

**EDUCATIONAL BARRIERS OF STUDENTS WITH SENSORY
IMPAIRMENT AND THEIR COPING STRATEGIES IN
TANZANIAN HIGHER EDUCATION INSTITUTIONS**

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ABSTRACT

This study explored academic and social barriers, students with Sensory Impairment (SI) in Tanzania's Higher Education Institutions (HEIs) face and their coping strategies throughout their studies. Three major objectives guided this study. First, it investigated academic barriers students with SI encounter in their studies. Second, it identified social barriers students with SI face in their studies and third, it established strategies students with SI employ to cope with the barriers they face in their studies.

A case study design was used to collect data from 27 students with SI, selected purposively from two HEIs in Tanzania. Semi-structured interviews, open-ended questionnaires and focus group discussions were used in data collection and thematic analysis was employed to analyse data.

The findings show that, although scarcity of learning and teaching resources and teachers/lecturers' exclusionary practices constitute major academic barriers to students with visual and hearing impairment, a communications barrier was a major academic barrier to students with hearing impairment. Other academic barriers were examinations and information inaccessibility, barriers in curriculum, and environmental inaccessibility. Furthermore, the study found attitudinal barriers such as society's negative perception of individuals with SI as "incapable", "a burden" and "beggars", which resulted into social isolation and difficulties in making and keeping friendship. Students with SI used both problem-focused and emotional-focused coping strategies to manage educational barriers encountered.

Based on the study's findings, it is recommended that the government should review its national budget in the education sector, to consider students with special education needs in inclusive education settings. Moreover, there should be a community involvement in the provision of special learning and teaching resources. In addition, there should be a transformation of teachers' pedagogy through compulsory training to all teachers in inclusive education settings as well as transformation in teachers and societal negative attitudes towards disabled people for inclusive education settings to fit for these students. Finally, coping with educational barriers requires the collaboration of support from students with SI themselves, teachers/lecturers, parents/spouses, siblings, readers and note-takers, non-disabled students as well as government and non-governmental organisations.

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ABBREVIATIONS

AFB	American Foundation for the Blind
ASHA	American Speech-Language-Hearing Association
CCTV	Closed Circuit Television
CMRT	Cognitive Motivational Relational Theory
DPA	Data Protection Act
EFA	Education for All
FGD	Focus Group Discussion
GPA	Grade Point Average
HE	Higher Education
HEIs	Higher Education Institutions
HI	Hearing Impairment
ICF	International classification of functioning
ICT	Information Communication Technology
L&T	Learning and Teaching
LVAs	Low Vision Aids
NBS	National Bureau of Statistics
NECTA	National Examination Council of Tanzania
NGOs	Non-Governmental Organisations

OUT	Open University of Tanzania
PEDP	Primary Education Development Plan
PG	Postgraduate
SEKOMU	Sebastian Kolowa Memorial University
SEN	Special Education Needs
SEnCo	Special Education Needs Co-ordinator
SEND	Special Education Needs and Disability
SI	Sensory Impairment
SSI	Sight Savers International
TIE	Tanzania Institute of Education
TLB	Tanzania League of the Blind
TShs	Tanzanian Shillings
UDOM	University of Dodoma
UG	Undergraduate
URT	United Republic of Tanzania
VI	Visual Impairment

DEDICATIONS

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RESEARCH MOTIVATION

My motivation towards my research topic *Educational barriers of students with sensory impairment (SI) and their coping strategies in Tanzanian higher education institutions* can be traced to the year 2000 during my teaching practice at Masiwani primary school in Tanga Region, Tanzania. In this school, I observed social isolation among students with Hearing Impairment (HI) as they were playing alone, away from their hearing peers and communicating solely using sign language.

After graduating a Diploma in Education in 2002, I was employed at one secondary school in Dar es Salaam. One of the classes that I taught had five students with Visual Impairment (VI); at first it was a challenge for me because my Diploma in Education programme had not prepared me to teach disabled students (refer section 1.10 operational definition of key terms). I had to seek advice from students with VI themselves and some academic staff, on how to support these students.

I worked at that school for a year before joining the University for my First Degree in education. During my teaching practice, I decided to return to the same school, where I learnt that three out of those five students with VI had dropped out of school. This stimulated an interest to search for their reason(s) for withdrawing. Unfortunately, I could not trace them. Four years later, I graduated and was employed at the same university and happened to meet two of my former students with VI, who had been admitted as students in School of Education in the same university. They successfully graduated and are currently employed as secondary school teachers in public schools. This experience led me to raise the following questions: “How did they manage to cope with all challenges and successfully manage to reach and graduate HE?” This question then inspired me to conduct this research in an effort to assist students with SI improve their academic achievement and reduce school dropouts.

STRUCTURE OF THE THESIS

The thesis is organised into seven chapters. Chapter one presents the problem and its context; chapter two reviews literature related to this study; chapter three presents the methodology applied in the study; chapters four and five presents and analyse the study findings; and chapter six discusses the findings. Finally, chapter seven summarises the findings and provides conclusions drawn from the findings and suggests recommendations for actions and for further research.

CHAPTER ONE

THE PROBLEM AND ITS CONTEXT

1.0 Introduction

This chapter presents the background information to the problem by highlighting an overview of the education system in Tanzania in general and for students with Special Education Needs (SEN). It also draws attention to the challenges inherent in the Tanzanian education system and their impact on the education of students with SEN, specifically those with Sensory Impairment (SI). Furthermore, it presents the problem which provides a justification regarding why the study was conducted in addition to presenting the main purpose of the study. The chapter also provides the objectives of the study and research questions. Finally, it presents the significance of the study, scope of the study, the study limitations and operational definitions of key terms.

1.1 Education system in Tanzania

1.1.1 An overview

The formal education system of Tanzania is structured into four successive levels: Pre-primary, primary, secondary and tertiary education that is 1+6+4+2+3+ (URT 2014c p.9). These levels comprise one year of pre-primary education (from 3 to 5 years), ten years of primary education from Standard One to Form Four (6 to 15 years), two years of secondary education (16 to 17years), and three or more years (18 to 20+ years) of tertiary education (URT 2014c). Public primary education is free in terms of tuition fees for all Tanzanian children, whereas secondary and tertiary education is based on a tuition fee. Although students from low-economic backgrounds, in addition to orphans, do have an opportunity to seek higher education loans from the government, the loan provided is not a reliable source for funding for such higher education because very few receive a 100 percent loan to cover

both tuition fees and living allowances. In fact, almost half of those who apply for the loans from the Higher Education Students' Loan Board (HESLB) fail to obtain one. This low loan application success rate seems to be a major factor behind the low percentage of students who proceed to tertiary education. By 2008, for example, less than two percent of the students who were eligible for tertiary education in Tanzania managed to reach that level (Krohn-Nydal 2008).

