been little effort to elicit their views on how they experience learning through ICT (Barton, 2005:320; Mabunda, 2010: 223). Besides the general student population, the literature reviewed in Chapter 2 and 3 reveal a paucity of studies relating to how SwBs learn through ICT at higher education institutions (Barton, 2005:320; Watling, 2011). Mabunda (2010:240) has specifically called for further research on the impact of ICTs on students' learning experiences at UNISA which has propelled me to take up the challenge.

4.3 RECAP OF MAIN RESEARCH QUESTION

Considering the problem statement as described above, the research question was formulated as follows:

How do the students with blindness learn through Information and Communication Technology at UNISA?

This research attempts to answer empirical research questions formulated as follows:

1. What challenges do the SwBs face in their use of ICTs for learning?

2. What ICTs tools do the SwBs use for learning at UNISA?
3. How can the learning experiences of SwBs be improved at UNISA?

4.3.1 Research paradigm

The research paradigm is critical foregrounded by principles that encourage one to challenge dominant practices and views, and to conduct thorough analysis of the situation with the aim of emancipating the participants.

4.3.2 Ontological assumptions

I believe that there are multiple realities regarding the way the SwBs experience learning through ICT at UNISA. Creswell (2013:20) states that “the ontological issues relate to the nature of nature and its characteristics.” This calls for a qualitative research which is underpinned by the outlook that reality and truth are a biased social construct (McMillan & Schumacher, 2010:54). Different prior exposures have influence on the way they construct their learning experiences. I entered the world of visual impairment with the view that due to the education scene being dominated by sighted people, blind students experience some form of oppression. When I went to the field to interact with the students I used a critical lens, listening to their stories, observing their reactions and then using them to make meaning (Nieuwenhuis, 2010:52). Critically examining those stories and publishing the thesis will hopefully contribute towards improving the learning experiences of students (Cohen, Manion & Morrison, 2008:26-28).

4.3.3 Epistemological assumption

I understood that society and societal behaviour are firmly grounded on the history of the people. Society is ever-changing, though there is some form of socio-political and economic dominance that might prevent it from doing so (Habermas, 2005:7). The participants also understood the research objectives and acted in a way that demonstrated their willingness to be part of a transformation agenda. This kind of empowering relationship gives power to the powerless and voice to the voiceless. This study was conducted within a critical paradigm, which according to Smith

(2000:44) seeks to empower the oppressed and people discriminated against on their own terms. Oliver (1996:114) raises a concern from the people with disabilities regarding disability research, stating that due to the common problems of segregation, inequality and poverty, discrimination and oppression, the PwDs tend to perceive research as the centre of the problem rather than as a solution.

4.3.4 Methodological assumptions

When planning to undertake this study, the main aim was not to research the blind students but to work with them to find means by which their voices could be heard. This was done so as to be inclusive, giving them power and ensuring that they made a contribution on matters that concerned them. Barton (2005:323), a disability theorist, argues that a researcher can either be in support of the people with disabilities or of those who seek to promote non-PwDs centred studies. This aimed at promoting SwBs-based use of ICT. Due to the existence of domination, I made a conscious decision to be open with the participants and interact with them freely so that they could relax and share their stories with me. According to Creswell (2013:20), “with the epistemological assumption, conducting a qualitative study means that researchers try to get as close as possible to the participants being studied.” Having a blind mentor enabled me to treat the participants normally and in accordance with principles of social justice. I listened without disturbing them, which gave them the power to own and share their life histories in their own terms.

As opposed to using research methods that undermine and only require the participants to respond to specific research questions, I introduced the research objectives and let them narrate what they felt comfortable sharing. I anticipated that the research would emancipate the students, and give them positive learning experiences and progressive lives during and after university. I chose to use qualitative design because the topic was personal (about how they each use ICT for learning at UNISA) and it would allow the blind students to relate their experiences from their own perspectives. The research gave the students a chance to learn to be vocal and advocate for their own educational justice. This methodology allowed the blind students to participate in the research on their own terms, and the knowledge gained should challenge existing patronising beliefs and conceptions about blind

people. I afforded them a chance to participate freely since they were approached at the level of intellectual engagement.

4.4 RESEARCH METHODOLOGY: QUALITATIVE APPROACH

According to Henning, van Rensburg and Smit (2011:10) research methodology is the backbone of one's study in that the methods used in data gathering determine the kind of knowledge or data one discovers. In addition, methodology is the "theory of acquiring knowledge and the activity of considering, reflecting upon and justifying the best methods" (Wellington, Bathmaker, Hunt, McCulloch & Sikes, 2005:97). The research methodology employed in this study took a qualitative approach, which according to Creswell (2013:183) uses words and pictures for data collection and presentation. In my case I used words in the form of narratives. According to Denzin and Lincoln (2008:4), qualitative research can be conducted through ethnographies, case studies, survey interviews and historical and documentary analysis. In this study the multiple case study design discussed below was employed. Savenye and Robinson (2004:1053) suggest that the use of qualitative research allows the researcher and the research participants to create their own reality through the genuine and rich articulation of human activity. Qualitative research was suitable because it allowed the SwBs to participate in the research in a way that did not inconvenience them.

Creswell (2013:185-186) presents eight attributes of qualitative research. Firstly, qualitative researchers usually gather their data in the participants' natural setting, which should be as comfortable as possible. In the case of this study, the participants preferred for me to meet them at their homes and others at their offices. Secondly, it requires the researcher to be hands-on and drive the process of data gathering. The researcher may scrutinise documents, conduct individual or focus group interviews and observe the participants. The empirical data was collected through life stories, in-depth and telephonic interviews. The researcher collected the data, making it possible to engage with the participants and ask probing questions in a respectful and considerate manner, until the data saturation point was reached.

A third attribute is the tendency to use different data collection techniques to gather data, ranging from observations, document analysis, interviews (individual and focus group) and other technology-based techniques. The qualitative research is incomplete when only one technique is used. Different techniques, such as life stories, in-depth and telephonic interviews were employed to gather data. Fourthly, qualitative data can be analysed either inductively or deductively. The former involves formulation of themes through working intensively with the data and looking at them to see if there is a need to create more comprehensive ones. The deductive technique requires the researcher to look at the data and the themes to see if there is need for more data to sustain them. I used the inductive techniques because they offered me the opportunity to engage deeply with the data and formulate themes that represent the voices of the participants.

Fifthly, the progression of qualitative research is not meant to promote the researchers' ideas and meaning or the ideas from the literature review, but rather to discover the meaning that the participants have regarding the research problem. I approached this study with the aim of getting the participants' voices to be heard regarding how they used ICT for learning at UNISA. A sixth attribute of qualitative research is flexibility and a readiness to make adjustments that might be required as data is collected. In my case, I had to make adjustments after the intended technique of using digital journaling had not yielded the desired results. The participants were all studying and thought it would be cumbersome for them to keep a journal, so I had to change my intended data collection strategy to cater for their needs.

A seventh attribute listed by Creswell (2013) is that the qualitative researcher should reflect on how prior experiences and beliefs contribute to how the research is conducted. A critical paradigm, which is the lens that influenced me in conducting this study, might have created some bias in my approach. I made an effort to minimise this by using the theoretical frameworks, the paradigm and the empirical data to make meaning and present the study. The eighth and final attribute listed by Cresswell (2013:185-186) requires one to have the ability to spot the different aspects that contribute towards the research problem. After identifying the different aspects one should be able to find the probable solution. In this instance, I had to

view the research problem from different angles since there are many stakeholders involved in the design and delivery of learning at UNISA.

The above eight attributes increase the opportunities of the qualitative researcher following the procedures that protect the research participants and minimise any bias within the study. The next section addresses the narrative case study design.

4.5 RESEARCH DESIGN: NARRATIVE CASE STUDY DESIGN

The research design comprises the detailed plans and procedures for collecting data (Creswell, 2013:14). It outlines the steps that will be taken in conducting the study, including sampling techniques and size, data collection tools, data handling, data analysis and presentation of findings. This study is qualitative and uses a case study design to explore the experience of five SwBs of using ICT for learning at UNISA. This was deemed suitable for this study because it allowed me to get a rich and deeper understanding of the topic, to have control over the research process and to focus on a real-life problem in an authentic context (Creswell, 2013:14; Yin, 2009). My intention was not to contrast the five cases involved but to focus on, each thus giving each the necessary attention (Creswell, 2013:127). Case study is seen as a pragmatic inquiry (Yin, 2009), a design that allows for interplay between variables and thick descriptions (Punch, 2009). It allows the researcher to capture the real living experiences in a research setting (Cohen, Manion & Morrison, 2008).

Yin (2009) suggests that there are three types of case studies, i) the intrinsic, also called descriptive, the main objective of which is to give a better understanding; ii) the explorative, which allows the researcher to explore the phenomenon under study without necessarily giving a single outcome; and iii) the explanatory, which allows the researcher to give an explanation of causal relationships. This particular study is explorative and intrinsic in nature, because it gives rich information and uses a limited number of participants (Creswell, 2013; Punch, 2009; Yin, 2009). I was able to report the findings in a non-prescriptive way (Creswell, 2013:14). The rich narratives are presented in form of extracts to allow the reader to ‘hear’ the voice of the narrator.

4.6 NARRATIVE INQUIRY RESEARCH APPROACH

There are two different types of narrative inquiries, the paradigmatic and the narrative (Polkinghorne, 1995). The former “uses paradigmatic analytic procedures to produce taxonomies and categories out of the common elements,” whereas the latter “gathers events and happenings as its data and uses narrative analytic procedures to produce explanatory stories” (Polkinghorne, 1995). I chose to employ the paradigmatic type because it allowed the participants to narrate their stories in their chosen format and me to use the paradigm, theoretical frameworks and literature as the basis for data analysis.

According to Connelly and Clandinin (2006:375), “people shape their daily lives by telling stories of who they and others are and as they interpret their past in terms of their stories.” Stories are constructed in different ways according to people’s experience of the world, order of importance and the meaning they attach to their lives. Since this study focussed on learning, with the emphasis on experiences, a narrative inquiry methodology was used. According to Clandinin, Pushor and Orr (2007:21), “narrative inquiry is much more than the telling of stories.” For Connelly and Clandinin (1990:24) it is “a framework of elements for designing, living out and representing narrative inquiries,” and a “study of the ways humans experience the world” (1990:2). Frank (2000) states that narratives come out of the interpretation of stories whilst for Gudmundsdottir (2001) narrative research comes about through the collection of stories, meaning-making and writing of narratives of experience. Some authors who have made use of narrative inquiry to give a voice to the people with visual impairments include Etherington (2000), Riessman and Speedy (2006), O’Neill and Harnindranath (2006) and Speedy (2007), Riessman (2008). This methodology has been used for different purposes in different disciplines. Polkinghorne (1988), who writes on individual psychology, used it in different categories, such as life history, case history, life span development, organisational consultation, Freudian psychoanalysis and biography. Clandinin and Connelly (2000) suggest the narrative steps presented in Figure 3.1 (below).

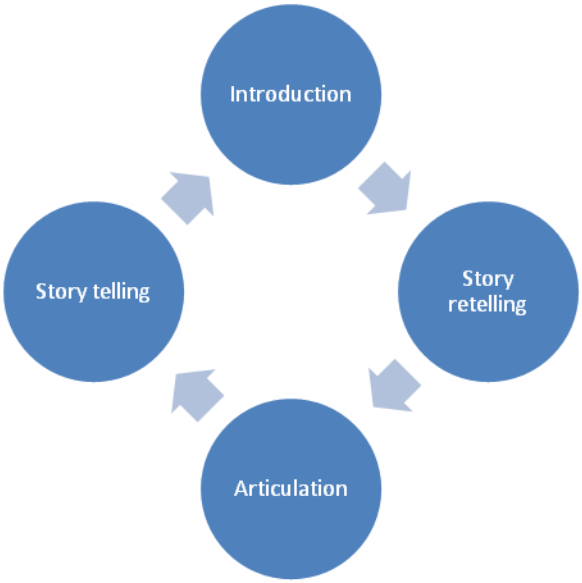

Figure 3.1: The main steps of the narrative process (Source: Clandinin & Connelly, 2000)

Susinos (2007:118) used the narrative inquiry methodology because of its 'emancipatory qualities.' Noddings (1986) highlight the positive nature of this research methodology as allowing the researcher to generate a mutual relationship with the research participants, understanding the value of their being part of the study. They also claim that using narrative inquiry has therapeutic instrument (Gabriela, 2010) which empower the research participants. I chose to use this method because I did not want to treat the SwBs as voiceless beings, and because it was the most suitable way to elicit data from them. The facilitated dialogue made them feel equal, caring and connected to me and the research study (Connelly & Clandinin, 1990). One student stated: "*I am happy that my story will be used to improve the learning experiences of other students*" (*Dikeledi,[1] Source-In-depth interview). In the case of this study, the participants followed the same trend of first introducing themselves then giving their biographical details. Some would narrate events that led to their becoming blind; however, most were not very clear on this since it had happened during their childhood. As this study employs critical theory and is participant-centred, I let them narrate their biographical history believing they would receive some therapeutic benefit from it (Susinos, 2007:118).

[1] I use pseudonyms to protect the anonymity of the participants.

The narrative inquiry approach has increasingly gained popularity within educational research. I preferred to use it because it enabled me to gather data through conversation, which is a day-to-day and participant friendly human activity. Conversation was a convenient data collection method because it transcended disability, allowing the participants to use their own vocabulary, talk at their own pace and mostly relax since they owned and drove the process. I also preferred to use it because of qualities that allowed the narrations to be analysed through the lens of the narrator. The narrators were able to stress what they thought was more useful, and elaborate when they wanted to. Even when I probed and they were uncomfortable discussing that aspect they freely indicated as such. Since they were telling me their stories I was able to engage with them emotionally. I observed their body language, indicating discomfort and sadness when they spoke of an unpleasant incident and I immediately, though moderately, intervened to show empathy.

I would probe further to show that I was genuinely interested in hearing the story, though it might have little relevance to the study. Since there was some discomfort shown when narrating some unpleasant experiences, I offered a rub on the hand. For example, Thoko (Source-*Life story*) recalled how she had to live far away from her parents because the school that could cater for her educational needs was about 400 kilometres away from her home: "*I never felt the love of my parents and I did not have a chance to bond with my siblings because I was always in a boarding school*" (*Thoko-*Life story).* The approach of giving them a chance to give voice to their life experiences, though what they were saying did not directly address the research problem, ensured that they felt comfortable sharing their story. Though narrative inquiry has been used to understand experiences in different disciplines, French and Swain (2000) assert that it does not adequately highlight the plight and issues of disability.

4.6.1 Advantages of using narrative within the realm of Information and Communication Technology

Clandinin and Connelly (2000) and Chase (2005) propose that the use of narrative inquiry for investigating educational and curricular practices is an appropriate methodology towards theory-practice relations. Guba and Lincoln (1989) and Cole

and Knowles (2001) argue that narrative does not need the researcher to triangulate the study through validity, reliability and generalisability, but rather the study should be conducted with criteria that will make it trustworthy and transferable. The narrative gives the participants a chance to tell their stories in their own words, instead of having to conform to the limiting research terms normally found in survey questionnaires and other structured data collection tools. The use of narratives play a crucial role in the ongoing interactive discussion aimed towards improving educational practices as will be seen in the findings of the study. Both Chase (2005) and Beverley (2000) state that narratives empower the research participants as they tell of, relive and reflect on their experiences. There is equality between the research participants because they share the experience of being blind and being students at the same ODL institution. Their stories are important and are connected, and they care about each other's wellbeing (Beverley, 2000).

The conversational approach calls for a close relationship which leads to what Gibson and Brown (2009:98) term the 'believing game,' which "is essentially cooperative or collaborative. The central event is the act of affirming or entering into someone's thinking or perceiving." Clandinin and Connelly (2000) assert that the believing game gives the participants the opportunity to voice long silenced or ignored experiences, and so gives them power over their story and provides construct validity for the research. In this approach data can be gathered in several ways, such as storytelling, letter writing (Chase, 2005), pictures (Wheeldon & Ahlberg, 2012:105), metaphors (Lakoff & Johnson, 1980), autobiographical and biographical writing, documents, interviews transcripts (Mishler, 1986), journal records (Davies, 1988), field notes and personal philosophies (Kroma, 1983). The use of narrative inquiry for research within ICT was adapted and suited to the tools available. This required the participants and researcher to find amicable techniques of ensuring that the objectives of the research project were being met.

4.6.2 Disadvantages of using the narrative

Disadvantages of using the narrative are accurately termed "risks, dangers and abuses" by Connelly and Clandinin (1990:10). Some participants could tell untruths simply because they think that they are 'significant', will 'add value' to their story and

fit well with the purpose of the study (Maynes, Pierce & Laslett, 2008:4). The critics of narrative inquiry raise a concern that there is a danger of the narrative inquirer "losing sight" (Connelly & Clandinin, 1990:10) of the whole narrative. Welty (1979:107) argues that "story writing and critical analysis are indeed separate gifts, life spelling and playing the flute, and the same writer proficient in both is doubly endowed. But even he can't rise and do both at the same time". Spence (1986) warns about "narrative smoothing," the danger of writing towards the 'happy-ever after ending.' Since the process is collaborative, consultation on the narrative plot, points to be stressed and other factors could be time-consuming (Connelly & Clandinin, 1990). I made use of different data gathering techniques to ensure that the risks, dangers and abuses of narrative inquiry were avoided or minimised.

4.6.3 Challenges in presentation of narratives

Narratives can be collected in different ways but some narrative researchers face a challenge in presenting the stories collected. Chase (2005) finds problematic the way the researcher should treat the participant in the course of the narration. The stories can either be presented through the voice of the researcher who will narrate them on behalf of the participants, or present them through the participants' voices. With these challenges in mind, I used extracts from the collected stories to indicate the voices and views of the participants, and then clearly demonstrated my views and interpretation as they related to the topic, thus presenting the students' learning experiences. The collected stories were handled according to the five analytic lenses prescribed by Chase (2005:656), discussed below.

4.6.3.1 Five narrative analytic lenses

Firstly, narrative requires one to recognise that experiences are made from past and present happenings that one deems important to oneself (Chase, 2005:657). The narrator has to arrange the events according to their impact, relevance and consequences to his/her life plans (Hinchman & Hinchman, 2001). This somehow disadvantages the researcher who might be deprived of exposure to some life elements that could make a meaningful impact on the study. I avoided this challenge by keeping in touch with the participants and randomly conversing to them about

issues surrounding their experiences of being ODL students. Most of all, each participant was contributing to the discourse by narrating his or her unique story.

Secondly, narrative is about valuing the potential role of narratives in changing unjust educational practices. Chase (2005:657) asserts that “narrators explain, entertain, inform, defend, complain, and confirm or challenge the status quo.” For the verbal action to have the intended impact it is necessary for the narrator to know exactly what issues to address through the narration. Gubrium and Holstein (2002) highlight the impact that one’s culture and geographical location has on the way one constructs experiences. In the case of this study, the family, schooling and societal background and attitude towards blindness dictated the way the students narrated their learning experience.

Thirdly, the constraining and enabling can be caused by a range of social resources and circumstances (Chase, 2005:657). Narrative demands that the researcher have an understanding that as much as each participant has a unique story to tell there are similarities and differences that exist due to the common phenomena of being SwBs at an ODL. Bruner (2002) posits that there will be patterns in the storied selves, subjectivities and realities that narrators reveal at specific times and in specific contexts.