Generally, the Tanzania education system also acknowledges education of disabled learners in all levels of formal education and training (Hakielimu 2008; URT 2012b). In fact, different strategies have been initiated by the Tanzanian government towards providing full access to education to all disabled students (refer section 1.10 on operational definitions of key terms) being given special attention (URT 2012b; URT 2014c). The National Development Vision of 2025 underscores the efforts necessary to support increased access to education for all groups, including disabled students (URT 2005). Similarly, the Education and Training Policy of 1995 and 2014 emphasises equitable access to education by considering disabled people as one group among the disadvantaged groups which previously had lacked equitable access to education (URT 1995; URT 2014c).

1.1.2 Challenges in the Tanzania education system

For the past decades, the Tanzanian education system has been constrained by several challenges that undermine the quality of education it provides. These difficulties include, inadequate classroom resources and materials, insufficient teaching staff and lack of administrative resources in terms of evaluation of the system efficiency (Hakielimu 2008; URT 2012b). Moreover, issues such as teachers' professional development, which include in-service teachers' training and upgrading of licensed teachers and non-education professionals to full-time teachers, receive less priority (Hakielimu 2008; Kapinga 2012;

Tungaraza 2012b), possibly because of government's limited investment in education (Hakielimu 2014b).

In addition, the dropout rate of disabled students remains high and their enrolment in different education levels, has not been encouraging. In 2008 only four in every 10 disabled children were enrolled in primary school and 16 percent were refused entry to school (Wilson 2011). This result is in line with National Bureau Statistics (2010) findings that, only 38 percent of school aged (7-13) disabled children attend school, hence the high illiteracy rate of 47.6 percent among disabled people compared to 25.3 percent among those non-disabled. Regarding their enrolment, there is a decrease in primary schools' enrolment from 36,585 in 2010 to 27,853 in 2013 (URT 2015b).

Various reasons are associated with this low enrolment of disabled students as well as their failure to attend school. The inhibiting factors according to (NBS 2010; The Kesho Trust Tanzania 2013; URT 2015b) include poverty; disabling condition/illness; long distances from home to school; lack of awareness among parents including parents' over-protection of their disabled children; absence of special teachers and support resources; society's negative attitudes towards disabled people; inaccessible physical environment; as well as the advanced age of the learner because some of them are refused entry into school as they were far older than their peers at the entry level of education. Some students were sent to school for Standard I (class one in Tanzania primary schools) when aged above age 15, instead of seven years due to the parents' over-protection or shame associated with having a disabled child: traditionally some of Tanzanian society tends to associate disability with witchcraft (The Kesho Trust Tanzania 2013). Lastly, is lack of security, especially for students with albinism. Albinism is lack of pigmentation in the eyes, skin and hair which results to moderate to severe visual impairment (Heward 2013). In Tanzania, individual with albinism

are at risk of being killed due to superstition belief that their body parts can bring good luck and wealth [see <http://www.bbc.co.uk/news/world-africa-30394260> (14/09/2017)].

School dropout is also reported in the National Strategy on Inclusive Education 2009 – 2017 Report, which shows that the “dropout and repetition rates remained high for both disabled learners and other vulnerable learners” (URT 2009, p. 2). The challenge (insufficient teaching staff, inadequate classroom resources and materials, as well as professional development) affect learning for practically all the students; however, the situation is worse for disabled students as outlined in the Literature Review under Section 2.1.

1.1.3 Conceptualisation of the term disability

Essentially, there are two major perspectives applicable in defining the term ‘disability’: A medical model and social model (Alcott 2002; Tremblay 2007; Trussler and Robinson 2015 Scruton 2016).

Medical model

This model applies to a traditional ideology used by Western societies to conceptualise disability and SEN (Hodkinson and Vickerman 2009). This model judges a child’s limitations or impairment in relation to developmental and functional norms by comparing the performance of a child suspected to have a disability with other children of the same age with no such disability (ibid). The model applies the concept drawn from the medical field when describing a child with SEN or disability (Trussler and Robinson 2015). For example, it views disabled people as objects to be treated, changed or improved and made more normal to fit into the society (Alcott 2002; Tremblay 2007; Trussler and Robinson 2015; Scruton 2016). Scruton (2016, p. 102) contends that, the medical model describes them “as dysfunctional or ‘ill’ and thus, need to be cured.”

The medical model puts more emphasis on changing the child perceived to have a disability to fit into the existing education system rather than changing the education system to fit the child (Rieser see Trussler and Robinson 2015). Historically, this model has been used in the identification and placement of disabled children in special schools (Corbett and Norwich, see Hodkinson and Vickerman 2009). However, this model fails to link disability and interaction between individuals and societal conditions, as well as the expectations. Despite the limitation, its operation seems to be necessary, especially in the identification of students with SEN for resource allocations in inclusive settings.

Social model

This is a relatively new ideology for conceptualising the term ‘disability’ originating from the 1970s and 1980s disability rights movements (Trussler and Robinson 2015; Scruton 2016). It is “a way to liberation and a way of making sense of our experience” (Rieser 2001, p.17). In this regard, the social model represents the perspectives of disabled people themselves, who underscore the role of the environment in their well-being. It views the environment as a source of disability for people because it restricts their mobility and ability to communicate and function effectively (Brainhe, see Hodkinson and Vickerman 2009; Scruton 2016). Social model practitioners attribute the learning difficulty of the child and disability in general to environmental factors that can cause obstacles to education access and participation (Trussler and Robinson 2015; Scruton 2016). The model also works on the assumption that disability is determined by the contexts because of the society’s limitations to accommodate their needs (Avramidis and Norwich 2016).

Although the medical model underlies a philosophy of segregation (special school), the social model is based on a philosophy of inclusion (Alcott 2002; Hodkinson and Vickerman 2009; Trussler and Robinson 2015; Avramidis and Norwich 2016). However, schools which

adopt a social model are required to review their curriculum approaches, classroom management and organisations, together with teachers' expectations to eliminate stereotyping, discrimination and societal negative attitudes towards disability and disabled people (Hodkinson and Vickerman 2009). A shift from perceiving learners' difficulties from their impairment to the role society and education system can play, assists teachers to explore barriers to learning and other exclusionary factors beyond the learners' control (Scruton 2016).