Fourthly, the stories collected varied from one participant to the other because they all came from different setting. Stories may also differ depending on the particular audience, purposes and meaning, or the same story can be perceived differently if told in different settings. This element does not apply to this study since the aim was not to have a performance but rather to look at how learning experiences could be exposed and improved through the use of narratives.

Fifthly, as they develop interpretations they find ways in which to present or publish their ideas about the narratives they study. Denzin and Lincoln (2000) represent the challenge alluded to above, of how to present the narratives, whether through the voice of the participants or using the first person, thus accentuating the act of narration. Tierney (2002) asserts that the issue of how to present narratives raises the challenge of voice, representation and interpretive authority. To avoid interfering

with the SwBs' stories, the stories were presented in the form of extracts. My voice only features through the interpretation that is made through linking the current findings with the theoretical frameworks and the literature review.

4.7 POPULATION AND SAMPLING

The population for the study comprised all SwBs from UNISA. The study followed a mixture of purposive and snowball sampling through selecting one specific information (experience) rich case with which I was familiar and asking the participant to identify fellow SwBs she thought would be willing to share their stories. According to Walter (2008:199), purposive sampling is a systematic way of choosing the target population based on the purpose of the research study, whilst Nieuwenhuis (2010:79) describes it as the process of selecting research participants according to pre-selected criteria relating to the research questions. A snowball sample of not more than five students with complete blindness, from different study levels and courses, were approached. According to Punch (2009:163), snowball sampling is drawn through identifying "cases of interest from people who know people who know what cases are information-rich." As much as efforts were made to have equal gender and racial representation, the study did not focus on these as variables.

4.7.1 Delineation of the study

This section outlines the profile of participants, how the pilot study was carried out, the data collection used, and the justification for using them.

4.7.1.1 Participants

At the beginning of the study I already knew one SwB who was a registered student at UNISA. This student assisted by suggesting peers she felt would be willing to share their life stories (snowball sampling).

In line with the criteria for selection, the participants had to have been registered students at UNISA for more than two years and to have been totally blind for more than 10 years. These criteria were used because the SwBs depended solely on ICTs

to gain access to and engage with their learning materials. They were followed so as to ensure that the research participants had adequate experiences of using ICT for learning in an ODL context.

Table 4.1: Profile of the research participants

Participant (pseudonyms)	**Gender**	**Age**	**Place of residence**	**Field of study**	**Level of study**	**Period of blindness**
Dikeledi	F	46	Pretoria	Human Resource Management	Undergraduate - 4th year	Since the age of 23
Tshepo	M	32	Venda	Law	Undergraduate - 3rd year	Congenital
Zahara	F	27	Pretoria	Policy Studies	Honours	Congenital
Zane	M	25	Durban	Public Relations	Undergraduate - 2nd year	Congenital
Thoko	F	39	Pietermaritzburg	Social Work	Undergraduate - 4th year	Since childhood

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Dikeledi was a 46 year old female who used a white cane to guide her mobility in unfamiliar surroundings. She became blind when she was 23 and was the only one who was blind in her family. She had had to attend a special college to learn Braille and Assistive Technologies, as well as orientation and mobility. She was doing her fourth year in Human Resource Management, with the aim of becoming independent. She could no longer practice as a nurse due to the blindness.

Tshepo was a 32 year old male and used a white cane to guide his mobility. He had been blind since infancy. His parents and siblings were not blind. He attended a special primary and secondary school then attended a mainstream university for a year, but had to join the UNISA so he could work to support his family while studying. He was in his third year in Law.

Zahara was a 27 year old female who preferred walking with supportive friends to using a cane. She was the only blind one of six children in the family. Her parents were not blind. She had attended special schools since childhood as she had been blind since birth. She was on an honours course in Policy Studies and wished to be a Policy Analyst.

Zane was a 25 year old male who used a white cane only when in unfamiliar surroundings. He and his brother were blind in the family. His parents and his other siblings were not. He had been blind since birth and attended primary and secondary special schools. He was in the second year of a Public Relations course and wished to be a motivational speaker.

Thoko was a 39 year old female who used a white cane to guide her mobility. She had been blind since childhood and was the only member with blindness in her family. She had attended primary and secondary special schools and was in her final year in Social Work. She wished to pursue postgraduate studies so she could be an academic.

4.7.1.2 Pilot study

White (2002) states that it is important to pilot-test newly designed research instruments. I piloted the interview guide (Appendix C) which was to be used for the in-depth interviews with two SwBs, one male and one female. The testing involved word and terminology appropriateness to the target participants, identification of vague and irrelevant questions, determining the approximate time it would take the participants to tell their life stories, testing the effectiveness of the digital recorder in recording and playing-back the stories when transcribing. Piloting helped me to eliminate leading questions and design questions that addressed the research problem and the guiding research questions.

When the pilot study was conducted there were no terminology or wording discrepancies identified, but rather I noticed the importance of ensuring that each time I met the participants I would have the interview guide printed out in Braille to enable them to read the question on their own and narrate accordingly. As opposed to the 30 minutes that I had allocated for each participant, 50-60 minutes were allocated per participant to accommodate their pace and to allow for more probing. The pilot study was conducted through the interview schedule (Appendix C), whereas the life stories originated from the participants. The telephonic interviews were used to conduct member checks and cross-check facts gathered from the life stories and in-depth interviews. Table 4.1 (below) depicts the research tools used to collect data.

Table 4.1: The research tools used

Research questions (RQs)	**Participants targeted**	**Life stories**	**In-depth interviews**	**Telephonic interviews**
RQ1 What challenges do the SwBs face in their use of ICT for learning?	SwBs	✓	✓	✓
RQ2 What ICT tools do the SwBs use for learning at UNISA?	SwBs	✓	✓	✓
RQ3 How can the learning experiences of the SwBs be improved at UNISA?	SwBs		✓	✓

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4.8 DATA COLLECTION TOOLS AND JUSTIFICATION FOR USING THEM

The data was collected through three data collection tools, namely, life story, in-depth interviews and telephonic interviews. Prior to this I had chosen to use digital/manual journaling but had to change due to the SwBs saying it would be cumbersome to keep updating a journal. They mentioned that between studying, working, volunteering in community organisations and spending time with their families they would not have enough time to maintain a journal of any format.

4.8.1 Life stories

Life stories are considered the most natural way of collecting data since they are based on an everyday activity of conversation. Cole and Knowles (2001) assert that using this method requires the researcher to be sensitive, caring and empathetic to the participants. Though I adhered to these requirements I also ensured that I did not patronise the participants or make them feel powerless and helpless. Using this method gave them the freedom to narrate their experiences in a relaxed manner, and in a language of their choice. They chose the sequence in which they wished to narrate. I benefitted from gaining the opportunity to 'see and be part of' their life as it evolved, and came to understand the underlying reasons behind their shared experiences. The life stories were collected by telephonic, online and face-to-face means depending on the distance and preference of the research participants. It was through these discussions that I was able to negotiate entry and create rapport with them. This research method enabled me and the research participants to have an emancipating relationship and provided a chance to probe where there was need for clarification. It also enabled the participants to recollect, relate and reassess their lives (Atkinson, 2004). I used this data collection tool to understand how they felt about ICT facilitating their learning.

4.8.1.1 Methodological value of life stories

The life story data collection method was suitable for SwBs since it allowed them to openly narrate their experiences. The data collected was valuable because the participants were able to contextualise their stories and stress the aspect they

deemed important to the construction of their learning experience. Cole and Knowles (2001) suggest that the researcher holds extra conversations with the participants and other people in the same situation to observe them in action with the issue under study and examine the documents related to the inquiry. I adhered to this criterion by returning to the participants twice and several other times telephonically or via email. I also observed each participant as he or she worked through the ICT tools. I learnt how they worked and how much patience and attention they gave to an exercise to achieve their learning goal. The participants also took pride in letting me know about their academic achievements, showing me their academic transcripts and the types of marks they had, regardless of challenges they had faced in their learning journey. These were not collected because they were not part of the research objectives.

4.8.2 In-depth interviews

In-depth interviews are normally effective when used to elicit individual and personal experiences about specific issues (Hennink, Hutter & Bailey, 2011:109). They also work well when exploring specific research problems such as learning experiences (Boyce & Neale, 2006:2). I used them because they accommodated the nature of this study and were convenient because they afforded each participant's privacy and a special opportunity to tell his or her own story without interference from others, as could have happened in a focus group interview. Boyce and Neale (2006:3) assert that in-depth interviews are useful for yielding complete information regarding the participants' views of the topic under study. They are also suitable because they allow the researcher and the participants to meet face to face, thus allowing the researcher to read non-verbal cues, sense any contradictory statements and probe when necessary. Hennink, Hutter and Bailey (2011:109) assert that in-depth interviews serve well in collecting data through purposeful conversations.

4.8.3 Telephonic interview

Telephonic interviews offer both advantages and disadvantages to the researcher. Irvine, Drew and Sainsbury (2010:1) found that most research guidelines have warned against telephonic interviews because of their lack of face-to-face contact between the researcher and the research participant. They further warn that this lack

of physical contact affects rapport, depriving the researcher of an opportunity to bond with the participant or see non-verbal cues (Irvine, Drew & Sainsbury, 2010:2). Non-verbal cues are important for the qualitative researcher because they confirm or contradict what the research participant says. I used telephonic interviews as a third research instrument, as an effective tool for conducting follow-up interviews with the SwBs I had already met face-to-face. Since UNISA is an ODL university the students are scattered around the country, so the telephonic interviews overcame some of the problems associated with distance. I conducted the third set of interviews to confirm that the students still held the same views regarding their use of ICT for learning. The telephonic interviews were also a valuable method because of their cost-effectiveness.

4.8.4 Phases of data collection

The data collection planning required planning since I did not wish the research to disturb the participants' normal routine. Having made the snowball sample I contacted them to see where each lived. Subsequently, I drew up a chart showing me where they lived and how far they were from UNISA, Pretoria, where I was situated. The table also included the costs that I would incur if I were to meet the participants, which I found through getting quotations from a coach company. I then compared that to the driving option, which seemed more viable since I would be able to reach the participants wherever they were, including out-of-town areas. When this process was complete I deemed it important first to know with whom I was dealing and whether their stories would be rich enough to respond to the research viability. Table 4.2 (below) illustrates the phases of data collection.

Table 4.2: Phases of data collection

Phase	Instruments	Nature of empirical material	RQ 1	RQ 2	RQ 3
Phase 1	Life story (received through email and manually)	Text	✓		
Phase 2	In-depth interview (face-to-face)	Audio-recorded and transcribed text	✓	✓	✓
Phase 3	Telephonic interview	Typed text (it was only done to fill gaps)	✓	✓	✓

4.8.4.1 Life stories through email

I emailed each participant requesting them to write and email me their life story. I then analysed each story, which gave me a balanced introduction to the participants and helped me plan the interview schedule properly. I realised that none of the participants were very elaborate in their life stories. When I telephoned them to find out why they were so brief they indicated that they would prefer to narrate their life stories to me face-to-face. This was a good opportunity for me since I did not want to impose physical contact on them.

4.8.4.2 In-depth interviews (digital recorder)

The in-depth interviews were conducted face-to-face and recorded through a digital recorder. I began by scheduling the interviews for the participants around Gauteng, the province in which the main campus is situated and I reside. When I had covered the areas in closest proximity I scheduled places progressively distant from the

University. This helped me generate a routine and become accustomed to dealing with the SwBs and the way they narrated their stories. Conducting in-depth interviews on SwBs requires one not to have limited time because they enjoy telling stories. It would also be a good idea to have a digital recorder instead of tape recorder because of the long narrations. If one is to take the tape recorder then he/she should have extra cassettes and batteries to accommodate the long narrations.

The **first participant**, **Dikeledi**, invited me to her home on a Saturday morning. She said she preferred her house because there would be no disturbances during the interview. I arrived at her home in one township on a sunny morning. She was outside getting fresh air by the garden with her brother. The brother welcomed me at the gate. When I introduced myself he excused himself and went to ask the sister if he should let me through the gate. This confirmation and reconfirmation of my admittance proved the protective nature of family members of people with blindness. She stood up from the garden and came to welcome me, and leading me to the lounge where we sat for the next one hour and half. She first narrated her life story of how she became blind and what the consequences had been for her. After I was comfortable that she had unburdened herself I reiterated the purpose of the study and gave her the opportunity to ask for clarification. I then informed her about the ethical consent, giving her the informed consent form in Braille (Appendix D). I then asked her to sign in whatever way she could so that there could be proof that she had consented to the interview. I requested permission to record our conversation, which she granted, and informed her that I had brought a Braille copy of the interview schedule so she could read the question for herself and carry on with her narration. She was satisfied with this arrangement, though she asked me to feel free to interrupt her if I needed clarification. This interview took 70 minutes, excluding the time she was talking about the onset of blindness.

The **second participant**, **Tshepo**, was a male who preferred for us to meet at his office. When I entered he was already waiting for me and expressed his delight that I was conducting this kind of study. He stressed that research on issues surrounding learning at UNISA would contribute towards improving educational practices. I restated the purpose of the research study and allowed him an opportunity to ask for clarifications. I then informed him about ethical consent, giving him the informed

consent form in Braille. I then asked him to sign in whatever way he could so that there would be proof that he consented to the interview. He also gave me permission to record the interview. To enable him to flow through the interview I handed the Braille copy of the interview schedule, for which he was very grateful. The interview took about 30 minutes with five minutes of probing.

The **third participant**, **Zahara**, was a female who also lived around Pretoria. At first she telephonically confirmed that I could meet her at her home, but a day before our the scheduled time she telephoned to inform me that she would be coming to UNISA for her study material and would prefer to meet me there. This new arrangement meant that I would have to search for a private and quiet place in which we could conduct the interview. Eventually I was given permission to conduct the interview in one quiet office within the Disability Unit. Once we were comfortably seated I reminded her of the purpose of the study and gave her an opportunity to ask for clarification. I then informed her about ethical consent and gave her the informed consent form in Braille. I then asked her to sign in whatever way she could so that there would be proof that she had consented to the interview. She also granted me permission to record the interview. She narrated her story and repeatedly paused to ask me if what she had said was what I needed for my research. This interview took about 60 minutes with about seven more minutes of responding to a probe.

The **fourth participant**, **Zane**, was a male who lived 621 kilometres away from Pretoria. I made an arrangement to meet him in his hometown. When I arrived in the area I called him to inform him that I was in town to meet him. Because I arrived late in the evening he asked me to meet him in the morning of the following day. The following morning I called him and he gave me directions to his office. When we met he asked me to clarify the purpose of the study, which I did. He was then comfortable about talking to me, saying that it was the first time somebody had shown an interest in how he learnt at UNISA. He mentioned that he had been part of a student conference organised by UNISA but said that they had not been given enough time to voice their concerns. Instead were given long talks about how UNISA policies cater for students with disabilities and what services UNISA offered to SwDs. I then informed him about ethical consent and gave him the informed consent form in Braille. I asked him to sign in whatever way he could so that there would be proof of

his having consented to the interview. I also requested his permission to record the interview, which he granted. I also gave him the interview schedule in Braille so he could be able to flow without my interference. This interview lasted for about 30 minutes with about four minutes of responding to a probe.

The **fifth participant**, **Thoko**, was a female who lived about 543 kilometres from Pretoria. After agreeing on the convenient day for her to meet me I made travelling arrangements. On arrival in her hometown I informed her that I had arrived and she indicated that she had left her office already and gave me directions to her house. When I arrived they were already expecting me and had prepared a secluded place for us to meet. Once we were comfortably seated I reminded her of the purpose of the study and gave her an opportunity to ask for clarification. I then requested for permission to record the interview which she granted. She first took almost 15 minutes narrating her life story, starting from how she became blind and the challenges that the condition brought for her and her family. She talked about her journey through primary and high school until eventually she started talking about her higher education. When she had finished narrating her story she began making use of the Braille interview schedule. The interview took about 65 minutes with 15 minutes for probing, which added up to 80 minutes.

The data gathered during the in-depth interviews was sometimes about the participants' general learning and administrative problems at an ODL institution in South Africa. The discussion of the administrative challenges was treated as a learning experience if it concerned the ICT tools, because of the aspect of distance for UNISA students. Any form of breakdown in communication poses a learning problem, for example when there is a postal strike and delivery of learning materials is delayed. Equally, a postal strike means that the students' assignments might not reach UNISA before the stipulated deadline, which then requires both the lecturers and the students to know about the systemic challenges that affect the learning activity. In the case of students who use online means to communicate with their lecturers, challenges such as no or limited access to electricity and the Internet or lack of adequate ICT skills, could lead to a breakdown in communication and hence disturb the learning activity. I did not discourage the participants when they diverted attention from the main topic of ICT use in learning because of an understanding that

they wished to tell their whole life story as they had experienced it. I operated in a relaxed manner, and asked probing questions when necessary so that they could feel free to tell their stories.

4.8.4.3 Telephonic interviews

The telephonic interviews were conducted after having worked on the data and understood it. The purpose was to conduct a member-check and give the participants an opportunity to add more information if they wished to. The telephonic interviews were based on the same interview schedule. I also stated the findings to see if they agreed and had captured the gist of their experiences accurately. These interviews were shorter in duration than the in-depth interviews.

4.8.5 Reflections on the data collection process

This section contains my reflections on my experience in the field. It came as a result of a journal that I had been keeping to record non-data of significance.

4.8.5.1 Males are less talkative

I noticed that the male participants were not as talkative as the females, but were brief and to the point. Their brief comments were factual and overloaded with issues that directly responded to the research problem. The male participants also refrained from lamenting, preferring to give details that showed they knew their rights as students. Their interviews were not very long and they would continually remind me that students also have a responsibility to let people know how they wish to learn.

4.8.5.2 Females share more of their emotions

The female participants were relaxed with me, telling some stories that did not have any significant bearing on the topic. However, I let them talk since the narrative approach encourages the researcher to let the participants tell their story the way they want. The interviews of the female participants were long and required me to make long transcriptions. They were also loaded with emotions, whereby the student

would raise her voice to stress and lower it when saying something deemed sensitive or incriminating.

4.8.5.3 Difficulty with getting the informed consent form signed

Regarding the ethical consent form, it was not easy to obtain written consent since all the participants used Braille and electronic means to read and write. They all gave me verbal consent so I had to stress the importance of getting a signed ethical consent. Though they understood and signed their Braille copy, I as a researcher felt that it was unfair to have to impose vision-based ethical consent requirements on people who believed more in the word of mouth.

4.8.5.4 SwBs are prepared to use their voices to influence educational change

All the SwBs who were recruited through the snowball sample were prepared to share their learning experiences because they believed it would influence educational practices and lead to change. It is necessary to make proper preparation when conducting research on issues regarding students, in particular when conducting research on issues regarding the learning of SwDs. I was pleased that there was no time during data collection at which I was embarrassed for lack of preparation or vision-based research instruments.

4.9 ETHICAL ISSUES

Farrimond (2013:109) stresses the importance of seeking informed consent before conducting research. Scott, Wishart and Bowyer (2006) draw out three crucial concerns that should be addressed when dealing with people with disabilities: i) the person should be capable of giving consent; ii) the degree to which the research is going to benefit the research participant; and iii) the balance with public interest. With regard to capability to give consent the SwBs did not have a problem since they read the informed consent form in Braille and electronic format. Three participants read the informed consent form in Braille and the other two read it in electronic format. Before the interviews commenced I also discussed the ethical issues with the SwBs, stressing that they were not compelled to participate. Farrimond (2013:114) argues

that written and oral consent should not be treated differently but should be used to complement each other. Since the study used snowball sampling, the understanding that the study was going to benefit the SwBs in making their learning experiences known by the institution of higher education convinced the first narrator to introduce me to her peers. When the participants talked to me they mentioned that they had agreed to be part of the study because they knew that sharing the results would benefit the whole population of students with visual and other disabilities, and would make the ODL institutions more disability-sensitive in their design and delivery of education.

When the research idea was first conceived I was aware of the importance of ethical considerations, especially when dealing with people with disabilities who are part of the vulnerable groups (Iacono & Murray, 2003:49). This was mostly encouraged by Morgan (2007), who argues that in Ireland there is lack of disability specific and disability ethical guides. My Internet and library research also confirmed that in South Africa there were no disability-sensitive ethical guidelines for educational research, with most for medical and scientific research purposes. A study conducted by Nind (2008), which focused on people with learning difficulties, raised the question of who should take responsibility for protecting the rights of the research participants with disabilities. Abell (2007) argues that the research problem determines the extent at which people with disabilities will involve themselves in the research. The research objectives should be well understood by both parties and each party should know the role they are going to play in realising the goals. The United Nations Convention, Article 3, gives guidelines to ethical conduct when conducting research with people with disabilities.

It is always important to adhere to ethical conduct when conducting research and the following guidelines can be used as a checklist. These can be used together with the six elements of criticality to ensure that the research promotes the interests of the participants (Farrimond, 2013: 25).

4.9.1.1 Autonomy

This is about the respect for people and their ability to make informed decisions. Farrimond (2013) also writes that it is about the autonomy to protect those that cannot protect themselves; these groups of people who need to be protected are children and other vulnerable groups.

4.9.1.2 Justice

Being just during the research process involves selecting the research sample in a just manner, explaining why one has excluded anyone and being clear about how the researcher and the researched will benefit from the research.

4.9.1.3 Beneficence

According to Farrimond (2013:27), research should seek to benefit both the people involved in it. These benefits can come in the form of improved familiarity with the subject and deriving benefits from sharing views.

4.9.1.4 Nonmaleficence

This is about ensuring that the research participants are not exposed to any danger or any situation that can cause them harm. In the case of the SwBs this involved ensuring that the discussions we had did not awake any traumatic experiences they might have had. The study had limited likeliness to do so because it only focused on the SwBs' learning experiences in their use of ICT for learning.

4.9.1.5 Fidelity

This covers ethical principles such as honesty, trustworthiness and integrity (Farrimond, 2013:30). I ensured fidelity in the way I dealt with participants by being open to them about the objective of the study. I also shared the findings with them so they could confirm if they represented their views accurately and fairly.

4.9.1.6 Academic freedom

This principle allows the researcher to have freedom to design, conduct and disseminate the results of the study without any hindrances (Farrimond, 2013:30). I recognize that as much as I have academic freedom I should use ethically viable and acceptable approaches to conducting the research. The fact that this research was not sponsored by any company allowed me to base it on human rights and UNISA approved ethics.

The proposal was handed to the University's Ethics Committee to check that the research study did not infringe on human rights of the research participants. The College Research Ethics Committee then gave me ethical clearance (Ref no.: 2012 OCT/40180808/CSLR). The research tools were also handed to the disability experts in one Non-governmental organisation (NGO) to crosscheck that the language used was in line with the Social Model of Disability, and sought to develop SwBs' rights at UNISA rather than simply research and report on the findings. A written informed consent form was converted to Braille (Appendix D) so all the participants could read it on their own. The participants who wished to give electronic informed consent received a form through their electronic mailboxes. They signed that they were aware that they were not compelled to be part of the study. I understood that the participants could not sign eligibly and were concerned about this. A signature guard was provided and they were assured that they could put a signature in whatever way they felt comfortable. I explained the importance of them signing the informed consent form and they understood and signed.

In conducting this study, the researcher ensured that the participant's privacy, confidentiality and anonymity were respected and protected through the use pseudonyms when reporting the findings. During data gathering a discreet place convenient to the participants was used. Two met me at a quiet and private place at the university, one at her office at work and two in their lounge room at their homes. Since the study was targeting a vulnerable group I used a critical paradigm, which aims at empowering the SwBs on their own terms. The approach was just and dignified and the participants used data collection techniques that did not harm them, either physically or emotionally. They were informed that they were free to withdraw

from the study at any time, should they wish, without any recrimination (Reference Method for UNISA, 2004).

4.10 TRUSTWORTHINESS

According to Guba and Lincoln (1998) there are five strategies to ensure that the research results are trustworthy, namely, credibility, applicability, consistency using dependability, neutrality using confirmability and ethical measures. Credibility is maintained when a research study reflects genuine and truly-lived experiences of the research participants. Throughout the research process I made an effort to keep the study credible by employing practical and realistic methods to research a real phenomenon in a real higher education setting (Krefting, 1991:215). Applicability is when the findings of a study can be related to other "contexts and settings" (Poggenpoel, 1993:349). Confirmability involves ensuring that the research study and its findings are not influenced in any way.

4.10.1 Validity

I engaged with the collected data since the time of collection, transcription, coding and re-checking the transcripts and life stories. To maintain rigour in the research I used different research methods and repeatedly contacted the participants to see if they still had the same views regarding how they were learning at UNISA. The rigour was also maintained through catalytic validity, which according to Reason and Bradbury (2001) only takes place when the two parties involved in the research contribute towards solving the problem at hand, inside and outside the research context.

In general validity is a mechanism that helps check the suitability of the research tool to collect data to respond to the research questions. Cohen, Manion and Morrison (2000:105) state that in qualitative research "…validity might be addressed through honesty, depth, richness and scope of the data achieved, the participants approached, the extent of triangulation and the disinterestedness or objectivity of the researcher".

There are different kinds of validity, but this study used catalytic validity as it is at the heart of critical research. It helped the researcher to evaluate the stories and the methods used to collect them, and to determine if they afforded the participants a chance to reflect on the learning experiences of how they used ICT at UNISA. Beach (2003) proposes two levels of catalytic validity: dismantling the usual researcher-researched relationship and being able to apply the societal change brought by the research into other contexts on different levels of society. Lather (1986), one of the leading voices on validity, argues that it relates to the researcher's principles, whilst Winter (2000) contends that the researcher should have the ability to justify his/her research methodology and the way it was applied. As Lather (1986, 1991) stresses, catalytic validity is concerned with the extent to which the research process truly emancipates or empowers the SwBs. Scheurich (1997) asserts that conducting critical research without empowering the participants nullifies the research. In this case, the research could benefit the current group of students and more students in future. Once the negative learning experiences are converted to positive ones, through designing and integrating ICT in a universally acceptable approach, the participants will be emancipated.

4.12 Data analysis: Analysing narratives

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As Lieblich, Tuval-Mashiach and Zilber (1998:10) state, narrative research "does not require replication of results as a criterion for its evaluation." One does not need to look for common themes but rather listen carefully to the voices of the narrators to come to an "interpretive conclusion." They argue that the process of interpretation should not be based on assumptions but rather on the theoretical framework and other narrative comprehensions.

The firsthand experience received from the involvement allowed me to learn such skills as listening to diverse voices, self-awareness and self-discipline. I also read on narrative research extensively, hence enabling myself to deal with the stories in a just and ethical manner. According to Lieblich et al. (1998:12), there are two main dimensions of reading and analysing narratives: "holistic versus categorical approaches" and "content versus form." Maxwell (1996) concurs with Lieblich *et al.* (1998) with regard to the two dimensional natures of reading and analysing

narratives, however he called them ‘categorisation’ and ‘contextualisation.’ The categorical approach is normally used to analyse narratives about an issue that affects a group of people. It is done through identifying common words across all the narrators, similar to the “traditional content analysis” (Lieblich et al*.,* 1998:12). The holistic approach, on the other hand, is used to analyse a narrative of one individual, and with the whole life history looked at as the central point of the narrative. The analysis based on the content of the story focuses on *what* happened, *why* it happened, *who* did it, the symbolism behind the story and the meaning of the story. The analysis based on the form of the story looks at the way the plot is structured, the way the story progresses, the emotions awoken by the story and the writing of the story. Lieblich et al. (1998) suggest that these approaches overlap (as indicated below) and could be used interchangeably, in the analysis of narratives.

Holistic-Content	Holistic-Form
Categorical-Content	Categorical-Form

This research study was analysed through the use of the categorical-content approach, normally called ‘content analysis.’ This data analysis approach was deemed suitable because it allowed for the proper examination of the narrative materials that were collected through the life stories, in-depth and telephonic interviews. This approach tends to focus on detached parts of the story addressing one research problem.

4.13 DEALING WITH THE DATA

Each time I recorded a story, verbatim transcription was made so as to avoid piling up all the stories. This also helped me understand the stories better and be able to identify the trends within them. This is in line with the view of Creswell, Ebersohn, Eloff, Ferreira, Ivankova, Jansen, Nieuwenhuis, Pieterson, Clark, and Van der Westhuizen (2010), that analysing qualitative data should be a continuous and interactive process. This is because of the connected nature of data collection, processing, analysis and reporting.

Every aspect of the story was recorded such as sighs, laughter, unhappiness, pauses, and the words were recorded as they were uttered with no grammatical corrections. Each day that I returned from recording the story I would listen to it and transcribe word by word. When I had a substantial amount of transcripts I shared some with my research supervisor for advice on clarity and whether they addressed the research problem. In cases where there was a part of the story that was not clear enough and did not address the research problem I would telephone the participant and seek clarification.

To begin the analysis I went through each with the theoretical framework and the principles of using ICT for learning and the UDL in mind. I then used different highlighting pens to represent specific abstracts that had the same meaning or contributed towards a theme. De Vos, Strydom, Fouche and Delport (2011) call this data analysis stage open and selective coding. Open coding means formation of categories based on segments from the collected data (Mouton, 2003). On the other hand, Lieblich, Tuval-Mashiach and Zilber (1998) state that in analysing life stories one does not need to look for common themes but rather listen carefully to the voices of the narrators, to come to an “interpretive conclusion.” They argue that the process of interpretation should not be based on assumptions but rather on the theoretical framework and other narrative comprehensions. To find a balance in the analysis I used both the techniques of identifying the common themes and that of spotting the rich data in the individual story. This approach enabled me to give a voice to the SwBs while focussing on the main issues that needed to be addressed regarding the use of ICT in learning.

4.14 DATA PRESENTATION AND DISSEMINATION

The research study is presented in a narrative form, graphics in the form of tables and other drawings are used to clarify some points. The graphics are also used to give the reader visual representation of what is being unpacked. The final product of this research is in form of a thesis, which will be printed in different formats including Braille, to enable all students to access it and use for further research into learning at UNISA.

4.15 CONCLUSION

This chapter presented the research methodology of this qualitative research study that intended to solicit the learning experiences of SwBs using ICT at UNISA. It also dealt with the challenges that come with using narrative inquiry, with its relevance to this student-centred study appropriately justified. The data collection phases were explained in detail using tables to give a graphic illustration. Ethical considerations are always important when conducting research but they become more important when dealing with people regarded as vulnerable. These vulnerable people include those with disabilities, children, and those who can be easily taken advantage of due to being unable to protect their rights and having limited knowledge about how they should be approached by researchers. Besides the mentioned groups there are other people who might be regarded as vulnerable. Following ethical approaches of conducting research safeguards the researcher and the research participants.

My reflections on the data collection process were also provided in order to give the reader a practical guide of how the collection of data took place. The process of data analysis was also explained and the categorical-content or content analysis was outlined in this section. The data collected could have been analysed using discourse analysis but I opted not to use it because it requires longer periods of breaking the data into discourses and making meaning. This was not the intention of this study, but rather to give voice to the SwBs and reflect their learning experiences as they shared them. The next chapter presents the research findings and a discussion of them.

CHAPTER FIVE
PRESENTATION AND DISCUSSION OF FINDINGS

5.1. INTRODUCTION

In Chapter 4 the research design and methodology that was followed to conduct this empirical study was described. This chapter focuses on the presentation, discussion and implications of the research findings. Direct quotes and passages from the stories are used to illustrate the words as they were said by the narrators. In doing this, the theoretical frameworks (Transactional Distance Theory, Cultural Historical Activity Theory, Universal Design for Learning, and Critical Theory) underpinning this study and the literature reviewed are used to guide the discussions. There are two major findings, coupled by several emerging themes.

The mentioned theoretical frameworks are fully discussed in Chapter 2, with the study framed by the four theories. Transactional Distance Theory is mainly about how the distance between the student and the lecturer can be bridged. It is based on three essentials of structure, dialogue and autonomy (Moore, 1972). The second theory is the Cultural Historical Activity Theory (CHAT), which is mainly about how the *subject, tools* and *object* are mediated in order to realize a goal (Engeström, 2001). The third theory is Universal Design for Learning, which promotes the design of education in a way that facilitates access to education for students with diverse needs (Ralabate, 2011:2). The fourth and last theoretical framework is Critical Theory, which focuses on challenging and questioning dominance and oppression within institutions (Horkheimer, 1993). The research paradigm is the critical paradigm which is foregrounded by principles that encourage one to challenge dominant practices and views, and to conduct thorough analysis of the situation with an aim of emancipating the participants. The participants have the possibility of being emancipated through projecting their unheard voices on how they use ICT for learning. The findings are presented below. For purposes of anonymity participants were given pseudonyms.

The results of the study are derived from life stories, in-depth interviews and telephonic interviews. The data was handled and managed according to the

procedures stipulated by Schurink (2003), who writes that data should be transcribed, recorded and filed in different folders. According to Henning, Hutter and Bailey (2011:228), after making the transcription and coding the data the interrelated codes should be clustered into categories.

5.1.1 Presentation of major findings

In analysing and interpreting the experiences of the SwBs who took part in the study, specific recurring themes emerged and were explored in more detail. In order to introduce the reader to the major findings which were informed by the emerging themes, a summary of findings has been presented in Table 5.1 (below).

Table 5.1. A summary of repeatedly emerging themes from the case studies

	Emerging sub-themes
Theme 1: **Use of ICT in learning**	-Challenges with mathematical, scientific and accounting signs -Inability to access graphic learning materials -Incompatibility of software -Lack of timely access to electronic learning materials -High cost of ICT tools - Personal Computers, Laptops and Videoconferences-*myUnisa* and *myLife* -Voice recorders, Braillers, screen readers -Electronic mail (e-mail) and mobile telephones
Theme 2: **Inclusive Digital Approaches**	-Use of inclusive digital approaches -Inconsistency between policy and practice-the policy deficit -Testing and re-testing of assessment tools - Regular seeking of students' views and experiences

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5.2. PRESENTATION AND DISCUSSION OF FINDINGS ACCORDING TO EMERGING THEMES

The first major theme (Theme 1) of use of ICT in learning and the related themes are presented first, followed by the second major theme (Theme 2), namely the inclusive digital approaches, and related sub-themes.

5.2.1 Use of ICT in learning

The first emerging theme was generated around the main aspect of the CHAT framework, which focuses on ICT as a tool for mediation in the learning activity. The use of ICT in learning is supposed to be informed by the curriculum, which is in turn informed by the students' learning needs (UNESCO, 2010). In the case of an ODL context, every learning tool used enhances the opportunities of interaction between the student and the lecturer and amongst the students. The claim that ICT provides prospects of learning anytime, anywhere (Tinio, 2003:06) can only be possible if ICT is integrated in a universal manner. This requires accessibility and usability principles to be followed, such that the learning platform or course is accessible through different ICT tools. Learning is designed and delivered in such a way that a student in a rural area can learn in his/her preferred format, probably with paper-based material. Equally, the student with blindness who is in an urban area with access to a computer is able to listen to his/her learning material or even access it in Braille formats. The universal approach to learning opens equal learning opportunity to all students, thus increasing their chances of autonomy and in turn giving them a positive learning experience.

Different ICT experts have provided guidelines on how ICT can be used to facilitate learning in an ODL context (see Chapter 3). In terms of this study the guidelines are not specific to SwBs, who according to Fraser and Maguvhe (2008:1) are most at risk of failing in the higher education level. In the case of UNISA, careful consideration should be taken that the use of ICT is not appreciated for the purpose of administration because it is not assessed but rather helps the University with students' records. The use of ICT for learning requires more than simply the tool, with pedagogical approaches also playing an important

role. These are considered to be one of the *rules* that regulate the process of mediation in CHAT, which is one of the theories that underpin this study. The following are the sub-themes that form the two major findings.

5.2.1.1 Challenges with mathematical, scientific and accounting signs

The finding of challenges of reading mathematical, scientific and accounting signs caused the SwBs to drop the subject, change the course or continue registering for it every year with the hope that they would eventually pass (Mokiwa & Phasha, 2012). This concurs with those of Akakandelwa and Munsanje (2012) in Zambia, that most schools did not provide sufficient or appropriate learning and teaching materials for learners with visual impairments. They further disclosed that most learners with visual impairments performed badly in mathematics and science, leading to them dropping the subjects.

A negative learning experiences expressed by *Dikeledi, a female student doing Financial Accounting was the challenge of using ICT to read mathematical, scientific and accounting signs which are related to financial accounting. She indicated that the *JAWS* software was not helpful in this regard:

> *The fact is that JAWS has problems reading Maths or equations correctly. The maths part of the* [redacted] *and the accounting part of* [redacted] *because I cannot write down Income statements, balance sheets etcetera. I can explain where what transactions must go and do the calculations myself. I still need someone to write down and read it back to me so I can verify and give the rest of the instructions. (Source ~ In-depth interview).*

When exploring her experiences further to find out about alternative ways she tried to remedy this challenge, explaining and quote:

> *I looked for it and even ordered it from abroad but whatever they sent was not suitable for a blind person…I just gave up." (Source ~ In-depth interview).*

Due to such challenges, she indicated that she had lost some independence and had to "… *get somebody to read the Maths and help me write the math problems down. Then I will be able to manage on my own"* (Source ~ In-depth interview).

This challenge hinders the students' autonomy, as suggested by Moore (1993). UNISA, being an ODL tends to have a wide gap between the student and the lecturer. This gap is supposed to be bridged by the ICT tools that the student uses, but in this case the ICT poses a problem for the student. This structural distance (Moore, 1972) means that the student cannot do his or her work alone, but rather has to depend on the support of people with whom he or she lives. This student will have to rely heavily on the lecturer, denoting less autonomy for the student.

5.2.1.2 Inability to access graphic learning material

This finding relates to those of the study conducted by AlSoufi (2011), who reported that one of the challenges was the heavy reliance on graphics and pictorial illustrations. The study also revealed that there was a challenge with using ICT to read science and mathematical elements of the course, and difficulty in teaching the SwBs to write their own computer programs. The findings that this study reports are an indication that the educational practices are not informed by UDL principles. Most learning tends to be vision-based, with graphics used to illustrate and elaborate on learning content, and SwBs often feel excluded. Zane raised the question, "*How do they think I should learn graphs if the learning device (ICT) does not provide that help for me?"*(Source ~ In-depth interview).

Puckett (2011:3186) states that all institutions of learning should ensure that all learning materials are available in print, audio, Braille, MP3, Digital Accessible Information System (DAISY) and other formats in order to facilitate learning for all students. McGuire, Scott and Shaw (2006:4) noted that the UDL principles encouraged proactive design approaches in curriculum development, such that all students were able to learn from the same learning environment. Furthermore, the CHAT (Vygotsky, 1978) also puts a responsibility on the *community* to find ways of following the student-centred *rules* when using ICT for learning. Critical theorists such as Foucault would argue that not being proactive when designing and

integrating ICT in teaching and learning is a way of indirectly excluding the SwBs so that they must make a greater effort than the other students to access higher education. They therefore suggest that the people who face such oppressive and exclusionary student-centred practices should rise, challenge the injustice and take an equal opportunity to receive education. A SwB needs to make an extra effort by consistently pressing to be catered for in teaching and learning activities. Foucault's call to students to learn to stand for themselves was echoed by Zahara's statement:

> *In the tuitions you need to inform the tutors of your disability then they will pronounce everything they write on the board for you. If you do not talk you always face challenges. They could see that I am blind and I cannot see so all of them treated me very well. I also encourage other students to attend those classes.* (Source ~ In-depth interview).