Students with Special Education Needs and Disabilities (SEND) /exceptional learners

Various terminologies have been used in different countries and at different times to refer to students with learning difficulties. For example, the term 'SEN' has been widely used in the UK to refer to students with learning difficulties who may not benefit from the education provided to other students of the same age. The application of this terminology started in the early 1980s and originated from Warnock report to replace the existing 10 groups of handicaps (DES see Richards 2016a; 2016d; Avramidis and Norwich 2016). In this regard, a child with a disability in UK is referred to as a child with SEN and is defined using three criteria: first, he or she must have a learning difficulty which calls for special education provision; second, he or she must be a registered pupil in a school and, third, he or she must be aged less than 19 (Education Act 1996; Farrell 2005; Hodkinson and Vickerman 2009).

The Education Act, 1996, in the UK describes children with learning difficulty as those with greater difficulty in learning compared to other children of the same age or those who have a disability that impedes their utilisation of education resources given to children of the same age in schools within the Local Education Authority (LEA). Lately, a new term 'Special Education Needs or Disability' (SEND) has replaced SEN (Children and Families Act 2014). Despite the change in terminology, SEND refers to the same category of learners with a

learning difficulty that demands for special provision to enable them to benefit from education provided (Education Act 1996; Children and Families Act 2014; Richards 2016a). However, the use of the term disability in categorising students with learning difficulties may create some contradictions, whether students learning difficulties are associated with the learners' condition or limitations in the education system or society at large (Richards 2016a).

In contrast, scholars from the United States use the term 'exceptional learners' to refer to students with learning difficulties (Hallahan, Kauffman and Pullen 2012; Heward 2013). Heward (2013) contends that the term 'students with disability' is more restrictive than 'exceptional children' because it does not include gifted and talented children. Similarly, the International Classification of Functioning, ICF, (see UNESCO 2009a) perceives disability as the outcome of interaction between an individual with impairment and its environment. For instance, a child with visual loss who has access to books and learning and teaching materials as well as other necessary education support and does not face any environmental and attitudinal barriers is considered to have an impairment and not a disability. Thus, Heward (2013) defines exceptional learners as those who depart from the norm either above or below to such an extent that they require an individualised programme of special education and related services to fully benefit from education. Similarly, exceptional learners are those who require special education and related services to realise their full human potential (Hallahan, Kauffman and Pullen 2012). In this regard, the term *exceptional learner* is a broad term which includes students with sensory impairment, physical impairment, learning and behavioural problems, intellectual limitations, speech defects and giftedness. However, categorising students as exceptional seems to raise questions: what makes them exceptional- their impairment/condition or society's limitations to meet their needs?

Special needs versus special education needs

Exceptional children have either special needs or SEN, Hodkinson and Vickerman (2009), and Hodkinson (2016) distinguish special needs from SEN in that special needs do not necessary amount to a barrier to learning and such a child would not usually need access to SEN. For example, the need for students with physical impairment to use wheelchairs constitutes a special need because of their reduced mobility and not SEN as their impairment does not impede their ability to learn (Hodkinson and Vickerman 2009; Hodkinson 2016). However, the need for a wheelchair can result into barriers to learning when a student is accommodated in inaccessible school infrastructures which do not consider wheelchair users (see section 2.1.1vi subtitled “environmental inaccessibility barrier”). Students with special educational needs include students with visual impairments who may require assistive devices, for example, a Braille machine to read and write or reading material in large print depending on the magnitude of the problem; a deaf or hard of hearing person who needs hearing aids or in extreme cases instruction in sign language or lip-reading (Rukuni, see Heward 2013). In this regard, scholars who use the term ‘students with SEN, seem to refer to only those whose impairment can cause barriers to learn unless certain provisions are made available to facilitate their accessibility to learning.

Although scholars use different terms to refer to students with learning difficulties, it can be noted from their definitions that they all agree on two important things: exceptional learners/students with SEN and disabilities face learning difficulties in a learning environment and situations designed for non-disabled learners and they need special education provision to benefit from such education. However, categorising students with learning difficulties as being special/exceptional can imply that, they are different from other students, perceived as normal and, thus, their learning difficulties originated from their condition and not the school system or society at large (Richards 2016a). In Tanzania, the

common term for students with learning difficulties is *students/learners with disabilities* (URT 2009). However, this study, use the term disabled students to refer to all categories of students with learning difficulties because the term conforms to the social model of disability, which acknowledges that these students are disabled because of the way in which the education system is organised (Rieser 2001; Trussler and Robinson 2015; Scruton 2016; Avramidis and Norwich 2016). Rieser (2001, p.17) further contends that, using terms like *people with disabilities* “feeds a ‘them and us’ culture” among people in the society. Similarly, the term students with *SEN* is used to refer to the needs of disabled students in specific education context like L&T process. The term *sensory impairment* is used to refer to students with either hearing or visual loss. Literature categorises Sensory Impairment (SI) into three groups of individuals: Those with visual loss (including blindness and low vision), hearing loss which incorporates deaf people and hard of hearing, and those who are deaf blind (Heward 2013). Since this study involved students with Visual and hearing impairment the next sub-section provides both their description and SEN.

I. Students with Visual Impairment (VI)

Heward (2013) defines visual impairment from both legal and educational perspective. The legal definition views a blind person as someone with visual acuity of 20/200, meaning that what a blind person sees at a distant of 20 feet, a person with normal vision can see at 200 feet away. However, this study adopted educational definition of visual impairment which emphasises the relationship between vision and learning or method of reading instruction.

According to the education-based definition, VI involves both students who are blind and those with low vision. Whereas a blind person receives no useful information through the sense of vision and thus requires tactile (Braille print) and auditory senses for all learning, students with low vision use vision as a primary means of learning to read printed material

using large print books and/or magnifying devices(*ibid.*), which may be supplemented by tactile and auditory input. However, with advancements in technology, magnifying glasses and other assistive technologies are recommended more to students with low vision than print books (Douglas *et al.* 2011; Hallahan, Kauffman and Pullen 2012).