These research findings relate to the results of a study conducted by Dale (2010), which divulged that due to the world being dominated by sighted people not enough effort is made to provide proper support within the educational and employment system. Sanchez (2007) declared that the use of authentic situations would facilitate effective learning for the SwBs. learning material should be text-based with text-to-speech plug-ins and Braille display. Sanchez (2007) further suggests that there should be appropriate use of speech synthesisers and no use of decorative text to avoid confusion for the SwBs (Mokiwa & Phasha, 2012).

This issue of inability to access graphic learning material poses a question on the role of *community* in facilitating the mediation between the *subjects,* the *tools* and the *objects.* In particular, the educational community (learning designers, lecturers, tutors and other learning support personnel) is supposed to be aware that there are different students with different learning needs. Another finding is that of the SwBs being unable to access graphic learning material. This is as a result of the vision-based approaches that are normally used when designing course materials, including when using ICT for learning.

5.2.1.3 Incompatibility of software

The software is supposed to facilitate access to the learning material, enable interaction between the SwBs and the lecturers and make it possible for the SwBs to undertake both formative and summative assessment. The software that enables the SwBs to listen to electronic learning material needs to be compatible with the general *Windows* software. As this keeps changing and new versions are being introduced, the access software such as Job Access With Speech (*JAWS*) also changes, with new versions being introduced. Due to the high costs of ICT (see 5.2.1.4) some SwBs have the older versions of *JAWS* on their personal computers (PCs). Each SwB is competent in the current version of *JAWS* which he or she regularly uses. The frequent changes in software means that the University examination centres might have different versions from the ones to which the students are accustomed, thus causing incompatibility issues both on software level and technical levels. Therefore, Puckett (2011:3187) suggests that all learning institutions reduce costs and make computing universal by identifying features that can be adapted to perform text to speech and speech recognition functions. Below are the views of the SwBs in this regard.

The following narrations highlight the incorrect ways in which *JAWS* software is used to convert documents. Thoko stated that:

> *The video clips, which are part of my learning material and DVD's are voice recorded rather than word processed. I have a lot of CD-ROMs which I never used although very important and are part of my study material, but because they are word-processed, I never used them. They are not user-friendly for blind learners*" (Source ~ In-depth interview).

This is a scenario of learning material that is supposed to be accessible for all the students not being, because of the way it was designed or formatted. This is in line with the views of Czerniewicz et al. (2007), namely the problem of not addressing students' needs when procuring and designing ICT. One might argue that this is

an administrative omission, but since it would inconvenience the SwBs and impact negatively on their assignment deadlines it should be addressed proactively. Zahara narrated:

> *The words were seen as individual letters and not as any conceivable word within the English language. The other document was seen as a picture by my screen reader and as such I had no choice but to have the invigilator read the paper to me* (Source ~ In-depth interview).

These challenges pose more problems when a student is in the rural areas where it will take more money and effort to travel to the closest hub to address the problem. It is worse when a student is writing an exam. Thoko said that she did not write the exam, because "*The format is not screen reading software compliant…it reads punctuation marks and not the words"* (Source ~ In-depth interview).

She had to write to the University explaining her challenge, and made a request for a new date to write her exams. Dikeledi also expressed her concern about the incompatibility of software during examination sessions:

> *I was writing Economics I had a challenge. So when I called the invigilator she was not sure how to help me. Then when I checked I found the computer has Windows 2000 and it had JAWS 5.0. I said my God! By then the JAWS we were using was JAWS 8! Then I told the invigilator that the JAWS and all the software they had in the examination centre was outdated!"* (Source ~ In-depth interview).

Tshepo, who was pursuing a degree in Law, expressed his concern about the incompatible document conversion process used. He postulated that UNISA tended to provide .pdf formats of the learning material, and highlighted the challenge as:

…and should you convert them you miss out some things because the conversion process might skip some of the information" (Source ~ In-depth interview).

This highlights the non-UDL based way in which learning material is prepared for the SwBs.

5.2.1.4 High cost of Information and Communication Technology tools

The use of ICT has always been a sensitive issue with different people giving varied reasons for limited or non-use. The SwBs highlighted the problem of high expense involved in the ICT that they had to use in order to access learning materials anytime, anywhere (Tinio, 2003). In the case of UNISA, Mabunda (2010:233) reported reluctance to use ICT amongst both the lecturers and the students. Besides having to acquire the basic ICT tool, such as the personal computer or laptop, the SwBs had to buy speakers and special software to enable them to access the learning materials through speech. The cost of the additional ICT tools increases for those living far from the main campus, where there are assistive technologies they can use. The SwBs who are in other regions have to ask for the material they need and wait for it to be delivered to the nearest UNISA regional hub, incurring transport costs for them and the person escorting them to collect it. It arose during the data collection that the cost of ICT depends on the SwBs' field of study. If one is doing LLB the cost is less because there are no equations, graphs and graphics that they need to read or draw. On the other hand, if one is doing a course in Financial Accounting, which requires special software to read the specialised accounting signs and books, they will spend more on their ICT tools. The SwBs narrated the following about the high cost of ICT.

Thoko complained about the cost of the ICT needed to enable her to read graphic learning material:

To use visual aids to draw such diagrams, I need to have such equipment which is unaffordable to students…it is about R26,000 not including the screen or alternative lighting devices with the

above costs approximately R30,000 and weighs about 10kg. (Source ~ In-depth interview).

Tshepo said that even though ICT enabled the SwBs to gain access to and engage with their learning material, it posed cost challenges to the users:

The most prevalent is the exorbitant prices attached to these equipments. Scarcity is another challenge. Not many suppliers in the world cater for this equipment; so it is for manufacturers as well. In South Africa, we only have two suppliers/vendors and the other one is just about to close down. (Source ~ In-depth interview).

Zane pointed out the serious problem of monopolised supply and repair of specialised ICT tools, leading to high prices caused by the centralised system of suppliers used by UNISA:

Other thing if UNISA can stop to recommend only companies which are not from the province where there student are because in terms of repairing the equipment the student has to carry the cost of sending back to that companies whether they will recommend companies around their places it will eradicate the delays to first question. If the bursary can also provide transport fees because the building is not accessible and always a blind person has to request someone to accompany them to sign documents, complete documents or writing exam and it has financial implication., that's why most of the time we do not write our exam in that regard" (Source ~ Life story).

Zane also narrated:

As much ICT enables me to learn which is wonderful, I have a problem with the exorbitant prices we have to pay to be able to learn with ease. Can you imagine that the small Braille display is

> *R20,000 and a big one is R32,000? A Braille printer is R19,000 and the JAWS software is R12,000? Equality for all is not possible when the blind people who cannot afford expensive software cannot study*. (Source ~ Telephonic interview).

Stephanidis (2005) asserts that learning should be designed in such a way that all supporting teaching aids such as ICT afford all prospective students positive learning experiences without making any adjustments. The only way to accommodate all students is through the use of universal design for learning principles (Rabalate, 2011; Seale, 2006; Stephanidis, 2005, Thompson, 2005).

5.2.1.5 Lack of timely access to electronic learning materials

ODL is about students learning on their own, writing and submitting assignments and passing them in order to get access to the exams. This means that delayed access to learning materials disorganises the students' timetable and learning goals. This negative learning experience becomes worse for those SwBs whose material still needs to be converted to Braille or an electronic format, and whose assignments need to be converted to normal text before the lecturer marks it. A study conducted by Goode (2007) concurs with this finding and states that although the SwBs are entitled to reasonable adjustments their ability to study efficiently is affected by the delay in learning materials and/or any other learning services they might require (Mokiwa & Phasha, 2012).

A challenge raised by the participants was the difficulty in accessing electronic learning material on time, particularly the difficulty in receiving it within three weeks of registration. This is according to UNISA policies and procedures.
Zahara said:

> *When you register you are told that you will receive your study scope after three weeks but it is not always the case. We have complained and complained and nothing gets done so we carry on like that* (Source ~ In-depth interview).

On the same issue of delayed learning materials, Zane commented that:

> *When you order an electronic prescribed book, it takes long to come while you are supposed to be learning and submitting the assignments according to the prescribed schedule* (Source ~ In-depth interview).

Dikeledi stated that:

> *Studying with UNISA mhhhh, I thought if you register for the first time maybe as a blind somebody the learning material will come in the right format. But no it was not like that, the material came in print format. Everything came exactly the way it is sent to sighted people…Sometime back I received my 201 and 202 material when I was in the middle of the exams. I cannot say this affects only the blind students because I will phone the DU and even the posted printed material came late which means everybody is facing the same problem* (Source ~ In-depth interview).

Thoko also highlighted the issue of late learning material:

> *There were times when I fought them* [staff at the disability unit] *for the late delivery of learning material; this would become worse when the lecturer also puts us under pressure* (Source ~ In-depth interview).

This challenge received much attention from the four SwBs because they were living at a greater distance from the main campus. Tshepo did not mention it as a problem because he lived near the university, which gave him a chance to collect his learning material and thus reduce the delays associated with delivery. This challenge is detrimental to students who have to submit their assignments in order to work towards earning the year mark required for accessing the summative (final) examinations. The submission of assignments is also important because they serve as formative assessment, giving the student a chance to receive

constructive feedback from the lecturer. The UNISA Assessment Policy (2005:4) points out that formative assessment, also called continuous assessment, should 1) be regarded as a learning opportunity; 2) inform future design of learning; 3) serve as an indicator of the students' strengths and weaknesses; and 4) serve as a pointer to the students' progress.

5.2.1.6 Personal computers, laptops and videoconferences

My experience in the field of ICT revealed the misconception that simply providing the SwBs with computers, laptops and other ICT-based learning tools, such as videoconferencing and satellite broadcasts, would enhance the chances of receiving higher education. UNISA provides a bursary for students with disabilities to purchase a computer, but although this is good initiative there could be other challenges which limit the chances of ICT enhancing learning. These challenges could be infrastructure-based, as exemplified by Tshepo's mention of the limit of electricity supply. As Zahara indicated, it is evident that SwBs *"cannot learn without ICT, for to do assignments* [they] *need to have a computer at home."* The use of ICT poses a challenge if the SwBs do not have access to a reliable electricity supply.

Tshepo stated: "*There are limitations on power supply"* (Source ~ Life story), and not having reliable electricity affects students from rural areas, whilst those living in urban areas might not have the financial means to pay for it.

> *Zahara also commented on computer issues, though her concern that:"…the computer is a problem when it gets viruses…" (Source ~ In-depth interview).*

The SwBs also expressed their disfavour of videoconferencing and satellite broadcasts, saying that the two ICT tools tended to be used in a way that only catered for the sighted students. Tshepo stated:

> *"No, never use it, because I heard that there are many students there who have to watch on the screen while the lecturer teaches.*

> *So I cannot watch it because I cannot see"* (Source ~ In-depth interview).

On the same issue of videoconferencing, Dikeledi narrated:

> *"No I have not made use of the videoconference and satellite broadcasts because we the SwBs tend to rely heavily on listening to the learning material. The two could be good for learning but I am blind and cannot learn through watching* [vision-based learning]" (Source ~ In-depth interview).

The findings on the challenges faced through PC and laptop use echo Fuglerud's assertion (2011) that although the SwBs learn through ICT some do not have adequate skills to use it. Fuglerud (2011:453) stresses that having a screen reader, a Braille machine and a laptop or PC does not mean that the SwBs know how to deal with some complicated tasks, rather they have to be trained. This lack of skills is exacerbated by most troubleshooting instructions not being accessible in audio format.

Buzzi and Leporini (2010:161) argue that SWBs struggle to use videoconferencing for learning because of their limited visual perception. They SwBs can only use it if they are provided with the relevant text-based educational content. My observation was that the use of videoconferencing relies heavily on *PowerPoint*, which requires students to read and follow the discussion through looking at the screen. Therefore, the SwBs will continue to shun videoconferencing until it is used in a universal way, with text-to-speech conversion.

5.2.1.7 myUnisa and myLife

The two platforms tend to be mentioned in the same breadth but they are different and serve two different purposes. *my*Unisa is an online-based technology that enables the lecturers to interact, support and collaborate with the students (Mabunda, 2010:232). It also allows the students to collaborate amongst themselves through interacting in the discussion forum. *my*Unisa also provides

interaction tools such as wikis and blogs (Mabunda, 2010:232). Unfortunately, *my*Unisa is perceived as an information dissemination tool rather than a collaborative learning tool (Mabunda, 2010:232). On the other hand, *my*Life is an electronic messaging system for UNISA students, normally constructed through the student number and located within the UNISA server. Due to the ODL medium of UNISA, *my*Life is meant to provide email access for every student. Any kind of communication, including some announcements regarding learning materials and activities from the University, is sent to the students through *my*Life.

On the issue of *my*Unisa and *my*Life, there were two differing views, of dissatisfaction and satisfaction. Tshepo expressed his concern about *my*Unisa and *my*Life:

> *"In general the usage of online system like the myLife, myUnisa has got some limitations for a person using a screen reader in that you will have to copy some text from somewhere in order to access the myLife system. The text you copy cannot be read using JAWS or any other Screen readers you can think of. Someone must read it out for you or you should paste it in an edit box and convert it; that becomes too cumbersome. That a general impediment with the myLife service"* (Source ~ In-depth interview).

On the same issue of *my*Unisa, Zane narrated that:

> "*I am happy with JAWS because it is extremely supportive with web browsing making it possible for me to submit my assignments through myUnisa"* (Source ~ Telephonic interview).

Zane also expressed his high satisfaction with *my*Unisa:

> "*In my case, I didn't have a problem with myUnisa, I mainly used it to submit my assignments"* (Source ~ Telephonic interview).

Regarding the use of *my*Unisa and *my*Life, there were differing views expressed. Zane stated that:"*I am happy with the fact that I am able to access, browse and submit my assignments online through myUnisa. My JAWS software makes this possible"* (Source ~ Telephonic interview).On the other hand, for Tshepo:

> *"myUnisa and myLife poses limitations. The screen readers may be unable to read text on myUnisa and myLife, this then means more work on the SwBs who would have to copy the text they want to read, paste it into a blank page, save it in plain text so it can be easily read by the screen reader. Another cumbersome option to gain access to myUnisa, myLife and any other web-based environment is to get somebody to read out the information. Most of the students do not prefer this way because it takes away their independence"* (Source ~ In-depth interview).

It was noticeable that Zane and Tshepo have differing views about *my*Unisa and *my*Life, perhaps because of the type of ICT and software they had at their home or offices. A challenge facing UNISA is how to make all their ICT platforms compatible with the different versions and equipment that students have. This highlights the need for continuous consultation so that they have guidelines on which ICT tools are compatible with the UNISA learning platforms. This finding concurs with the results of the study conducted by Bocconi and Ott (2013), that there is a conflict between the accessibility standards and the students' educational goals. I observed that in the ODL context the accessibility standards often conflict with the students' ICT tools.

5.2.1.8 Voice recorders, Brailler and screen readers

The nature of blindness requires that the SwBs use tactile and audio material to access information. Tactile formats are accessed through Braille which then provides production through the computer and can be availed in the desired digital format. The SwBs can also access learning in audio formats, but in order for the two processes to happen the SwBs should make use of such ICT as the Braille machine and screen reader. The SwBs make use of voice recorders to store

classnotes so that they can type them and store them in a format they can access at a later stage.

As mentioned above, SwBs can only read and write through the use of ICT. Here I have mentioned the limited range that the participants made mention of. There are more learning tools than voice recorders, Brailler and screen readers.
Tshepo narrated that:

> *"…coming for tutorial classes and having to ask for someone to show me the power point [electric socket], a long extension stretching from the socket to the desk right in front so that the recording could be better, that makes me feel so isolated"* (Source ~ Life story).

In this narration I identify the feeling of isolation associated with looking and doing things differently from the norm. Thoko shared her experience regarding the way SwBs took their examinations:

> *"Another thing that is very difficult is when we go to write examinations, they make more than five students with different disabilities sit in one room. They forget that others are using Braille machines which are very noisy, others are using computers and the talking noise from JAWS is loud, others have people that are reading the question paper for them…whew! You really cannot concentrate! With all of us with different needs in one room, it is a chaos"* (Source ~ In-depth interview).

Thoko, who has the experience of being a student at another university, suggested that:

> *"I wish UNISA could do like University of ***, where we used to be made to sit alone in a room so we can concentrate. I do hope that through your research, UNISA will improve on this"* (Source ~ In-depth interview).

In this case of disturbances during examinations, Gatsha and Evans (2010:156) argue that there should be trial examinations so that the University can identify any challenges that arise during examinations. It would have to make arrangements for the students to have separate examination rooms so that they would not disturb each other. This would require the CHAT aspect of *division of labour* to be revisited, with implications for an assessment policy that is currently silent on the issue of separate seating during examinations. The UNISA Assessment Policy, Section 4.1 on good practices, states that its assessment plan shall be student-centred, and based on continuity and progression in assessment activities (UNISA Assessment Policy, 2005:6).

5.2.1.9 Electronic mail (email) and mobile telephones

Electronic mail is widely accessible to most students because it does not require any special software in order to operate. The student only needs to have Internet access to connect to the university. The email tends to be widely used because it is asynchronous, not demanding the people using it to respond immediately to each other's messages. Those who do not have personal access to the Internet are able to use an Internet cafe, or access it through family and friends. The SwBs reported that email gave them a positive learning experience, allowing them to have quicker communication with the university.

Dikeledi postulates that:

> *"If you have an email and the study material is not correct, you can get them to email it to you or you can even get it from them with your memory stick."* (Source ~ In-depth interview).

Whilst for Zane stated that:

> *"I also like to use emails because they are cost-effective and I can refer to the lecturers' response later"* (Source ~ Telephonic interview).

Zahara pointed out that:

> *"If I have any questions I send an email or phone my lecturer. Email is more effective because the lecturer can respond to it anytime in case he was not in the office"* (Source ~ In-depth interview).

The use of e-mail and any other ICT tool that most students can afford is a good strategy towards having positive learning experiences, which resonates with Moore's (1972, 1973) dialogue element as one of the three essentials of Transactional Distance Theory. The email facilitates interaction between the lecturer and the students and interaction between the students and the administrative staff. Moore (1972, 1973) argues that the greater the dialogue between the lecturer and the student the lower the transactional distance, and thus improvement in the learning process. This finding also agrees with the White Paper on E-education, which promotes the use of ICT to access quality education (Draft White Paper on E-education, 2003).

Most students indicated that they use their mobile telephones for learning because they give them access to Internet and thus a chance to login into *my*Unisa and participate in learning activities. Activities that can be performed include participating in the discussion forum, submitting assignments (depending on how advanced the telephone is), and interacting with the lecturer through email and other means. Zane pointed out that his mobile telephone was a convenient tool that allowed him to access a wide variety of information anytime, anywhere. However, he expressed concern that his mobile network no longer supplied the talking phone to people with blindness:

> *"My cell phone is my everything; because it allows me to access all kinds of information anywhere I am…I am worried that Banana Network no longer gives the talking phone to the blind people"* (Source ~ Telephone interview).