Apart from Braille, students with blindness can also use aural methods, such as audio tapes for learning. In addition, students with VI also need orientation and mobility skills. Orientation involves the ability to know where one is going, and how one will get there, mobility involves moving safely and efficiently from one point to another (Heward 2013). Orientation and mobility support incorporate the long cane, sighted guide/human guide, tactile maps, and guide dogs. According to Heward (2013), the long cane is the most widely used device for adults with severe VI, while the guide dog is the least employed strategy.

Furthermore, Heward (2013) points out that people with VI who use guide dogs as a source of mobility are below two percent of all people with VI. It appears the effectiveness of a dog depends on extensive training in orientation and mobility specially designed to condition it to selecting a route and to be aware of the environment (*ibid.*) Regarding orientation and mobility, Heward (2013) asserts that for individuals with VI to develop self-confidence, physical and social skills, they are required to have independent mobility rather than relying on other people for their mobility.

Academic achievement of students with visual impairment

In 2012, the Tanzanian National population census reports that there are many people with VI in the country, compared to other categories of conditions/impairments (URT 2014b). However, the enrolment of students with VI in 2013 does not reflect the general population

of individuals with VI as it is relatively low compared to other categories as illustrated in the table below;

Table 1.1: Category of conditions/impairments and enrolment in Standard 1-7

Category of conditions/impairments	Population (2012 National census) Source : URT (2014c)	Enrolment from standard 1-7 (2013) Source: NBS (2014)	Percentage (%)
Albinism	16,127	1,861	11.54
Visual impairment	821,213	1,423	0.17
Hearing impairment	410,182	4,434 (deaf/mute & deaf-blind)	1.08

Source: URT (2014c); NBS (2014)

Table 1.1 shows that the population of people with VI in Tanzania in 2012 outnumbered other categories of conditions/impairments however, the enrolment of students with VI in 2013, was relatively low in relation to the total population and enrolment of students with other types of impairments. This could possibly be a result of a low percentage of individual with VI in school aged group (7-13) compared to other groups 15 year+ (NBS 2010; see also sub-section 1.1.2, for more reasons p.18). Population and enrolment of disabled students in Tanzania in 2012/2013 is further illustrated in the Figure 1.1 below:

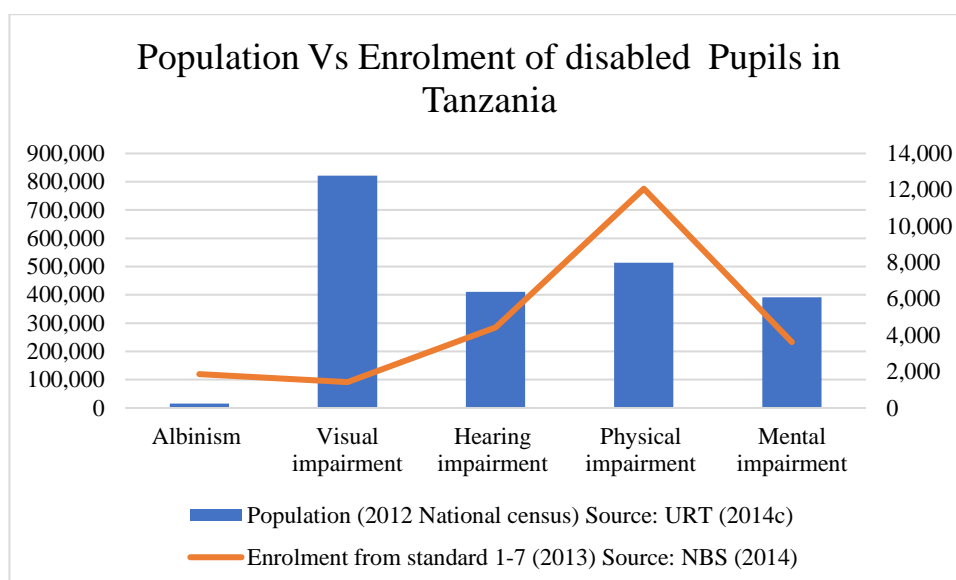


Figure 1.1: Population against enrolment of disabled pupils in Tanzania 2012- 2013

Students with VI have also been found to have low academic achievement compared to their sighted peers, especially when it comes to cognitive tasks that require comprehension or relating items of information (Heward 2013). However, the low academic achievement is not associated with blindness, but rather with lack of exposure to Braille and teachers' low expectations (Hallahan, Kauffman and Pullen 2012). Other reasons associated with low academic achievement for students with VI in Tanzania include the presence of few inclusive schools, inaccessible examination system to students with VI and teaching methodologies that are unresponsive to their needs (Mwakyeya 2013).

Education placement of students with visual impairment

General education classrooms constitute popular placements for students with VI in the United States (Hallahan, Kauffman and Pullen 2012). Most of students with VI in general education classrooms receive support from a peripatetic teacher, who collaborates with a classroom teacher on curricular and instructional modifications in accordance with the needs of the child (Heward 2013). Similarly, in Scotland 70 percent of students with VI are educated in mainstream primary and secondary schools (Weedon *et al.* 2012). The placement

of students with VI in general education classrooms/mainstream schools in United States and Scotland is similar to practices in Tanzania where many of the students with VI receive their education in inclusive education settings alongside their peers without SEN (Ezekiel 2009). However, there are more primary schools which enrol students with VI than secondary schools. For example, by 2013 there were only 15 secondary schools in the country which enrolled students with VI (Mwakyjeja 2013).

ii. Students with Hearing Impairment (HI)

Hallahan, Kauffman and Pullen (2012) treat hearing impairment as a broad term which covers individuals with impairments ranging from mild to profound. This term also covers those who are deaf and hard of hearing. A deaf person is perceived by Hallahan, Kauffman and Pullen (2012) as an individual with hearing loss which is so severe that it impedes successful processing of linguistic information through hearing with or without hearing aid. In contrast, a person who is hard of hearing can use his or her hearing to understand speech with the help of a hearing aid (Hallahan, Kauffman and Pullen 2012; Heward, 2013). This study defines students with HI as those who require hearing aids or in severe cases, instruction in sign language or speech reading to benefit from education.

Academic achievement of students with hearing impairment

The majority of learners with HI face difficulties in practically all areas of academic achievement, particularly reading and mathematics (American Speech-Language-Hearing Association [ASHA] 2015). Thus, they usually lag far behind their hearing peers in academic achievement and the gap widens as they grow up (ASHA 2015). Historically, deaf students have been found to be under-achievers compared to their hearing peers (Grimes and Cameron 2005). For instance, in 2005 deaf pupils in Scotland were found to fall behind significantly in mathematics, reading and writing when compared to their non-deaf

counterparts in all year groups. The situation is worse at the higher level of academic certification where literature documents very low percentage of deaf students who proceed to higher levels compared to their hearing peers (Grimes and Cameron 2005). In Tanzania, education trends of students with HI reveal that, majority of these students have poor academic achievement (Migehe 2014; NECTA 2015). This is exemplified in Migehe (2014) that, out of 235 students with HI who joined secondary schools from 2005-2008, only 28 students passed the National Form Four Examination; Four with Division Three and 24 with Division Four. These findings concur with that of Grimes and Cameron (2005) that very few students with HI proceed to higher academic levels. For example, in 2015 only two students with HI out of 22 who sat for the ordinary secondary school examination in one of the special schools passed the examinations (NECTA 2015).

The academic underachievement of deaf students is mainly attributed to inadequate development of a first language, as well as a mismatch between the demands of spoken and written language, and not intelligence. Similarly, Mitchel and Karchmer (2011) argue that deafness itself does not limit the cognitive capabilities of an individual. In Tanzania, various reasons have been attributed to poor academic performance of students with HI; lack of trained teachers, lack of common medium of communication as well as shortage of L&T resources to name the few.

Educational approaches for students with hearing impairment

Many programmes for students with HI emphasise one of the following strategies: Oral/aural approach, total communication or the bilingual-bicultural approach (Hallahan, Kauffman and Pullen 2012; Heward 2013).

Oral/aural approach: This method places more emphasis on the use of speech for deaf students to function in the hearing world (Heward 2013). It involves teaching the child with HI various ways to produce and understand speech using several means to develop residual hearing and an individual ability to speak clearly (Hallahan, Kauffman and Pullen 2012; Heward 2013). This method relies much on assistive devices and technologies (hearing aids and cochlear implants) to enhance the residual hearing of an individual (Hallahan, Kauffman and Pullen 2012). Other applicable means include auditory training, which equips the child with the appropriate skills to use when they are involved in learning by listening, and speech reading (Hallahan, Kauffman and Pullen 2012; Heward 2013). Speech reading, on the other hand refers to a process of understanding spoken language by observing a speaker's lip movement, facial expression, eye movement and body gestures (Heward 2013).

Total communication: This approach is the most widely used method of instruction in schools for deaf learners in the United States (Hallahan, Kauffman and Pullen 2012; Heward 2013). The approach involves simultaneous use of speech that is oral communication and manual method which can include signing and/or finger-spelling (ibid.). This implies that, teachers who employ this method integrate the sign language into their oral communication to help deaf students understand their instruction either by using one method or both communication methods.

The bilingual-bicultural approach: This approach considers sign language as the primary language for deaf students, which plays a vital role in the development of their learning programme and curriculum (Hallahan, Kauffman and Pullen 2012). Sign language is a method of communication in which people communicate using visual spatial language such as different shapes, locations and movement pattern of hands, intensity of motion, and facial expression (Hallahan, Kauffman and Pullen 2012; Heward 2013). The goal of the bilingual-

bicultural education approach is to enhance the deaf students' ability and competence in both the sign language as their first language and efficiency in communicating using their second language, which can be English or any other language (Heward 2013).

However, none of these three proposed methods of communication with deaf students has been proven to be the most effective in the education of deaf children (Hallahan, Kauffman and Pullen 2012). This view concurs with Schirmer's (2001) idea that, meeting the needs of deaf students requires professionals to consider various methods. In fact, each of these three methods has been prevalent in a certain period. For example, the oral/aural approach gaining popularity in the education of the deaf students because of an increase in cochlear implants (ibid.). However, the use of cochlear implant implies a medical model which places more emphasis on changing the child to fit into a given education system (Trussler and Robinson 2015; Scruton 2016). This suggests that an effective method of communication in deaf education requires not only the availability of trained teachers and other professionals, but also adequate assistive devices, skills in assistive technology, as well as combination of methods to suit individual needs.

Education placement of students with hearing impairment

The majority of students with HI can attend local public schools with their fellow non-deaf or hard of hearing students. The US Department of Education (see Heward 2013) reported that, 54 percent of the students with HI learn in general classrooms with hearing students. The situation in the US is almost the same as that of England and Scotland where most of the students with HI receive their education in mainstream schools, with very few who need special provision attending special schools (Alcott 2002; Weedon *et al.* 2012). For example, more than 80 percent of the students with HI are enrolled in mainstream classes (Weedon *et al.* 2012). Alcott further observes that, in mainstream schools there are students with mild

hearing loss who manage their education without assistive devices whereas others need appropriate resources to cope in mainstream schools. With response to inclusive education, the majority of the students with SEN including those with HI in Tanzania, learn in inclusive schools, except for those with severe conditions who are placed in special schools (Ezekiel 2009).

Regarding the types of placement for deaf students, other literature argues that, this does not necessarily influence the academic achievement of deaf students which is rather dependent on the quality of instruction provided whether in special or mainstream/inclusive schools (Kluwin and Moores, see Hallahan, Kauffman and Pullen 2012). The quality of instruction, in turn, seems to relatively depend on the nature and severity of impairment. In other words, what is perceived as quality education by a student who is hard of hearing might possibly not be a quality education to a deaf student due to their differences in severity of their impairment and their special educational needs. In this regard, the focus of teachers' instruction should be on meeting each student's SEN.

1.2 Education provision for disabled students

Education of disabled students is divided into three major categories: Special educational system, integration system and inclusive education. These are further presented in the following sections.

1.2.1 Special education

Special education involves a specially-designed instruction that meets the usual needs of an exceptional student and that might require special material, teaching techniques, or equipment and/or resources (Hallahan, Kauffman and Pullen 2012). Other scholars view special education as an intervention designed to prevent, eliminate, and/or overcome the

obstacle that might prevent a child with learning difficulties from learning and limit his or her full participation in school and society (Heward 2013).