Both Zane and Tshepo reported that they used their mobile phones for learning purposes, however Zane raised a concern about the high price of audio phone software:

> *"A blind person will now have to pay R4,500 to be able to get audio phone software, which is too much for an average person!"* (Source ~ Telephone interview).

Though the cellphone was regarded a useful learning tool it could not be fully regarded as such because of the specific features that it should have to facilitate learning for a SwBs. As Zane reiterated, unless they got the specific speech-enhanced telephone they had to pay four thousand five hundred rands more to get audio phone software.

5.2.2 Inclusive digital approaches

The theme of inclusive digital approaches emerged as a result of looking at the qualities that should be possessed by the *subject* within the learning activity. Engestrom (1987) asserts that the *subject* in the activity should have a learning need to be fulfilled at the end of the mediation process. This theoretical framework allows the SwBs to be the centre of the learning activity at UNISA and gives them a chance to use their lived learning experiences as evidence that can be used to inform the use of ICT for learning.

Anderson (2008:47), a renowned distance education author, remarks that for learning to take place it should be assessment-centred, learner (student) centred, community-centred and knowledge-centred. These responses came as a result of responses to research question three, which sought to understand how learning through ICT could be facilitated at UNISA. This theme was prevalent amongst the students interviewed, who felt that as much as the university claimed to be using new approaches to teaching and learning it is still very much teacher-centred. Though their stories did not directly articulate these sentiments, they did suggest that there should be some form of training to inform and train academics on how better to assist SwBs and other students.

5.2.2.1 Use of inclusive student-centred approaches

Tshepo's individual interview denoted lack of inclusive student-centred approaches which he believed should be used in training. He called this the *students' terrain* and not *lecturers' terrain*, which I have presented here as teacher-centred approaches. Zane asserted that the academics should work with him at his own pace since besides living with blindness he was also living with mild hearing impairment. Equally, Thoko stated that:

> *"Currently the Social Work supervisor marks the report and returns it. You as a SwB cannot read the comments immediately. My previous supervisor used to complain to me that supervising me gives him/her extra work since he/she has to explain the comments to me. I then asked her not to explain the comments to me; I informed her that I will find means to access the comments. Then, that is how I managed. If others used about eight hours per day for their studies, I would have to use double those hours, so it was very difficult and the support is inadequate*" (Source ~ In-depth interview).

This story shows a case of a student who was assessed in a vision-based method of writing comments on the report. It shows that the approach used was not student-centred but teacher-centred. According to the SwBs, the lecturer even went on to complain about the extra work she was given by supervising her. This is the same attitude reported by Mabunda (2010:232), namely that most staff could not make use of ICT to facilitate learning because it added to their heavy workload.

Tshepo recommended:

> *So there should be some courses or awareness based interactions to avoid these incidences and to inform the academics how to better assist the SwBs and to assist them in their terrain*

(student-centred approach) not in their lecturers' terrain [teacher-centred approach] (Source ~ In-depth interview).

Zane, who was pursuing a qualification in Public Relations raised a concern that some academics did not have a proper understanding of the challenges that SwBs faced in their learning:

> *Besides being blind, I also have a mild hearing impairment and it hurts when people are very impatient with me. They should be working with me at my pace!* [stressing](Source ~ In-depth interview).

The above theme incorporates the issue raised by Zahara, who pointed out that the tutorial classes were student-centred and that ICT assisted greatly in the facilitation of tutorial classes. She also suggested that more SwBs attend tutorial classes:

> *"The Saturday tuition classes are good because they give you a chance to meet other students and get to know what is happening around you. In the tuitions you need to inform the tutors of your disability then they will pronounce everything they write on the board for you. If you do not talk you always face challenges. They could see that I am blind and I cannot see so all of them treated me very well. I also encourage other students to attend those classes*" (Source ~ In-depth interview).

The research also revealed that the ODL institution had inflexible pedagogical practices, a concern related by SwBs continuously receiving multiple choice questions (MCQs), which made it necessary for them to type in their answers. This is a fixed instructional design strategy which completely side-lines the SwBs and students with other disabilities, and makes them spend too much time on a task with less assessment points. Laurillard (2004:5) looked at the issue of relevant innovation, which would make the SwDs come out of higher education "intellectually confident, capable of taking the initiative in information-acquisition."

She then calls on all higher education institutions and academics to “manage learner’s interaction with academia” such that they can formulate their positive higher education experiences.

One of the students who differed from the rest, Zahara, was very excited about Saturday tuition classes, which she claimed were student-centred and disability-friendly. Zahara postulated that when she attends tuition classes:

> “… *the tutors always pronounce everything they write on the board*” (Source ~ In-depth interview).

However, she stressed the importance of the SwBs informing the tutors about their disability in advance.

5.2.2.2 Inconsistency between policy and practice-the policy deficit

This theme emerged as a result of looking at the crucial role to be played by the learning *community* within the learning activity. It also touches on the effectiveness of policy implementation. CHAT stresses that in all activities there should be *rules* that regulate the way learning takes place. These *rules* come in the form of university policies and other documents that guide teaching and learning. The policies in place also determine the *division of labour* leading to an organised realization of assigned tasks. All employees at the University should understand that not fulfilling their tasks will affect the positive implementation of the learning activity (Murphy, Rodriguez-Manzanares, 2008; Engeström, 2001).

Dikeledi stated that:

> *“Studying with UNISA mhhhh, I thought if you register for the first time maybe as a blind somebody the learning material will come in the right format. But no it was not like that, the material came in print format. Everything came exactly the way it is sent to sighted people”* (Source ~ In-depth interview).

Thoko narrated:

> *"UNISA should be more accessible to blind students, more especially those who are outside Pretoria. I believe, this University is one of the best equipped for this sector, but unfortunately, the students who are not at the [main] campus or cannot come there, struggle a lot to achieve their endeavours as the branches in most areas are totally failing blind students. In my area, there is nothing, absolutely nothing that caters for blind students. I did not even have a question paper in Braille for my last year's exam. There is no information at all for us down here. One student even could not write because the branch could not assist her. For us to get information, we have to contact the DSU on campus which is not always possible for some of us. Those who do not have money to make calls, hard luck*" (Source ~ Life story).

Zane expressed a strong concern that:

> *"There is a lot that still needs to be done in the branches"* (Source ~ Telephonic interview).

Whilst Thoko also stated that:

> *"Even when I reported that I am having problems with my computer, she [lecturer] just said I should just leave because anyway I am not supposed to be doing the course. Another challenge that we have is that our ICTs are very expensive, those near the UNISA main campus are better off since they can access the technology at campus. That is if they have, I do not know"* (Source ~ In-depth interview).

This finding concurs with what Moore (Gokool-Ramdoo, 2009:1) calls the distance education policy deficit, caused by myopic institutional vision, stagnating national

plans, poor resource deployment, and poorly understood opportunities for personal development (Gokool-Ramdoo, 2009:12). This policy deficit comes in the form of, for example, widening access to education for all students, including those living in rural areas and the previously disadvantaged group, but not clearly indicating the implementation strategy (Gokool-Ramdoo, 2009:3). In the case of UNISA, as mentioned by Thoko, the fact that the ICT specialised services are only in Pretoria is the cause of the policy deficit. The SwBs have to order and wait for materials to be sent from the main campus, so without deliberate intention the students in Pretoria tend to receive better services than their counterparts in other regions. The policy deficit has a negative impact on transactional distance.

The above responses came as a result of responses to research question three, which sought to understand how learning through ICT could be facilitated at UNISA. This theme emphasises the importance of critical implementation of policies. The UNISA Open Distance Learning policy, Section 1.2 states "The university commits itself to advancing social justice with an emphasis on redress, equity and empowerment of the previously disadvantaged groups in South Africa such as Blacks, women, people with disabilities, the rural and urban poor and adults who have missed out on opportunities to access higher education" (UNISA, 2008: n.p.). In addition, the ODL institution in South Africa's operational plan's Goal 5 aims at creating an environment which makes learning possible for the students with disabilities (UNISA, 2010). However, when one looks at the students' experiences above it is clear that they are not receiving what the University promised them.

I also term this theme 'the unfulfilled promises,' because the ODL institution failed to keep its promise to provide for the learning needs of the SwBs and other disabilities. Thoko spoke about the unsupportive ICT personnel:

> "*The X region technician is honestly not supportive because…he just took my cell number and never came back to me with the solution to my ICT problem"* (Source ~ Telephonic interview).

Whilst for Zahara:

> *"It was said that I should have no problems and that the ODL institution can accommodate my learning needs, but sometimes it is not the case"* (Source ~ In-depth interview).

Zane expressed deep negative emotions when he narrated that:

> *"Prescribed books take long to be scanned making assignments late. I find myself spending more money making calls reminding them to provide me the services that I have already paid through to UNISA"* (Source ~ In-depth interview).

He also questioned the role of the disability unit:

> *"Study materials arrive very late, yet there is a disability unit which is meant to promote our interests. You phone them and phone them to remind them to send you study materials incurring more costs. Why? At the end I am force to keep asking for extension on due dates, I don't like it*" (Source ~ In-depth interview).

When policies are in place there should also be plans to see how they are going to be implemented. According to Beatty and Feldman (2012), *division of labour* is about the horizontal and parallel division of tasks to ensure that desired outcomes are realised. They assert that *division of labour* has more to do with division of authority and positions than providing quality service. All the people involved in designing and facilitating learning should strive towards ensuring that all the students' learning needs are fulfilled. The research also revealed that during the examination period the SwBs experienced problem of their computers having out-dated software that was not compatible with the latest *JAWS* software. This concern corresponds with Paul's (2000:209) finding that although the number of students with visual disabilities registered at universities continually increases, "… these students constantly face various barriers in their educational environment."

Howell (2005) writes of the barriers that most higher education institutions have, such as not having a system that addresses the limiting institutional practices and attitudes. The study also revealed inflexible pedagogical practices accompanied by mixed emotions, since the inflexibilities differed from one course to the other. The views were that some teaching practices were inflexible to the needs of SwBs, a concern that arose when the stories touched on formative and summative assessment strategies that also have a bearing on how they write and perform in their exams. The students felt that there was an element of inflexibility, yet the University authorities were quite aware that there were students with disabilities. Some of the lecturers were mindful of the SwBs, however, one of the students stated that they had to type out the answers into a *Word* document, which was very time-consuming and exhausting.

5.2.2.3 Testing and re-testing of assessment tools

ODL universities use formative assessment to developmentally support the teaching and learning process. It is also used to inform the planning process, help identify students' strengths and weaknesses and provide guidance to the student regarding his/her progress (UNISA Assessment Policy, 2005:4). ODL universities also use summative assessment to decide whether the student has mastered his/her course content sufficiently to progress to another level or receive certification. It is mainly about establishing whether the student is competent in the set learning outcomes (UNISA Assessment Policy, 2005). The SwBs have to make use of ICT to perform both formative and summative assessment. Since there should be continuity between these two types of assessments there should be no challenges arising during examination. However, due to the nature of ODL, that the students do their assignments using their own ICT makes it impossible for the University to have ever-ready ICT facilities for the SwBs to do their examinations.

Dikeledi, Thoko and Tshepo agreed that there was a need to thoroughly test the converted assessment tools. Dikeledi stated:

> *"I was saying that there are two senior blind people who work at UNISA, they could be used by the examiners to go through the exams converted for the blind. They should trust those people and ask them to test and check if the exam material will be readable by the totally blind student. I am not just talking for myself because I am done with Accounting and Economics but for the students that follow"* (Source ~ In-depth interview).

Thoko stated that:

> *"I had a problem where I received the question paper in large print and the invigilator got it in small print. But I am totally blind, how can they send me a print question paper when I had asked for oral exams?"* (Source ~ Telephonic interview).

Tshepo narrated that:

> *"With [redacted] module I could not read the words I saw them as individual letters. I could not understand or make up any conceivable word! My screen reader could not read anything so I had to ask the invigilator to read the paper for me; it is obvious that this question paper was not tested after conversion"*] (Source ~ In-depth interview).

This finding touches on the sensitive and rarely addressed issue of accessibility and usability of ICT. Bocconi, Dini, Ferlino, Martinoli and Ott (n.d) argue that ICT plays a positive role in the facilitation of learning but there has been little research on the accessibility and usability of ICT. They warn that if this persists there will be further marginalisation of those who do not have adequate ICT skills to troubleshoot. The accessibility and usability issue requires the testing and retesting of every ICT tool and platform before rolling out. Testing is more important when the ICT is going to be used for assessment purposes. As mentioned above, testing should carried out at UNISA because the students are not always onsite and challenges are thus to be expected.

5.2.2.4 Regular seeking of students' views and experiences

The views of users are always important and my observation is that within the field of education the students are given evaluation forms to fill but the information put on them is rarely used to inform educational practices. This finding highlights the students' requests that UNISA takes time to regularly seek their views and experiences. The SwBs insisted that regardless of policies in place the students' views were not always taken seriously.

Tshepo was very excited about responding to this question, and he felt strongly that regular seeking of students' views and open communication between UNISA and the students would lead to better and improved learning experiences and increase throughput:

> *"I think communication with the students and vice versa shall be of great assistance in enabling the SwBs to complete their degrees on time"* (Source ~ Telephone interview).

Zane stated:

> *"Students should be the priority, not management and policies*" (Source ~ Telephone interview).

Whilst for Dikeledi:

> *"UNISA should open the doors and talk to students!"* (Source ~ Telephonic interview).

The students expressed the importance of UNISA regularly communicating with them so as to base plans on the students' experiences. The study conducted by Mabunda (2010:224) also highlighted the gap that exists with regard to conducting research on the students' learning experiences. She then made a call for further research on the impact of ICT on students' learning experiences. Mabunda's call

was more general to the whole student population. This study further aims to fill the gap that exists in research on the impact of ICT on SwBs's learning experiences in particular.

5.3 CONCLUSION

The aim of this study was to seek the learning experiences of using ICT of five SwBs, with excerpts of narratives from the life stories used to reflect their voices or experiences. The study also discussed the ICT tools they used for learning at UNISA. Seale (2006) and Lamshed, Berry and Armstrong (2003) call upon all stakeholders in higher education institutions to be critical of the way ICT is rolled out for the use of the whole student population. The Critical Disability Theory also exposes some of the discriminative practices that exist in the way technology is used for teaching and learning purposes. Most stakeholders tend to stress the issue of accessibility rather than usability, which is more important in the case of SwBs (Shneiderman & Hochheiser, 2001) who might not have the chance of trial and error as do their sighted counterparts.

The general feeling amongst all the SwBs was that ICT presents a great interactive learning opportunity for all students, however, there was a feeling that the ODL platform should be more supportive and understanding of the learning challenges the SwBs face. They felt that there was lack of evident effort to integrate ICT in a way that promotes positive learning experiences. In agreement with the critical disability theory, which argues that the social pressure exerted directly or indirectly on the SwBs "has the power of a glacier" (Holstein & Gubrium, 2000:08). Dale (2010) sees glacier as the normally negative impact the disability perceptions have on the main learning objectives (Mokiwa & Phasha, 2012).

CHAPTER SIX
CONCLUSION AND RECOMMENDATIONS

6.1 INTRODUCTION

This chapter presents the conclusion by first responding to the research questions individually then making recommendations in the form of a newly designed inclusive critical use of technology framework. The findings are discussed as they relate to the theories that underpin the study in the previous chapter, with conclusions framed by the literature review. Lastly, the chapter makes suggestions for further studies on the use of ICT for learning at UNISA. In accordance with the student-centred approaches the framework might not have any linear pattern but is informed by the students' experiences.

6.1.1 Organisation of major findings

The major findings of the study include the different factors that arise as a result of using ICT for learning and the second major finding highlights the need for inclusive digital approaches. Each major finding is coupled by sub-themes. Under the **use of ICT for learning** there are sub-themes: 1) challenges with mathematical, scientific and accounting signs; 2) inability to access graphic learning materials; 3) incompatibility of software; 4) lack of timely access to electronic learning materials; 5) high cost of ICT tools; 6) *my*Unisa and *my*Life; 7) voice recorders, Braillers, screen readers, personal computers and laptops; 8) electronic mail (e-mail); and 9) mobile phones. Under the **need for inclusive digital approaches** there are sub-themes: 1) use of student-centred approaches; 2) inconsistency between policy and practice; 3) testing and re-testing of assessment tools; and 4) regular seeking of students' views and experiences. To illustrate how each research question was answered during the study the next section outlines the responses.

6.2 RESPONSE TO RESEARCH QUESTIONS

The response to research questions follows below with an aim of illustrating that the study was not carried out in a vacuum but rather aimed at tackling a research problem by answering specific research questions. The main research question was: *How do the SwBs learn through ICT at UNISA?*

6.2.1 What challenges do the SwBs face in their use of ICT for learning at UNISA?

This research question one sought to elicit the students' learning experiences in terms of their academic engagement, barriers, advantages and disadvantages of using ICT. The students reported that they had problems working with scientific signs, graphic materials, incompatible software, late learning material and expensive ICT tools. These responses demonstrate dissatisfaction with the vision-based approaches used to design and facilitate learning at UNISA. Though the university registration process enables the capturing of diversity no proactive move is made to use universal approaches. The use of universal approaches allows for more interaction between the student and the lecturer and accommodates all learning styles and other diverse learning needs.

6.2.2 What ICT tools do the SwBs use for learning at UNISA?

ICT has a variety of tools that can be used for communication, educational and other purposes therefore, knowing which ones the students use for learning is crucial and informs the lecturers' design and facilitation practices. The students reported that they made use of personal computers and laptops though they normally faced challenges such as unreliable electricity supply and technical problems. The study revealed that most SwBs were not equipped with technical skills, causing them to have to carry their ICT tools back to the suppliers for repairs, thus incurring more costs.

The SwBs also reported that they did not make much use of *my*Unisa and *my*Life due to accessibility limitations. The accessibility limitations were experienced when

they used the screen reader. The mostly used *JAWS* screen reader, which is also quite expensive. Some expressed satisfaction with *my*Unisa (the learning tool) and *my*Life (the communication tool).

The SwBs also revealed that they used voice recorders, braillers, screen readers, electronic mail and mobile phones. Some UNISA lecturers have only just begun experimenting with mobile learning, so there is limited research on the use of mobile phones to facilitate learning of SwBs and the general student population.