History of special education

Literature shows that, early experiences of special education were evident in Europe from the sixteenth century. Pedro Ponce de Leone of Spain in 1578 documented the existence of deaf education (Tremblay 2007). In the UK, special education started with the introduction of the first school for children with visual impairment in 1760 in Edinburgh (Hodkinson and Vickerman 2009; Hodkinson 2016). In the same year of 1760, the Institute of Deaf Education was opened in Paris by Abbe Charles Michel de l' Epee (Tremblay 2007). In the nineteenth century, literature documents the work of Jean Marc-Gaspard Itard (1775-1838) who used systematic techniques to teach a young boy, referred to as “a wild boy”, how to communicate with others and how to perform daily living skills (Tremblay 2007; Hallahan, Kauffman and Pullen 2012). Another early scholar who was concerned with the education of disabled students, was Samuel Gridley Howe (1801-1876) who did not only teach students who were deaf and blind but also contributed to the establishment of the Perkins School for the Blind in Watertown, Massachusetts (Hallahan, Kauffman and Pullen 2012). Another important milestone is that of Louse Braille who invented the Braille script for learners with VI in 1829 (Tremblay 2007; Heward 2013).

Despite the availability of history on special education in literature, generally there is limited information on the history of special education from the perspectives of disabled people themselves (Armstrong, see Richards 2016c). Indeed, the history is largely dominated by non-disabled people, for example, experts in the area, research findings or medical practitioners (Richards 2016d).

In Tanzania, special education started in 1950 with the first special school for pupils with VI opened by the Anglican Church at Buigiri in Dodoma region (Tungaraza 2009; Tungaraza 2012a). In 1962, two more schools for pupils with VI, called Furaha in Tabora and Irente in Tanga regions, were established by the Catholic and Lutheran churches, respectively followed by three other similar schools opened by the Roman Catholic Church in 1967 in Shinyanga, Kagera and Kigoma regions. The history of special schools for students with HI follows a similar pattern as those for VI as they were also started under the influence of a religious organisation in 1963 by the Catholic Church (Tungaraza 2012a). The history of special education in Tanzania resembles that of the UK as both countries started through the enterprise of individuals and/or charities and not the government. Even though, UK started special education before the nineteenth century, many students with various conditions/impairments did not have access to education until 1970 when all other students who previously were categorised as “in-educable” had the right to education (Richards 2016d).

Similarly, in Tanzania, despite the provision of SEN having started in the pre-independence era (1950), very few disabled children (about 1%) have had access to education (Tungaraza 2012a; Mwakyeja 2013). This severely limited exposure to formal education. This can be attributed to most of the institutions which provided SEN services, being operated by NGOs, which creates financial constraints for the majority from low income parents who were required to finance additional costs such as transport, uniform and stationery. Moreover, some children are denied access to school because of inadequate classrooms and resources (Wilson 2011).

Teacher education in special education in Tanzania

Teacher education in Tanzania is divided into two categories of pre-service and in-service training (URT 2001a). Pre-service teacher education is designed for those who have yet to start teaching as licensed teachers in classrooms, whereas in-service teacher education is designed for those who have certification in teaching. Pre-service and in-service teacher programmes are co-ordinated by the Tanzania Ministry of Education, Science, Technology and Vocational Training under the Teacher Education Department, [TED] (URT 2001a).

General teacher education is offered by three different categories of institutions; universities, university colleges and colleges of teacher education. Colleges of teacher education prepare teachers through a two-year programme leading up to the acquisition of either a certificate (termed as, Grade A certificate) or a diploma awards (URT 2001a). Grade A certificate is a minimum qualification required to teach at primary school level in Tanzania, whereas the diploma is a minimum qualification required to teach in ordinary secondary schools. The curriculum for college based teacher education is centralised by the Ministry of Education, Science, Technology and Vocational Training (MoEVT) under the Tanzania Institute of Education (TIE) and is examinable by the National Examinations Council of Tanzania, NECTA (ibid). Universities and university colleges run three-year courses, preparing teachers either to teach in the advanced level secondary schools or colleges of teacher education. Contrary to the college-based teacher education curriculum, which is centralised, the universities and university colleges have high degree of autonomy in designing their curriculum (Kapinga 2012).

Tanzania started to train teachers in SEN in 1972 with Buigiri School for the Blind, in Dodoma region, being the first institution to offer a teacher education programme for special education. It started by offering a certificate of teacher education for visual impairment

(Kapinga 2012). Thereafter, a one-year certificate course in special education was introduced at Tabora Teachers' College in 1975. Two more programmes were initiated in the same college. One programme prepared teachers of pupils with intellectual impairment and the other prepared teachers of pupils with hearing impairment.

In the 1990s, there was a major review of teacher education in special education that led to the transfer of the programme from Tabora Teachers' College to Patandi Teachers' College in Arusha region. Patandi prepares teachers of students with VI, HI and intellectual impairment (Kapinga 2012; Tungaraza 2012a). To-date, Patandi is the only college in Tanzania that offers teacher education in special education at the certificate and diploma levels (ibid.).

In the 2005-2009 period, university-based programmes which prepare teachers in SEN started at three institutions of the Open University of Tanzania (OUT), Sebastian Kolowa Memorial University (SEKOMU) in 2007, and the University of Dodoma (UDOM) in 2009 (Tungaraza 2012a; Kapinga 2012). The OUT in collaboration with the Abo Academy University of Finland and UDOM, offers a bachelor degree in SEN while SEKOMU offers numerous specialisations within SEN to both pre-service and in-service teachers (Kapinga, 2012).

Despite these three universities offering teacher training in SEN, the Tanzania government has documented a seemingly intractable shortage of teaching staff in both general and inclusive schools to serve the available large number of students currently requiring the support (URT 2009; Wilson 2011). Even the few available teachers did not have sufficient knowledge and skills to support disabled students in inclusive classrooms (Hakieliemu 2008; Ezekiel 2009; Tungaraza 2012a; Mwakyeja 2013). Ezekiel (2009) reports that 138 (62%)

teachers in the inclusive primary schools surveyed lacked training in both special and inclusive education. Moreover, URT (2009) argues that in 2009 less than one percent of the teachers had knowledge of SEN and these lacked pedagogical skills and knowledge that facilitate learning and teaching processes in inclusive settings. This concurs with what Mwakyeja (2013), who reports that out of 118,000 teachers teaching in general and inclusive education system only 0.9 percent received training in SEN.

1.2.2. Integrated education

Over time, concerns have been raised regarding the special schools that do not only discriminate against disabled people from the community, but are too expensive for disabled people from poor backgrounds to afford such education (Mwakyeja 2013). Such schools foster less academic integration, which leads to over-protection of disabled children. With these shortcomings of special education, the Tanzanian government introduced an integrated approach to helping disabled students to interact with non-disabled peers.

Integrated education allows disabled children to attend regular schools, participate in certain lessons, and interact socially with non-disabled children on a daily basis (Tungaraza 2009). However, the approach does not fully involve disabled pupils, since they may have been taught in separate special units or classes in the same school. In this regard, integrated education could also be described as a form of special classes within regular schools (Ainscow 2006). Similarly, integrated education, just as in special education, falls under the medical model as it focuses on how a student might fit into the education system and not the other way round - for the education system to fit for the child as is the case in inclusive education (Armstrong 2016a). Thus, the government initiated inclusive education as part of its efforts geared towards widening the opportunity of education for disabled students and to foster their academic and social integration. (URT 2009).

1.2.3 Inclusive education

Mitchell (2014) describes inclusive education using three significant events: The Principle of Normalisation, the US Civil Rights and Education for All Handicapped Act, 1975, and the Salamanca World Conference on SEN. The Principle of Normalisation was established over 40 years ago, in Scandinavian countries with the aim of transforming patterns of life and every day conditions of disabled people to resemble society's ways of life (Mitchell 2014). According to Mitchell, the Education for All Handicapped Act, 1975, resulted from the civil rights movement, which occurred in the United States in the 1960s. The Act makes it obligatory for all handicapped children to be educated in the least restrictive environment. The Salamanca World Conference on Special Education, on the other hand, reflects an international commitment to fostering inclusive education. It calls upon all governments to adopt the principle of inclusive education and enrol all children in regular schools as a matter of law or policy (UNESCO 1994; Mitchell 2014; Armstrong 2016b; Avramidis and Norwich 2016). However, inclusive education means more than simply placing students in regular classrooms (Ainscow's 2006). Such inclusive education should involve reducing barriers to learning, enhance participation of learners in inclusive settings, and increase the capacity of schools to respond to particular needs apparent among diverse students (Ainscow, Booth, and Dyson 2006). This implies that all-inclusive education at any level of education should be guided by seven inclusive values: equity, participation, rights, community, compassion, respect for diversity and sustainability (Booth see Ainscow, Booth and Dyson 2006). The seven values of inclusive education can further be summarised into two major principles of inclusive education: to be respected and to be recognised as an equal member of a school community (Armstrong 2016b).

Inclusive education has been defined differently. However, the UNESCO (2009b) interpretation of inclusive education seems to be more appropriate as it incorporates all children of different conditions/impairments: a process that involves the transformation of schools and other centres of learning to cater for all children of both genders, students from ethnic and linguistic minorities, rural populations, those affected by HIV/AIDS, and those with disabilities and difficulties in learning. The main emphasis in this definition is the term “transformation”; in this respect, the transformation of schools should involve perceiving individual differences in an inclusive setting as an opportunity for teachers to enhance learning rather than a barrier to learning (Ainscow 2006; Centre for Studies on Inclusive Education CSIE see Armstrong 2016a). Similarly, Ainscow (2006) asserts that, any difficulty in learning that learners experience in an inclusive setting should be viewed in terms of the limitations in school organisation structures as well as teachers’ instructions. In this regard, inclusive education constitutes “a transformation in the social, cultural, curricular and pedagogical life of the schools as well as its physical organisation” (Armstrong 2016a, p.9).

Inclusive teaching strategies

Regarding inclusive teaching strategies, the literature recommends both learner-centred teaching as well as research-based teaching (Armstrong 2016a; Richards 2016b). Inclusive education requires learner-centred teaching pedagogy as opposed to teacher-centred (Armstrong 2016a). She proposes the use of social constructivist teaching, which perceives students as active agents in the learning process, who also actively construct meaning in the learning process (Vygotsky 1978; Piaget 1980; Bruner 1990). Vygotsky (1978) views learning as a result of social interaction, in which students learn through guidance from either a teacher or more skilled peer, in their “zone of proximal development”. Piaget was also a social constructivist, though his ideas in learning differs from that of Vygotsky: he argues

that students can construct knowledge on their own through self-initiated learning. Students' ability to construct their own meaning out of their learning experiences enhances discovery learning (Bruner 1966). In this regard, teaching amounts to a "medium for exchange" between a teacher and a learner (ibid.). This support is what Vygotsky (1978) refers to as a reciprocal kind of teaching in which both the teacher and students collaborate in the learning process. The emphasis of social constructivist teaching relies more on facilitation than on the transmission of knowledge since learners are not blank containers to be filled by teachers' instructions (Vygotsky 1978). Transmission involves the imposition of knowledge on learners but facilitation suggests negotiations between a teacher and learners (Barrett and Long 2012). To assist students to construct their own knowledge, the subject content is supposed to be structured and delivered to learners in a simplified manner and sequence, that is, from simple to complex or the spiral organisation (Bruner 1966).

Learning through peer groups is vital in social constructivist learning as it provides opportunities for students to learn through each other using more skilled learners (Vygotsky 1978). This suggests a combination of students with varying abilities in group learning to ensure less skilled learners benefit from more skilled peers by constructing meaning within their "zone of proximal development" (Vygotsky 1978). This is also reported by Rieser (2001) that, peer support in inclusive settings, makes a big difference among learners. However, peer tutoring seems to be more effective when is used to complement other methods of teaching, to enhance understanding of the learned skills or knowledge rather than to be used as a solely means of teaching skills or knowledge to learners (Mitchell 2014). Peer tutoring can take different forms: a less knowledgeable learner learning from a more knowledgeable learner; older learner teaching a younger learner (cross-age tutoring) or a class wide peer tutoring, where all learners assume the role of a tutor and a learner interchangeably (ibid). Social constructivist teaching seems to be appropriate in addressing

needs diversities in inclusive classroom because it respects and considers individual differences as well as prior knowledge during the teaching and learning process (Armstrong 2016a). Moreover, inclusive teaching should also be research-based with teachers using own classroom experiences to support learning by seeking evidence on what contributes to individual differences, how to improve students' experiences of learning, participation and academic performance (Richards 2016b).