6.2.3 How can the learning experiences of the SwBs be improved at UNISA?

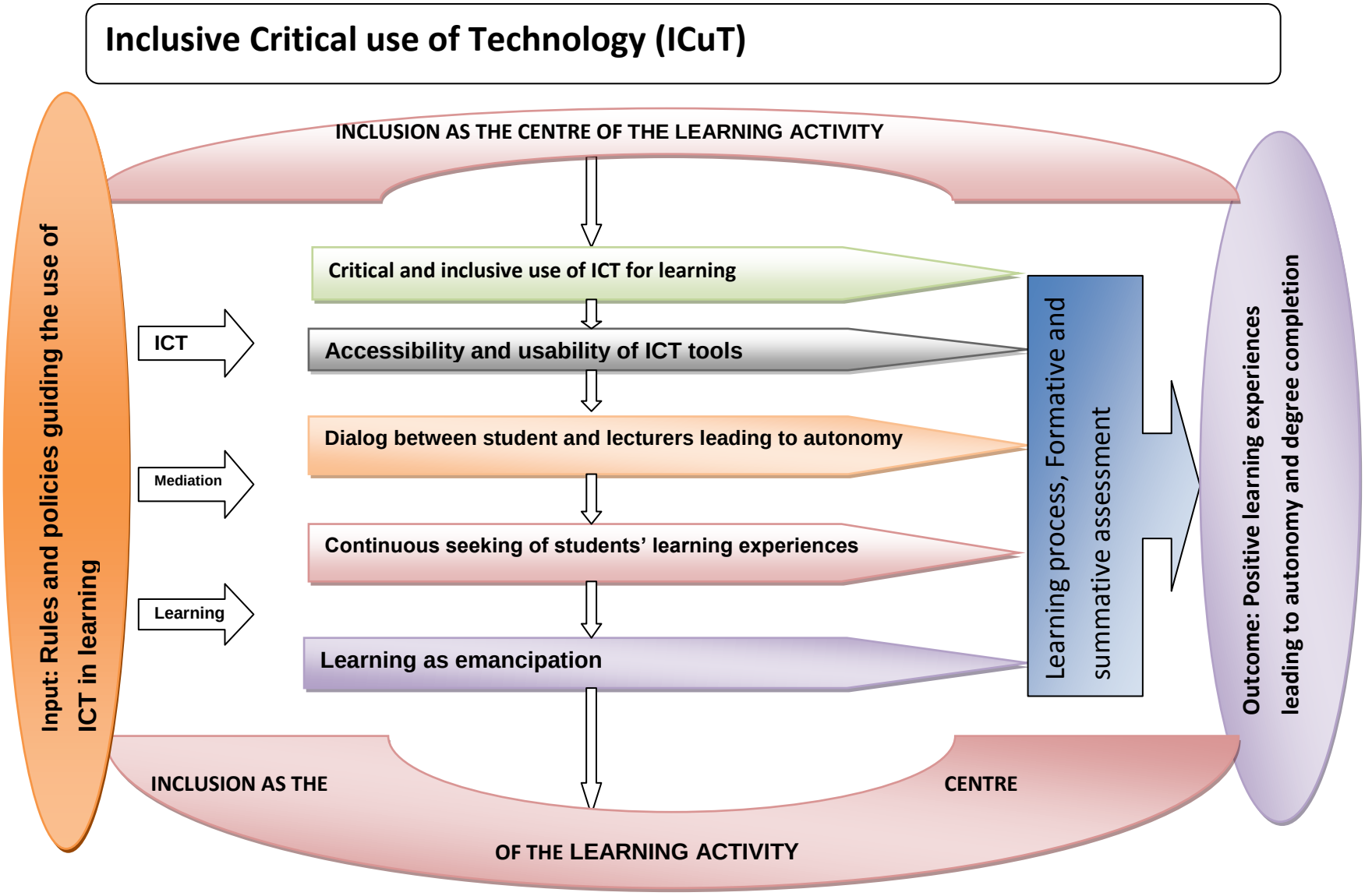
The research question aimed at soliciting students' views on how they thought their learning experiences could be improved. The results revealed that the SwBs thought that with the use of genuine student-centred approaches there should be a match between the policy provisions and the current practices, testing and re-testing of assessment tools and regular seeking of students' views and experiences. This major finding informs the recommendations towards making the SwBs learning experiences positive.

The responses to the three research questions, together with the use of currently available learning support techniques, provide a possibility for positive learning experiences. The different techniques used to ensure students' progress in the ODL system include orientation sessions, group tutorials, detailed feedback to assignments, tutorial letters, trial examinations, individual telephonic support by lecturers or tutors and weekend tutorials (Gatsha & Evans, 2010:156). However, for the ODL system to work effectively, much careful planning is needed. Research has proved that the inclusive and student-centred digital approaches, which are more interactive and encourage critical thinking, are more efficient in bringing about efficient learning (Gatsha & Evans, 2010:165). The next section presents the proposed Inclusive Universal use of Technology framework.

6.3 TOWARDS AN INCLUSIVE CRITICAL USE OF TECHNOLOGY FRAMEWORK

After reflecting on the findings and the whole process of this study I propose a framework called the Inclusive Critical use of Technology (ICuT). This proposed framework was developed with an aim of guiding the ODL institutions on how to use ICT to facilitate positive learning experiences. ICT provides a range of benefits in teaching and learning, but the users need to think critically about how to use them to benefit the students. In line with Moore's (1972, 1973) theory of Transactional Distance, once there is continuing interaction between the student and the lecturer the TD shrinks, giving the student a positive learning experience. Equally, CHAT's focus on the use of ICT to mediate learning can bring about positive learning experiences, possibly resulting in students with higher order thinking and autonomy. The use of UDL to guide the learning process will enable different students to enjoy learning at UNISA, leading to a positive learning experience. All higher education institutions, including UNISA, need to take cognisance of the realities in the country and be critical in the way they design and facilitate learning. This will raise the opportunities of their having positive higher education learning experiences. ICuT can effectively serve guide if it is foregrounded by applicable distance learning theories.

Figure 6.1: The Inclusive Critical use of Technology Framework



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6.3.1 The Inclusive Critical use of Technology framework

The proposed framework provides information about the factors to be considered when facilitating learning through ICT. It puts inclusion at the centre of the learning process, which can be done through using a universal approach to learning which caters for different learning styles the first time ICT is designed and integrated. This approach would require the lecturers to ensure that the publishers supply the learning material in all formats before the commencement of the academic year. Using the ICuT would minimise cases in which the students received their learning material closer to the examination period. I argue that that the response to Mabundas' call should address the diverse student population.

6.3.2 The explanation of the ICuT framework elements

The next section suggests how the framework could benefit UNISA in giving the students positive learning experiences.

6.3.2.1 Inclusion as the centre of the learning activity

The students are the centre of every learning activity designed. In the case of UNISA, there has to be a continuing and up-to-date understanding of the student profile by each lecturer in all the fields of study. This will enable the lecturers to cater for the students' learning needs in advance, hence reducing the problem of late assignments. It is crucial that all students submit the first assignment so that they are able to understand the basics of their field of study. Failure to submit the first assignment on time interferes with their year mark and admission to examinations. All the mentioned precautions would lead to genuine inclusion of all students.

6.3.2.2 Input: Rules and policies guiding the use of ICT in learning

This section calls for rules and policies in guiding the use of ICT in learning. In this case, the rules that have to be followed include the United Nations Conventions on different and human rights based approaches to provision of education to all people. The UNISA policies already make provisions for diverse students but there is much

progress to be made in the implementation of these policies. The use of ICT needs to be authentic and enable the students to learn their subject matter, as well as develop their critical thinking and ICT skills.

6.3.2.3 Critical use of ICT for learning

The critical use of ICT for learning would involve the preparation of learning and assessment material and testing it for errors before it is dispersed to students. To be able to affect the quality learning material there is a need for a hands-on quality assurance team (division of labour). The quality assurance team would ensure that no material goes to the students with mistakes or technical errors. This process is called accessibility and usability testing (Seale, 2006:71).

6.3.2.4 Accessibility and usability of ICT tools

The use of ICT as a learning tool requires testing before the tool is confirmed to be part of the learning activity. In the case of ODL, one needs to check if the tools are adequately used by the students and whether they enhance their learning process. For example, *my*Unisa was incorporated in the learning activity but it was found that a limited number of students could use it. A re-evaluation of the effectiveness of the tool revealed the lack of use or any other limitations that may arise. This testing and re-testing would inform the lecturer on what ICT tools were effective for learning.

6.3.2.5 Dialogue between student and lecturers

Dialogue between the student and the lecturer is possible when both parties take advantage of the available accessible ICT tools. ICT tools such as *my*Unisa are useful to someone who has access to the Internet and has the appropriate software to fully access the online platforms, however, to reach SwBs who have limited access to the Internet requires the lecturer to use other forms of ICT, such as the mobile telephone or electronic mail (email), which does not require an immediate response. Ongoing academic dialogue between student and lecturer leads to autonomy (Moore, 2007). If the lecturers could have an open dialogue with the students they would get

an opportunity to learn the different ways in which they could use ICT to enhance learning.

6.3.2.6 Continuous seeking of students' learning experiences

The SwBs stressed the importance of regularly seeking and using their learning experiences and views to inform the educational practices at UNISA. The framework promotes the continual seeking of students' learning experience with an aim of using them to inform the educational practices. These learning experiences can be sought during the lesson evaluations that take place in every learning environment. ICT can be sought through allowing the students to post their learning experiences anonymously to a specified location.

6.3.2.7 Learning as emancipation

As promoted by critical theory, learning should serve no other purpose but to empower the students such that they move from dependence to self-reliance. The use of ICT should seek to promote critical thinking, facilitate positive learning and self-sustenance. As there is a problem of unemployment in South Africa, providing emancipatory learning would prepare the students to create employment after degree completion.

6.3.2.8 Student-centred learning and assessment through ICT

The preparation of learning material should go hand in hand with the preparation of assessment materials. If the students have indicated that they require the graphic material to be tagged so that their screen reader can be able to read it, that element should also be incorporated in the assessment material. The use of universal approaches will make this a possibility.

6.3.2.9 Outcome: Positive learning experiences

Lastly, the proposed ICuT framework points out the importance of designing learning with outcomes in mind. The outcomes should be aligned with the learning material

and the learning tools to be used. The use of the proposed framework provides potential for the creation of positive learning experiences.

6.4 PRESENTATION AND DISSEMINATION

This copy of the thesis will be converted into Braille and audio format to enable the SwBs and people with visual impairments to access it. As this is critical it is hoped that this research will change the learning goals of SwBs and make them interested in pursuing postgraduate studies. Furthermore, I am hoping to pursue this issue further through a postdoctoral study or through channelling other postgraduate students to embark upon it.

6.5 LIMITATIONS

It was anticipated that some disability issues could be sensitive so I had to exercise caution while working with the SwBs. Caution was exercised to ensure that as much as I was directed to other SwBs, I do not stretch my sample and so digress from my target sample.

6.6 RECOMMENDATIONS

The recommendations are made first for the SwBs, the lecturing and other support staff and UNISA as a whole.

Firstly, it is recommended that the SwBs should undergo continuous ICT training and be given specific tasks with subject-related training. For example, the SwB who is studying Mathematics should undergo training on how to read and write equations through the use of ICT.

Secondly, lecturers, tutors, administrative and technical staff should also undergo training on how to design and integrate ICT into their teaching and learning and student support services that cater for students with diverse needs.

Thirdly, the Department of Tuition and Facilitation of Learning within the University should conduct continuing training on how all colleges can use inclusive and critical approaches in their teaching and learning. This should include the introduction of new technologies to facilitate learning based on students' needs, not technological advancements.

Finally, UNISA should decentralise the student support services to minimise the distance and delays that occur in the process of supporting the students. There should be continuous research into students' experiences of using the availed ICT tools for learning so as to generate best practices in ODL teaching.

6.7 AVENUES FOR FURTHER RESEARCH

This study only focused on UNISA, so other studies could include all the ODL institutions in Africa. This study was qualitative, but a quantitative or mixed-method study would yield different results.

Despite of the limitations, this study accomplished the goal of establishing the learning experiences of SwBs using ICT as a learning tool at UNISA.

6.8 CONCLUSION

Information and Communication Technology as a learning tool is benefitting the SwBs though there is a need for more improvement in the way the University of South Africa integrates it into learning. The findings of the study revealed that although the UNISA policies illustrate that the University has a will to meet the needs of the SwBs the reality on the ground is that not enough has been done in this regard. As has been highlighted throughout the study, teaching SwBs requires one to use universal approaches to learning. The UNISA academics need to learn these approaches in order for the impact of ICT on learning to be notable. The findings of the study are not only significant in making the students' voices heard but also for helping all the stakeholders within the ODL fraternity to learn how best to cater for the learning needs of all students.

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Appendices

Appendix A: Ethical clearance certificate

UNISA college of education

Research Ethics Clearance Certificate

This is to certify that the application for ethical clearance submitted by

SA Ngubane-Mokiwa (40180808)

for a D Ed study entitled

Information and Communication Technology as a learning tool: the experiences of students with blindness

has met the ethical requirements as specified by the University of South Africa College of Education Research Ethics Committee. This certificate is valid for two years from the date of issue.

Prof CS le Roux
CEDU REC (Chairperson)
lrouxcs@unisa.ac.za

19 October 2012

Reference number: 2012 OCT/ 40180808/CSLR

Appendix B: Informed consent form

Letter of Informed Consent

I, Sindile Ngubane-Mokiwa (40180808) am currently registered for a DEd in Curriculum Studies at the College of Education at UNISA. I am conducting a research study titled "Information and Communication Technology (ICT) as a learning tool: the experiences of students with blindness".

The objectives of the study are to collectively elicit the students with blindness learning experiences using ICT at Unisa and explore the benefits of ICT in the learning of SwB through their narratives. It is conducted under the critical research paradigm which aims at questioning dominance in educational practices.

The main research question driving this study is:

How do the students with blindness learn through ICT at UNISA?

The sub-questions are:

4. What challenges do the students with blindness face in their use of ICT for learning at the University of South Africa?
5. What ICT tools do the students with blindness use for learning at the University of South Africa?
6. How can the learning experiences be improved at the University of South Africa?

As a participant, your safety and anonymity will be safeguarded throughout the study and the information you offer will be treated as confidential. The data gathered will be used specifically for this study and disposed thereafter by deleting computer files, deleting the website, deleting any SMSs and email communication, shredding all paper-based files and burning the cassettes.

.

Your choice not to participate in the study will not disadvantage you in any way, if you choose to participate you are at liberty to withdraw at any stage without having to provide any reason. For further queries regarding this research study, kindly contact my research supervisors,

Dr Geesje Van den Berg, 012-4294895 or vdberg@unisa.ac.za and Prof Norma Nel, 012-4294561 or nelnm@unisa.ac.za.

_____ _____

S.A. Ngubane-Mokiwa (0787900071) Date

DECLARATION

I, _____ (Surname and Full Name) hereby confirm that I understand the nature of the research and contents of this document. I give informed consent to participate in this research study.

I understand that I am at liberty to withdraw from the project at any time, should I desire.

_____ _____

Signature of participant Date

Appendix C: Interview Schedule

A. Biographical details

(This question tries to understand and define the nature of SwB in H.E., the courses they do, their family background, and other biographical details).

1. Tell me about your family background, where were you born? Explain
2. Tell me about your schooling experiences, your teachers' attitudes, and your classmates and so on.
3. How are students with blindness perceived in your university?

B. What are the learning experiences of students with blindness using Information and Communication Technology (ICT) at UNISA?

(This question sought to explore their experiences in terms of their academic engagement, barriers they experience, the advantages and disadvantages of using ICT).

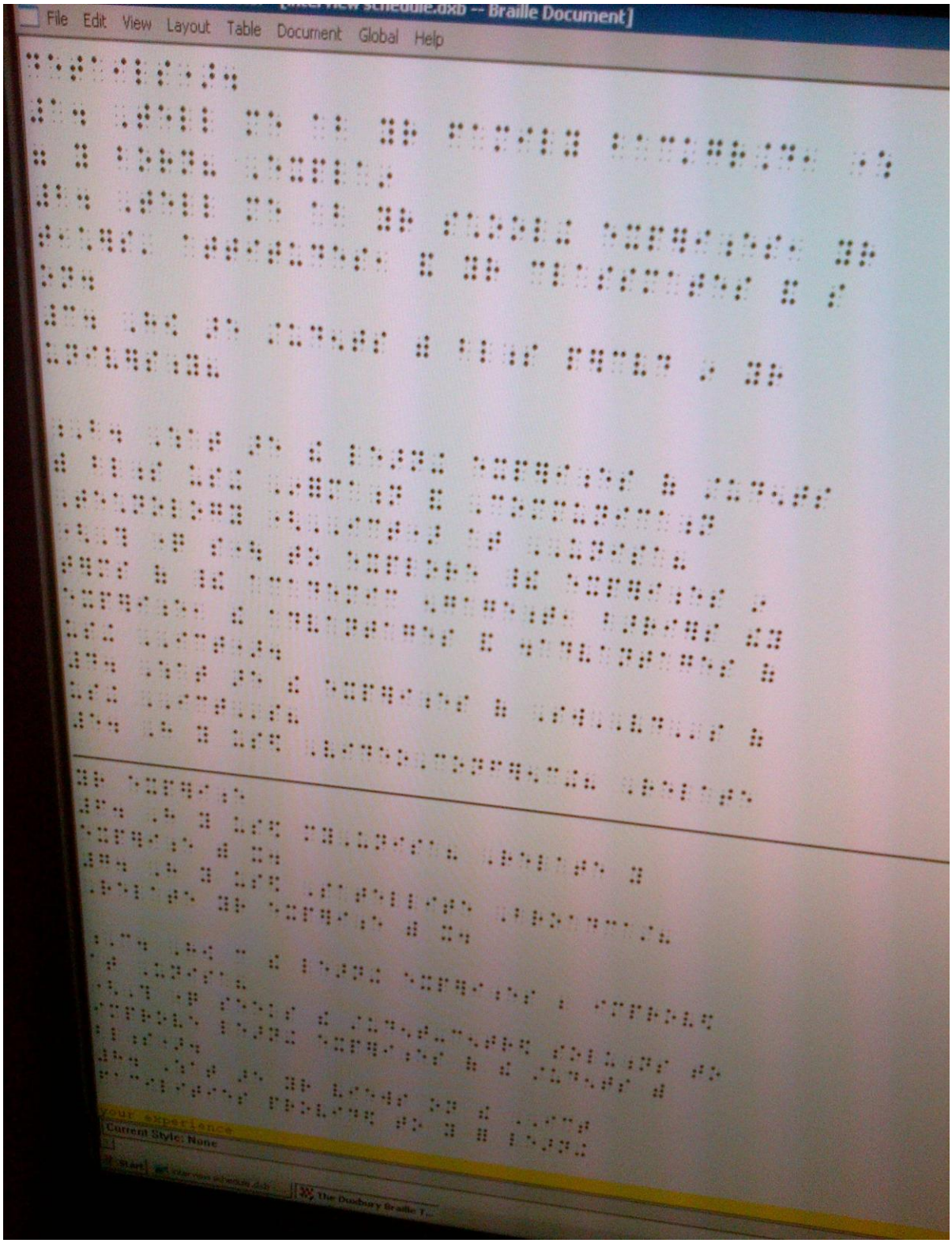
4. What are the experiences of SwVDs of using ICTs?
5. Have you used VideoConferencing? Relate your experience
6. Have you used myUnisa? Relate your experience with it.
7. Have you used Satellite Broadcast? Relate your experience with it.

C. How can the learning experiences be improved at Unisa?

(This question seeks the student-centred solutions to improve learning experiences of the students with blindness).

8. What are your views on the ICT facilities provided to you for learning purposes?
9. What would you like to see coming out of this study for yourself and other SwVIs?

Appendix D: Braille interview schedule



Appendix E: Email message requesting Life story

From: Mokiwa, Sindile [mailto:mokiwsa@unisa.ac.za]
Sent: 20 March 2013 08:59 AM
To: moganeo@premier.fs.gov.za
Subject: Doctoral study on your experience of using ICT/Technology for learning at Unisa

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Dear Cyprian,

Thank you for accepting to be part of this PhD research.

Please find below some info about the study:
Topic: Information and communication technology as a learning tool: experiences of blind students at UNISA

Research questions:

1. What challenges do the students with blindness face in their use of ICT for learning?
2. What ICT tools do the students with blindness use for learning at Unisa?
3. How can learning through ICT be improved at Unisa?

As per our discussion, I would like you to respond to the attached interview schedule and give me a narrative encounter of your learning experience.

I have also attached the ethical clearance certificate as proof that this study is approved by Unisa.

Yours sincerely,

Sindile Ngubane-Mokiwa
Doctoral student: Curriculum & Instructional Studies
Tel: 012-429 6294
Cell: 0787900071

Appendix F: *Dikeledi (In-depth interview)

*Dikeledi (B.Com.in Human Resources Management)

Date: 13th November 2011 Time: 10h30a.m.

I did my primary and high school while I was fully sighted. Thereafter tertiary colleges so I went up to matric at [redacted] High School in 1979. Then I went to train as a nurse at [redacted] Hospital in 1980 until 1983. I got my diploma then worked unfortunately in 1988 my right eye started having problems. It was painful, I went to doctors, the best specialists at [redacted] Hospital, [redacted] Hospital and the [redacted] Institute. The Johannesburg hospital released me after short hospitalization saying that they could not diagnose anything; they could only see that the eye was having a lot of pressure. I could not see at night, I could only see during the day and from a distance. After that I was partially sighted for 9 months, thereafter in 1992-1993 I became totally blind. By then they could diagnose me, saying I am having glaucoma. That is where it all started, so because of the frustration and denial which took about 5 years I lost my husband. I was married but as soon as I became totally blind, my husband left me and went to stay with another woman in [redacted]. I got my parents to talk to my in-laws then I was back here in my house. Through the help of friends I went to Optima for independence training as a blind somebody to do the skills of daily living, touch typing, how to walk alone using a cane, and or if you want a guide dog. Through Optima 13 weeks training I became independent and then after I went for computer training. In 2002 I went for Computer Literacy, the last module was marked at Unisa and I managed to get my diploma. In 2003, I did telephone skills still with Optima I got two distinctions. Three weeks after the training I was employed at the [redacted] where I am [redacted]. In 2005 I said let me register and study because other blind people are studying. I was sure that it was not easy or what but through my sighted friends who were studying at Unisa they got the calendars from Unisa, they read them for me then I decided on the B.Com in HR Management. I am now in the 3rd level, 4 modules in 3rd level and 1 module in 2nd level.

Studying with Unisa mhhhh, I thought if you register for the 1st time maybe as a blind somebody the learning material will come in the right format. But no it was not like that, the material came in print format. Everything came exactly the way it is sent to sighted people. By then the Disability Unit was not up to standard like now. At least now they are trying to accommodate because if you say you want your things on CD you get them in that format.

Previously tjoh, it was a big challenge you find that the cover says Economics but when open inside it is Industrial Psychology. Now you have to take it back and they must do it again at your own cost! The University gives a bursary for registration and the books only. If the quotation is for Van Schaik bookshop, the cheque will go straight there, no change for you. And then you will have to use your transport money to take the wrong learning material back, sometimes they will redo it but still it would come back wrong again. I experienced that with Financial Accounting two times, you find that outside it says Accounting but inside it is Economics. The conversion to Braille is done by the Disability Unit, so once they are done they will phone you and say send somebody to come and collect it. And then I will arrange somebody to go and collect the material at my own transport cost (*stressing*) so you find when the person comes back the material is wrong. Then the person must go back again for the right material. But with the coming of electronic formats, I said well let me forget about Braille since I am not so good in it. Yes I have done Braille because I did my 2 exams in Elementary and Higher Braille so that I could a certificate showing that I can read and write Braille Grade 2. Though I can read it my pace is not as fast as those who are born blind. They are so fast, that is why when they were reading at Optima I would just follow and turn my page over. I would then read in the evening at home because my speed is slower and the other thing that makes it to be so slow is because once you are in the computer you depend too much on it and then forget about Braille. If I did not have a computer I would be in the same level with the born-blind students.

Experience of being a Unisa student: Now I am used to the problems, I know how to deal with them. Nowadays it is better because after registering you fill in a form that is taken to the Disability Unit and then they will do your study guides and other study material in the required format. If you have an email and the study material is not so think they email it to you or you can even get it from them with your memory stick. It is much easier now, now I do enjoy it is just those little challenges. I am not sure if they lie with the lecturers or what but I have received my tutorial material two days before exams. I received Tutorial letter 201 and 202 a day before my module. That one lies with the Disability Unit because the material has to be prepared and sent by them. Sometime back I received my 201 and 202 material when I was in the middle of the exams. When you register you are told that you will receive your study scope after 3 weeks but it is not always the case. We have complained and complained and nothing gets done so we carry on like that. I cannot say this affects only the blind students because I will phone the DU and even the posted printed material came late which means everybody is facing the same problem.

When we are in discussion classes discussing these issues with the lecturers, he will say “at Unisa we are understaffed and we know that we are understaffed and there is no way that Unisa can employ other people because there is no place to accommodate them.” Regardless of the current challenges they are still taking more students because nowadays there are 3 exam sessions a day; there is a 8h30, 11h30 and 14h30. So this tells you that there are many students, yet they are saying that they are understaffed. The administrative part seems to be overwhelming for them. We keep phoning DU and they are working hand in hand with us. If the people responsible for converting materials to Braille or CD, you can go to their supervisor and report and he will push them.

The role of ICT: ICT does help facilitate my learning for all the other modules besides the 3 modules like Accounting, Economics and Financial Management. I always face some challenges with the formats and the moderation part. Firstly, am just saying that the problems we face in the exams are not so much caused by the ICT but the examiners. I was saying that at DU there are 2 senior people who could be used by the examiners to go through the exams converted for the blind. They should trust those people and ask them to test and check if the exam material will be readable by the totally blind student. I am not just talking for myself because I am done with Accounting and Economics but for the students that follow. I am only left with Financial Management, but for the future they should liaise with the DU people. Secondly, in 2008 we had a problem during exams because they do not upgrade the software for the computers we use for writing exams. Even now I believe they do not check for compatibility between the Windows, JAWS and the pdf formatting. I ask myself is it Office 2000 or 2007? And they will not allow you to move around and change the computer the invigilator thinks you are cheating or something. I know that they do not upgrade their computers because in 2009, I was writing Economics I had a challenge. So when I called the invigilator she was not sure how to help me, then when I checked I found the computer has Windows 2000 and it had JAWS 5.0. I said my God! By then JAWS we were using was JAWS 8! Then I said to the invigilator: “The JAWS and all the software you have here is outdated!”. The question paper came in a different format that was not compatible with JAWS so the question paper was just quiet. I pressed and pressed and used all the keystrokes but I still experienced the problem because they do not upgrade our things. That causes very serious problem, even now I cannot tell which version of JAWS is compatible with which version of Windows or pdf formats. Though I do not experience this problem myself but there are some newly blind people with problems with. No I have not made use of the Videoconference and Satellite broadcasts because we the SwB tend to rely heavily on listening to the learning material. The two could be good for learning but I am blind and cannot learn through watching [vision-based learning].

Suggested solutions

Train all staff members on assistive devices for visually impaired learners and provide such devices at the branches. Make sure the websites for additional study material are easily accessible and not on PDF. The video clips, which are part of my learning material and DVD's are voice recorded rather than word processed. I have a lot of CDRoms which I never used although very important and are part of my study material, but because they are word-processed, I never used them. They are not user-friendly for blind learners.

Unisa should open the doors and talk to students! That is the best way to improve things.

Appendix G: *Thoko (In-depth interview)

*Thoko- Bachelors degree in Social Work

Date: 02 April 2012 Time: 14h30p.m.

I was born in [redacted], a village in [redacted]. I was sighted before, until I got a difficult to understand illness when I was 3 years old. The doctors gave different diagnosis like kwashiorkor and others said I lacked iron in my body. With all various things said by the medical experts, I stayed a lot in hospital. They tried different things on me, by the time they realized I had lost my sight it was too late to reverse that. It was a serious illness such that I could not even speak for a couple of years. My father is [redacted] and my mother is [redacted], am from a family of 6. We are 4 boys and 2 girls and I am the 2nd born and the only blind child. Due to my illness, my family decided to move from Taylors Halt, our place of birth to [redacted] in round about 1979. That is the place I know very well because I got there when I was a bit grown up. However the place was not that good for blind people, it is inaccessible, it is a rural area with lots of forests and very mountainous. But somehow I managed and I am very grateful for having grown up there because that is where I learn a lot about life in general. Before that I spent a lot of time at King Edward and Edendale hospital due to my unknown illness, so I do not really have the experience of being brought up by my own parents.

I stayed at hospitals from 1973 until 1975. In 1976 I was sent to [redacted] of the Blind and the Deaf, it was established in 1962. Being there at [redacted] was strange for me because I did not know that there were other blind people. I thought I was the only the only blind person in the world. I was very shocked when I first joined [redacted] and they conducted a physical assessment, it was very shocking for me! I was also shocked because the school was very far from home, so I could only be with my family in June and December holidays.

The school was at [redacted], a very rural village in Zululand. The whole arrangement was unpleasant; it was very difficult at school. The teachers that taught us…hey! It was not an easy life; we bath with cold water through winter and summer. I remember we ate only thrice a day, we had a terrible porridge for breakfast at 06h30 a.m., then we would 2 slices of bread at lunch, terrible food! I remember that we would arrive with a weight of around 28 kgs but by June you will be way below that. Even the attitude of our house was just fine; they took care of us though not like our own mothers. We were awoken early in the morning and sent to

bath in ice cold water! (stressing). We grew up and learnt in those very bad conditions. Remember those were the times of Apartheid, nowadays I think about it a lot and realize that it did affect us indirectly because we were in the under-resourced schools for the black people. Think of it, there is no child who can bath with cold water from the first grade and until Standard 6 (Grade 8). It was more difficult for us because your hands need to be warm when you learn Braille. We also used to do a lot of house chores which I now appreciate since it taught us to be independent and take care of ourselves. When I completed Standard 6, I moved on to [redacted] to do Standard 7 (Grade 9) in 1985. Philadelphia was much better than [redacted], we learnt that instead of sleeping 30 girls in a communal room now only 3 of us could share a room. At [redacted] there was no privacy, there were 3 showers and all the 30 of us would have to line-up and bath in the same shower. [redacted] was better in every way, which is where I first learnt to mix with people from other communities. We were all mixed; there were Zulu, Sotho, Xhosa, Pedi, Shangaan and Venda people there. It was a new but very pleasant and valuable experience for me. Though [redacted] was good and better resourced than [redacted], the teachers never motivated us to aim towards being professionals one day. They all motivated us to do handwork or crafts, I remember a psychologist asking us what we wanted to do when we finish school and when I said a lawyer or physiotherapist or social worker she said I will be a very good jersey maker (laughing). She was a white lady of Afrikaner decent, then I insisted on what I wanted then I said “Mrs Snake, I don’t believe making jerseys will enable me to live comfortably”. She always insisted that I would make very beautiful jerseys; she never encouraged us to aim higher! That made us very de-motivated and disempowered. But that was not our ending, I passed my Matric very well, I even learnt Typing at [redacted]! I then managed to go to Optima College, though I wanted to go to university I had to go Optima to learn how to wash, cook, care and beautify myself. I do not know what made me have that feeling but I did it. There I did Telephone Skills and Rehabilitation Programme (RP). The RP teaches blind people how to iron for themselves, how to match their clothes, just to be independent. It focused on complete personal management and I enjoyed it very much. When I completed my course at Optima, I thought of going to work as a telephone operator then I remembered that my dream was to be a lawyer, physiotherapist or social worker. It was impossible to be a physiotherapist because at [redacted] we were prohibited from doing Maths and Science. They said a blind person cannot do Maths and Science. When we reasoned with them that the blind white learners were allowed in their school for the blind to do Maths and Science, they said we should remember that we are black. That was the most painful experience for me; we had to stop doing Biology. We had to insist to do Physiology which worked at last. We were only encouraged and allowed to do subjects like History, Biblical Studies and languages. We could not do Science and Commercial subjects, we were not allowed to

because we are blind. I then applied for admission at the University of [redacted], I could have applied to many other universities but since I had never stayed closer to my parents. I decided that University of [redacted] will allow me to be closer to my parents. I was accepted at the University of [redacted] to do Social Sciences; it was very difficult since I was the only black blind woman in my course. I remember that at [redacted] I was the first black blind student, the majority had been white males. It was unusual to have blind females at campus, the other females were even careful not to get close to me. I was always alone and lonely but I managed to make friends at last when they realized that I was academically excelling. As a blind, you need to prove your worth before people befriend you. In the lecture theatre I used to sit alone and isolated in front until some people came closer and you got to know each other. In most cases the people who would get close to us are the whites, the black people seemed scared that were going to contaminate them with our disease (blindness). The whites did not mind associating with blind people that is when I learnt that the white people find it easy to associate with people with disabilities. Most of my friends were white, the black students only got used to me when they knew that I was intelligent. When I went to the University of [redacted] now called the University [redacted], I wanted to do Social Work but somebody from the department completely blocked me from registering for it. Their argument was that I was not going to manage to do practical work and counsel people that I cannot see. I remember one day I wrote an assignment and he gave me Zero, he said he could not read my assignment. I was deeply hurt and I decided to just leave the course. But other lecturers from Sociology and IsiZulu were very supportive. They supported me until I completed my degree in Sociology then I moved on to doing an Honours degree in IsiZulu. I then proceeded to doing a Masters in isiZulu, my thesis was marked but unfortunately when I was supposed to make the minor corrections before submission my mother passed away. I had to deal with my loss and just did not manage to complete my Masters. Later on, it resurfaced that I had wanted to do Social Work. I want to be honest with you; this feeling of wanting to be a Social Worker became more persistent when I was at university. I remember I volunteered for the [redacted]. I got very concerned when I kept seeing blind people coming to [redacted] to ask for an opportunity to make baskets and other handwork. I recalled that even I was put into the handcraft category (looking sad). I saw potential in those people; they could be something better in life besides their blindness. Then I thought, me as I will not have the power to fight this social injustice I would have to go and get my Social Work qualification. I then asked myself where I was going to make this dream realizable since all the universities did not want a blind person to do Social Work. Then I thought of going to Unisa, when I registered for the course, I made sure that I do not meet any lecturer so that they do not generate a negative attitude towards me as a blind person (laughing). I did my 1st year and passed all my modules, I went to 2nd year and managed with

my practicals here at the [redacted]. I moved on to 3rd year, it got tougher with the practicals but I managed. Then when I moved to 4th year, Unisa problems started. The thing with Unisa is that it has many challenges; Number.1 you cannot access information the way you want, then the problem of the lecturer being far away from you, it gets worse for us blind students. Social Work…no no no no no, it becomes worse because you have to submit reports now and then. You also need to have a computer, an accessible computer, you need to be in touch with the Disability Unit, and you need to use email to communicate. With Social Work, it becomes tougher because you have to deal with the negative attitudes, they just ask you one question: how can you be a Social Worker when you can see the facial expressions of your clients? They do not consider that when you have a disability you have other ways of sensing emotions. The problem was the supervisor assigned to me; it is very painful when the supervisor talks bad about you in your presence. There is a time in my 4th year when my supervisor compelled me to withdraw from the course. If I was not highly motivated I would have given up but it occurred in my mind that no I will not give up because if I gave up on Social Work, no other blind student will ever get a Social Work degree from Unisa. I would actually block the opportunity for other blind people to do Social Work. I persevered and went back to complete my degree but it was really tough! Even when my supervisor spoke to me impolitely, I persevered so that I could get what I wanted. There is one thing that I noticed that I would like Unisa to rectify is that a blind student cannot be supervised together with a group of other students. If possible, a SwB should be supervised alone because currently the supervisor marks the report and returns it. You as a SwB cannot read the comments immediately, my previous supervisor used to complain to me that supervising me gives him/her extra work since he/she has to explain the comments to me. I then asked her not to explain the comments to me, I informed her that I will find means to access the comments. Then, that is how I managed. If others used about 8 hours per day for their studies, I would have to use double those hours so it was very difficult and the support is inadequate. In fact, Unisa has no support in this regard.

Another thing that is very difficult is when we go to write examinations, they make more than 5 students with different disabilities sit in 1 room. They forget that others are using Braille machines which are very noisy, others are using computers and the talking noise from JAWS is loud, others have people that are reading the question paper for them…whew! You really cannot concentrate! With all of us with different needs, it is a chaos. I wish Unisa could do like [redacted] where we used to be made to sit alone in a room so we can concentrate. I do hope that through your research, Unisa will improve on this.

I want to note that the lecturers are not the same, like in my case for to have come so far with my course my lecturers were quite supportive. I remember there is one module I did that really needed me to be sighted, during the exams there were columns I did not know that that section carried lot of marks. I understood the section fully but since I could not work on the columns so I failed the module dismally. I sat down and thought Oh, God what will I do? How will I start explaining my predicament to the lecturers? But I was surprised that when I called my module leader, he just said "You know what? I want to help you. Please do the exam orally". I was so happy! The [redacted] coordinator also expressed his willingness to help me. I did my oral exam and I passed with flying colours-I got distinctions! The subjects that I had to re-write are the ones that I understood better just that the exam was not designed to suit a blind person. Even the lecturers themselves said that maybe they should have just given me oral exams from the beginning. I have seen as a challenge that I would like to ensure that the other SwBs do not ever have to face. We as SwBs need to be empowered and fight for our rights, which are very important to survive Unisa. If there is something you cannot do due to your disability you need to have the confidence to discuss with your lecturers, tell them that this and that is impossible for a blind person. What I noticed is that even the ones who are in the Social Work profession have no or little understanding of the challenges the PwDs face. Being at university taught me that disability is complex and complicated, my dream of being a Social worker who will promote the rights of PwDs is about to be realized. I am happy! In fact I should have been a social worker long ago if the attitude of the social work academics was positive towards the disabilities. The mindset needs to change to enable more PwDs to become professionals. I am very grateful to Unisa for allowing me the opportunity to be the 1st blind social worker as per my [redacted] coordinators' statement.

My most important wish now is to do my Masters in Social Work; I will proceed to PhD so that I can be an academic. Why this dream? It is because I would like to teach students that will go out there and deal with disabilities justly. If I could find the right people to work with, I would start a module on Disability. That module should be taught to all the professions whether it be theologians, medical professionals, social workers, teachers, etc. In my dealing with social workers and people of other professions I noticed that most people have no understanding of disabilities. You won't believe that even the lecturers were asking me how they should help me; this module will really assist in dealing with this wide gap. I am hoping to get out of this study is that if I can get other people who will work with me to start this Disability Studies module or course.

My memorable moment as a SwB at Unisa is on the first day I came to register at Unisa. Unisa is not accessible, that day the security guards blocked me in the gate and they said that I am not supposed to be there. One said “This is not a place for people like you”, that statement does not leave my memory. It keeps flashing and it hurts. They even asked me “How will you walk around the campus”. Nowadays when I go to Unisa they look at me and I am sure they wonder how I manage. I am grateful for all the challenges I have faced because they have made me stronger. It is the same challenges at Unisa that motivate me to do my Masters. I also liked the way ARCSWiD cooperated with us the students. Even though they are far away, they tolerated our nagging and tantrums. There were times when we fought with them for the late delivery of learning material; this would become worse when the lecturer also puts us under pressure. I am very grateful to my Unisa [redacted] supervisor for all the support she gave me. My request to ARCSWiD and Unisa is that we need the same services provided at the main campus to be at the regional hubs, it is very difficult to have to call Pretoria for all our needs. We are also dealing with people that we have never met! At least they should organize visits to the hubs to introduce themselves to us the SwDs. At least I am here in my office with all the technological facilities but what about the SwDs who are deep in the rural areas? I am sure that they end up giving up studying with Unisa even though they were initially willing to study. They have no one close by that they can go to; to make things worse the people who are supposed to assist have no understanding of disabilities. We would really appreciate if Unisa can make it possible for us to have the Disability services in our regional hubs.

There are times when I hate having a disability like because I love reading but I cannot access all the reading materials. There are prescribed books that we cannot access, we first need to contact the library and ask for the book to be made into Braille; while we wait for the book the other students are carrying on with their work. That is one of the main things that make my disability irritate me. As I said that I love reading, having a visual disability means that I cannot read newspapers and magazines unless if it is the electronic versions. If only I could whew! I love reading about dieting and cooking recipes but I cannot. I get very angry that at this time, there are things we cannot access. Life is really excluding us. I think if was fully sighted, I would be very advanced in life by now (thoughtfully and sounding sad). Also, they would have stopped me from learning to be a Social Worker those years ago. To be honest, Social Work and Law were my choices due to my disability; otherwise I would be a medical doctor by now. I have got the intellect! Now you see what I hate disability. Imagine, if I could see I would have driven straight to Pretoria the time they excluded me from Social Work! Telling me you can’t be a social worker blah blah blah. I would have gone there to deal with the lecturers not the supervisors. Those are all the things that make life so inaccessible

the way it should be, that makes life unenjoyable. Another thing is that you are always undermined, even though you are a student but you are treated as if you do not deserve the same equal services.

I do not remember seeing the Unisa policy on Disabilitiies, if it is there it is very sad that they have not given it to us. We are the ones with the disabilities, so we should be given the policy, contribute towards it because we strongly believe in the motto that says 'Nothing about us without us'. So that means that the motto was not fully applied. I personally do not know the policy since it has never been availed to me. The way things are happening, I am tempted to say that there is no policy because if it was there we would not be having so many challenges. If it is there, they should make it accessible. They have our database, so why haven't they send it to us? They should give it to us the very moment we register at Unisa because it is like our 'bible/constitution'; we need to use to defend ourselves. I do not want to lie to you and say the policy is there, I do not know and I have never seen it.

ICT

You see, for me to delay completing my 4th year. I did not have a computer; my computer just stopped talking making it impossible for me to read. Then, my supervisor got impatient with me. Even when I reported that I am having problems with my computer, she just said I should just leave because anyway I am not supposed to be doing the course. Another challenge that we have is that our ICTs are very expensive, those near the Unisa main campus are better off since they can access the technology at campus. That is if they have, I do not know. It is really unaffordable for us because we have to buy the computer and then buy the JAWS software which costs R12 000 to R12 500. Even if you are working, that is too much. What about those who are not working? It is very difficult. Remember you do not only need the computer, but you also need the Braille Note-taker for taking notes during the tutorials which costs R50 000. I must also buy the voice recorder for taking notes during classes. I am sad about this; imagine a sighted-person only needs a pen and papers- how much is that compared to what a blind person needs? You see? I also like to go to the library but I need technology to access the books. Where is the library anyway, we do not have it here! We are also registered students of Unisa, why can't the university meet us halfway by giving us at least 2 computers per regional hub? Those will help the SwB to be able to access the library that will be minus 1 problem. A relief of some kind!

Exams

There is something else that I do not like at Unisa, when we come to write exams the sighted students bring their pens and find the papers in the exam room. But I as a SwDs should bring my stack of papers and my typewriter, why don't they give us papers like the able-bodied students because we register and pay the same fees? At least they should give the typing sheets, you see. Another problem is when you have registered as a blind person but during exams they bring you an inaccessible question paper, why? They sometimes send us inaccessible study material, very unfair! If I am to rate Unisa out of 5, I would give them one. Honestly!

Suggestions

Unisa should be more accessible to blind students, more especially those who are outside Pretoria. I believe, this University is one of the best equipped for this sector, but unfortunately, the students who are not at the campus or cannot come ther, struggle a lot to achieve their endeavours as the branches in most areas are totally failing blind students. In my area, [redacted] there is nothing, absolutely nothing that caters for blind students. I did not even have a question paper in Braille for my last year's exam. There is no information at all for us down here. One student even could not write because the branch could not assist her. For us to get information, we have to contact the DSU on campus which is not always possible for some of us. Those who do not have money to make calls, hard luck.

I think learning will be accessible if everything can be designed with disabilities in mind. We do not want special attention, but all the students should be able to equally access the Unisa services. I also suggest that Unisa should train all their staff members on disability issues. I remember one day, I was walking with 1 student friend and she was reading for me what they had written regarding disabilities. They wrote that PwDs should not be discriminated against blah blah blah, can you believe that something is written about you but you cannot read it. Why do not they also make us aware that they are creating awareness about our needs? They should also teach the Security Guards at different gates how to assist SwB. Those are the few things that can make our university better.

Appendix H: *Tshepo (Life story)

Course: Law

Date: 4th November 2011 Time: 09h30 a.m.

My use of ICT for learning has got some hiccups, because the documents one gets from Unisa are in pdf format are hazardous in the layout itself cannot be read by the Screen reader. And should you convert them you miss out some things because the conversion process might skip some of the information. So it is a problem at time but with respect to how it affords us the opportunity to learn ICT is quite good it is just that it needs some refurbishment I would say. The issue is that they produce this software for a particular purpose known better by them but when we try and access them using other software like Screen readers it becomes a problem in that they do not becomes compatible to each other. In general the usage of the online system like the MyLife, MyUnisa has got some limitations for a person using a Screen reader in that you will have to copy some text from somewhere in order to access the MyLife system. The text you copy cannot be read using JAWS or any other Screen readers you can think of. Someone must read it out for you or you should paste it in an edit box and convert it; that becomes too cumbersome. That a general impediment with the MyLife service. Generally, graphics are problematic fortunately I am not involved in any graphic course but generally they impose a problem. We do have software that is designed for graphical output but the issue is with Unisa they do not have those softwares. They do not have Braille producers so if even one wants to produce graphics there are no machines. Surely, the role of ICT would be to assist one to access their course material more specifically to easily access the services with its barriers obviously. To speed up access, to make things easier for learners and to assist one to have a direct link with the system. The issue of social construction might be a reciprocal responsibility, academics cannot do much if the SwB does not put adequate effort. With ICT the academics can readily avail their services to the SwB, they can guide him/her through the syllabus. But without the full involvement of the student they cannot do much. My experience is that the academics are more than willing to assist but they struggle if the student does not inform them what kind of assistance he/she needs. If the blind student is not assertive enough the problem arises. The learning material should not be made so fancy that it ends up being inaccessible because it is meaningless for a blind person if the learning material is not accessible. So they should bear that in mind. I feel acceptance to a certain extent may be a problem if the SwB feels that he/she is not accepted because of the disability that will pose a problem. And then this goes

to an extent where you find that the lecturer perhaps because of not knowing what to do and how to do it tends to take things for granted making the SwB feel neglected. There are some incidences of that nature until we sensitize the academic in question most of the people feel that they are sidelined by certain reactions. With [redacted] module I could not read the words I saw them as individual letters. I could not understand or make up any conceivable word! My screen reader could not read anything so I had to ask the invigilator to read the paper for me, it is obvious that this question paper was not tested after conversion As an individual I have not experienced problem, probably because I am an assertive person and advocator for disability awareness. These challenges were faced by both distance students and the ones from around who come physically to Unisa, in both cases we had to intervene. Being blind does not mean that one cannot do certain courses in this time and age, all academics and students need to be aware of that. Every academic should know that being blind does not preclude a student from pursuing his/her dreams. So there should be some courses or awareness based interactions to avoid these incidences and to inform the academics how to better assist the SwB and to assist them in their terrain (student-centred approach) not in their lecturers' terrain. You see I will put it straight here, a person who is doing Social Work being blind has got serious challenges with some academics who think that they cannot do Social Work because they are blind yet we have got plenty of blind Social Workers (stressing). So it is a matter of making them aware and changing their mindset and helping them to better understand the blind persons' world. I think communication with the students and vice versa shall be of great assistance in enabling the SwB to complete their degrees on time. The students should come out and talk about the challenges they face such that interventions can be made based on their own ideas of how they think their learning barriers can be solved. Nobody should take decisions for the SwB with their own voice in those decisions.

Appendix I: *Tshepo (In-depth interview)

Interview Schedule

B. Biographical details

(This question tries to understand and define the nature of SWD in H.E., the courses they do, their family background, and other biographical details).

Tell me about your family background, where were you born?

I was born in [redacted]. How many children are you at home? We are four children and I am the first born. Where did you attend school? I attended school in [redacted] School (primary) and [redacted] School. Explain

Tell me about your schooling experiences, your teachers' attitudes, and your classmates and so on.

My first day at school was a nightmare. Firstly, being a novis in blindness, having to attend school at a boarding facility was so uncomfortable. I met my class teacher who was an expert in the field of blindness, who treated me so gently and, even though it was not simple, I adapted and led a normal life after some weeks. Bullying was a normal course, especially for us newcomers. My classmates were not friendly to me until very late in the year. Some of them thought I am top—class mate so they would not really associate with me.

How are students with blindness perceived in your university?

Quite frankly, it all depends on how "we", portray ourselves towards the broader community at Universities. In my personal circumstance, I attended a contact university fresh from school. To me University gave much freedom and many misconceptions about life at universities. Towards ladies, I was someone to love for benefits I had due to my disability and, to my male counterparts, I was a social elite and a perfect partner for drinking purposes. Some, because of that, thought we do not pay tuition fees.

Tell me what influenced you to choose the career path you chose?

When I grew up, I engaged with older men, real men in both age and experience. I was a teenager and I mingled with men in their very late 30s and early 40s. These were both my friends and guardians. While exchanging thoughts with them, they always would reckon I follow the legal route in life. This was the case also were I would be in meetings

where people would comment that I “make a good lawyer”. This sparked some interest and, peradventure, I was doing history and Biblical studies at school which matched so perfectly with my legal ambition.

What are the experiences of SWB with regard to the use of ICTs?

How do you feel about being part of this research study?

I feel honoured. For I will make positive impact on learning of Students with Blindness.

What would you like to see coming out of this study for yourself and other SwB?

To bring a hospitable, nurturing and responsive learning facility.

What are the memorable moments that shaped your university life?

Firstly, lack of real knowledge about the university life that led to my unnecessary dropping out. Had I had opportunity to reverse life, certainly I would out-smart the past. This is so memorable because had I had done things differently, I would have been ten steps ahead. Secondly, and perhaps on a positive note, I returned back and refocused. This is where I could have completed. This is so memorable because, to me, life began afresh and I took things seriously.

How would you relate your university experiences?

It is so important for a new university student to understand what he/she intends to achieve in life. We must learn, and for us who have kids, to thoroughly inform them of what they should expect in universities. It is only unfortunate for us because some of us did not have parents who could academically guide us through until we learn ourselves. Because of delays that I had, I found my first job being so desperate thus quitting university at my last year, six months before I grab my first degree. With two kids by then, I had to quit in order for me to supply for them. Now I had to enrol with Unisa with all these consequences of almost half of the courses I did uncredited for. This is not what one would have expected; people of my age have achieved far better.

Relate any incident that made your feel uneasy because of your disability.

In my first year at the University, I could not really cope with the fact that I am blind. I did not want to use my white cane. One day after class I walked the wrong direction following others because I attended with them. Instead of going to the hostel, I found myself going towards the library. I did not bother asking anyone of where was I actually going. In some few minutes, I found myself in the water-pond with all the tape, cassettes and electric cable to connect. This was so uncomfortable and so bad an experience. In short, I could

not accept myself as a blind person among non-disabled peers until very late. One other thing is the use of a tape-recorder in class. That made me to feel so stupid. Coming in class and ask for someone to show me a power point, a long extension stretching from the socket to the desk right in front so that the recording could be better, that made me so isolated.

What would you describe as the role and impact of ICT for SwB at HEI?

ICT gives us sufficient access to education. Whatever technology we use, that makes life a million time easy for us. Perhaps at times I must say we turn out to be advantageous over others since we can either make recordings of the class sessions. These days we have more advanced software that help us to achieve this instead of tape-recorders. This means I will have almost an actual voice of the presenter thus, making notes thereafter would be more accurate than the sighted peers.

What challenges do you face in using ICT for learning and other personal use?

Limitations on power supply is one but, the most prevalent is the exorbitant prices attached to these equipment. Scarcity is another challenge. Not many suppliers in the world cater for these equipment; so it is for manufacturers as well. In South Africa, we only have two suppliers/vendors and the other one is just about to be closed down.

Have you been part of videoconferencing? How did it help you in your learning?

No, never use it, because I heard that there are many students there who have to watch on the screen while the lecturer teaches. So I cannot watch it because I cannot see.

Have you been part of a Satellite broadcast? How did it help you in your learning?

No, never use it. I never had the opportunity but I guess it is also pictures which I cannot see.

What do you think can be done to make ICTs more enabling for the SwB?

Advocating for cheaper prices; encouraging suppliers to include in their products, equipment and software programmes for blind people; and by increasing the battery lifespan for portable use.

What are your views on the ICT facilities provided to you for learning purposes?

It is good that there are provisions for those facilities. I don't for see myself achieving without any of those; no matter how filthy some may seem, e.g Braillers which some think it is outdated. In reality, a blind child cannot read or write if he/she cannot read or write Braille. These other facilities only help in making life easy but I encourage everyone to learn Braille for literacy and numeracy.

Appendix J: *Zahara (In-depth interview)

Course: Policy Studies (Honours)

Date: 06 May 2012 Time: 10h00a.m.

My name is *Zahara, I stay in [redacted]. We are six children and I am the only blind at home. I started to be blind while I was very young. I attended my primary in [redacted] School and I did my high school [redacted] School in [redacted]. I always met nice teachers who always assisted when I asked for clarification and help. They explained to me until I understood. As you know that people are not the same, some of my classmates were good and some were not so good. But they were not stressing to me. I did my B.A. in Policy Studies here in Unisa, neh. My major courses were Public Administration and Political Science. I chose that course because I want to be a Policy Analyst, I think that position will give an opportunity to change many things in the country. By being part of this research I am learning how to do research since I am also studying research. Doing this research is going to benefit other students because they will understand how they can achieve their goals. The memorable thing for me is that I struggled to get my degree but with patience I managed to get it. As long as you work hard and by being patient you can get what you want (*smiling*). I started my degree in 2004 and finished it in 2009. That is not so bad considering how long other students take in Unisa. My university was difficult I had to learn time management and hard work. It is hard because you have many other things to do and study as well, you have to socialize with family and friends so you must know how to manage your time. Hey, it was so difficult. Sometimes it was difficult to get my appropriate learning materials on time, as long you keep negotiating and reminding them at ARCSWiD they will get it ready. Because if I don't get my material on time I used to inform my lecturer and he/she will give me an extension. When I asked for an extension to submit my assignment they allowed me but if you do not ask they won't know what your problem is. If I have any questions I send an email or phone my lecturer. Email is more effective because the lecturer can respond to it anytime in case he was not in the office. I do not know what the university policy says about disabilities but I know that I have a right to get my learning material in Braille or Large Text or Audio format depending on my needs. I think at Unisa, ICT is good because everything is there for us. When we are ask they give us Braille material or CD (audio format). Learning barriers….let me think of it. I cannot learn without ICT, for me to do my assignments I need to have a computer at home. Though the computer is a problem when it gets viruses and then I have to carry and bring it to campus for it to be

cleaned. Another problem is that when you order an electronic prescribed book, it takes long to come while you are supposed to be learning and submitting the assignments according to schedule. Another problem is the late coming of course material. When you register you are told that you will receive your study scope after 3 weeks but it is not always the case. We have complained and complained and nothing gets done so we carry on like that. The prescribed books do not come in Braille and that is a problem for some of us. For you to read the audio prescribed book, you need to have a computer that means if you don't have it you cannot learn. These challenges makes it difficult to complete your degree, some students even drop out. The Saturday Tuition classes are good because they give you a chance to meet other students and get to know what is happening around you. In the tuitions you need to inform the tutors of your disability then they will pronounce everything for you that they write on the board. If you do not talk you always face challenges. They could see that I am blind and I cannot see so all of them treated me very well. I also encourage other students to attend those classes.

In my course the lecturers and tutors perceived me as a blind student very well, am not sure about other courses. There is no problem with my course because if I have a problem I consult them and they explain until I understand. Construction of visual impairment: I work part time at [redacted] as an [redacted] but when I got there my fellow workers insisted that since I am blind I am supposed to be work in the switchboard. When I insist that my position is for administration they said "you are blind so switchboard is the only thing you know". After I tabled the issue with the management, they were told that they should allow me to learn other duties since switchboard is monotonous. They do not like me; they say the management is treating me like an angel. I am the only blind person at work so maybe they do not understand that blind people can do other things. They say the management is favouring me and that is unfair to them. We are supposed to be equal. The other issue is that I am more qualified than all of them including my boss so they see me as a threat that is coming to take their jobs. I deal with the misperceptions about blind people by showing them that I can also work like them, if I do not know something I ask. Being a blind person in the visual world you have to be very assertive and not let people pull you down.

I am currently doing my Honours and would like to pursue LLB after this. LLB is good because it will make me more employable. ([redacted] adviced the student- many blind people with LLB are finding it hard to get employment) The researcher suggested to the participant to consider sharpening her research skills such that she can be amongst the few blind person who are researchers.

Appendix K: *Zane (In-depth interview)

Course: National Diploma in Public Relations

Date: 02nd April 2012 Time: 14hoop.m.

Support at UNISA

I have already emailed you my biography so we will mainly focus on my learning experiences at Unisa. I really have a problem with the punctuality of my study material, it is always late. I have to call ARCSWiD all the time to remind them to send me materials. Prescribed books take long to be scanned making assignments late. I find myself spending more money making calls reminding them to provide me the services that I have already paid through to Unisa. ARCSWiD needs to wake-up and improve their services, when you call them they do not cooperate and assist you quickly. Instead they transfer you or keep you on hold.

ICT

When it comes to ICT itself, I am happy with JAWS because it is extremely supportive with web browsing making it possible for me to submit my assignments through myUnisa. Other publishing companies, mostly from abroad are not supportive.

Constructions

My lecturers keep asking me “why do you want extensions all the time?” Don’t they understand that my study material needs to be converted into an accessible format? Besides being blind, I also have a mild hearing impairment and it hurts when people are very impatient with me. They should be working with me at my pace! (stressing). When I used to go for extra tuition at [redacted] College, they were very visual-oriented in their approach.

Positives

Regardless of my disability I have never got a supplementary, I always pass my modules! (smiling). When I have questions and need clarification on anything I misunderstand in my learning, I send an email to the lecturer and they normally respond. Some of them are skeptical though on how to deal with me.

Appendix L: *Zane (Telephonic interview)

Date : 19th March 2013

“In my case, I didn’t have a problem with myUnisa, I mainly used to submit my assignments”
“I also like to use emails because they are cost-effective and I can refer to the lecturers’ response later”
“There is a need for Unisa to improve student services especially for students with disabilities- service delivery is a problem”
“Some study materials arrive very late. This forces me to keep asking for extension on due dates, I don’t like it”
He is not happy about the late arrival of learning materials.
-Finds learning through listening to the computer very challenging. He prefers to have his learning material in Braille because he can read at his own pace and easily refer to it.
-He said “ICT is wonderful and makes my learning easier.”
-He prefers to learn through his phone because it is easily accessible; it allows him to access all communication wherever he is. He expressed his concern about X network stopping to supply blind people with the talking phone.

-CHALLENGES
-ICT or Assistive Technologies are too expensive

Braille display –	R20 000 (small)
	R32 000(big)
Braille printer-	R19 000
JAWS software-	R12 000
Audio phone software	R 4 500

He said: “I had to pay R1 400 extra to get my books printed in Braille so I could be able to learn.”

“Equality for all is not possible when the blind people who cannot afford expensive software cannot study”

Conflict between students’ needs and managements’ needs”
“management needs to listen to our concerns”
“students should be the priority, not management and policies.