The transformation of schools, as advocated by UNESCO (2009b) and supported by other scholars (Mitchell 2014; Armstrong 2016a), towards fostering inclusive education can facilitate the participation of disabled students, as well as their recognition, not only at the level of classrooms and schools but also in the wider community. Indeed, transformation in social cultures, curriculum as well as teachers' pedagogy tend to accord these students' opportunities for equal access and right to education just as their fellow non-disabled peers (Armstrong 2016a). This construction concurs with Richards' (2016b) idea of perceiving an inclusive class as a class which contain "a community of learners", which among social constructivists entails a group of learners with varying abilities. However, to ensure active learning participation, teachers can facilitate learning in varied ways including pairing more skilled peers with less skilled peers (Vygotsky 1978).

Nevertheless, effective transformation of schools and applications of inclusive education principles into practices requires an effective collaboration within and between schools as well as between schools and community members (Ainscow and Sandill 2010). Collaboration, team work and participation of every member is vital not only in facilitating school transformation but also in developing inclusive practices whereby the contributions from everyone in terms of their views and experiences is respected and recognised (Armstrong and Moore 2004; Armstrong 2016b).

Inclusive education in Tanzania

The National Strategy on Inclusive Education 2009-2017 (URT 2009) defines inclusive education as “a system of education in which all children, youths and adults are enrolled, actively participate and achieve in regular schools and other educational programmes regardless of their diverse backgrounds and abilities, without discrimination, through minimisation of barriers and maximisation of resources” (p.2). This definition concurs with Ainscow’s (2006) perspective of inclusive education, which focuses on reducing barriers to learning and maximising resources to support learning and students’ participation. In other words, the presence of barriers to learning can hinder students’ participation and achievement in regular schools.

Tanzania adopted an inclusive educational programme in 1998 through the UNESCO pilot project called “Special Needs in the Classrooms” (Tungaraza 2012b). The aim of this project was to help ordinary schools respond positively to pupils’ diversity, by providing compulsory education for all children regardless of their differences, integrating disabled pupils into ordinary school, and upgrading teacher training (URT 2004). In recent years, inclusive education in Tanzania has gained popularity as an effective educational approach to achieving the Millennium Goal of Education for All. However, including all students in education seems to pose challenges in different educational systems in different countries whether developed or developing (Ainscow and Sandil 2010).

Challenges of inclusive education in Tanzania

The practice of inclusive education is somewhat controversial since people expect to see full inclusion, but the way towards full inclusion is not straight, clear nor easy (Savolainen and Alasuutari 2000). Inclusion entails all the students, regardless of their differences, studying in one setting and actively participating; however, in Tanzania the practice of inclusive

education is reportedly more socially-oriented than academic because most disabled students in inclusive schools were found in separate special classes (Tungaraza 2012b). Hakielimu (2008) identifies five main barriers that impinge on educational access for disabled students in Tanzania. These are poor design of the school physical infrastructure; inadequate learning and teaching resources; poor understanding; mind-set; and limited support to disabled students from education stakeholders as well as the public at large, including parents of disabled students. Subsequent research (Tungaraza 2012b) has further confirmed these challenges as major hurdles. Studies also show that most of the available school buildings at all levels of education in Tanzania are inaccessible to disabled students (URT 2004; Hakielimu 2008; Tungaraza 2012b), hence the resulting drop-out rates (see sub-section 1.1.2). For example, there are inaccessible staircases, its pit latrines/water closets and pathways for disabled students. In consequence, the existing situation forced some disabled students to drop out of the system (Hakielimu, 2008). Those few who proceeded to Higher Education (HE) are those who managed to cope with the challenges they encountered.

Some international major challenges to the implementation of inclusive education include large class size; negative attitudes to disabled people; examination oriented education system; rigid teaching methods; lack of support services and assessment dominated by a medical model, to mention the few (Mitchell, 2014). Other studies also found that some teachers had negative attitudes towards inclusive education or pupils with certain conditions/impairments in regular classrooms (Maalim 2000; Avramidis and Norwich 2002; Burke and Sutherland 2004; Ezekiel 2009; Macfarlane, and Marks 2013).

The education challenges prevalent in Tanzania's educational institutions generally affect learning for all students; however, the challenges are more marked for disabled students, particularly those with SI because the challenges restrain/obstruct their access to or progress

in their education. The barriers that students with SI experience create external or internal pressure that, if not properly addressed, can hinder their education progress mentally. When those barriers are appraised as demanding or exceeding the resources of a person, individual needs coping strategies to master, tolerate, or reduce external and internal demands and conflicts (Lazarus and Folkman 1984). Despite the barriers that constrain the education of students with SI in Tanzania, some students have managed to proceed to tertiary education, implying that they have managed to cope with the barriers they encountered during their schooling. Thus, there is a need to investigate how these students with sensory impairments cope with the barriers they encounter in their schooling system.

1.3 Statement of the problem

The educational system in Tanzania is undergoing several major reforms. One of these key reforms is aimed at increasing universal access to education, including disabled children (URT 2012a). This key reform initiative includes the expansion of buildings in terms of classrooms and enrolment of students (URT 2010; URT 2012a). Thus far, however, the expansion of buildings fails to consider in earnest the needs of disabled students. This anomaly is evident in the presence of staircases in schools without alternative pathways for disabled students. Moreover, the pit latrines/water closets and pathways remain user-unfriendly for disabled students (Hakielimu 2008; URT 2012; Tungaraza 2012b).

The literature available consistently shows that disabled students, specifically those with sensory impairment, lag behind academically when compared to their non-disabled peers in different levels of education (see section 1.1.3 subsection academic achievement of students with VI and HI). The academic under achievement of students with SI have been attributed to in appropriate examination system, lack of exposure to Braille, teaching methodologies that fail to address the needs of these students, teachers' incompetency in sign language, and

poor physical infrastructures (Hakielimu 2008; URT 2009; Hallahan Kaufman and Pullen 2012; Tungaraza 2012b; Mwakyeja 2013). Hakielimu (2008) claims that poor physical infrastructure is one of the sources of school dropout for disabled students in Tanzania.

Moreover, the Learning and Teaching (L&T) resources remain problematic to students with SI and particularly those with VI whose learning needs does not allow them to access even the few books available. Hakielimu (2008) and Tungaraza (2010) report the scarcity of Braille books and Braille machines for students with visual impairment. In addition, the teacher-to-pupils' ratio in inclusive schools and at the national level is discouraging. Various literatures have documented the problem of large class size in inclusive classrooms (Mmbaga 2002; Mapea 2006; Hakielimu 2008; Ezekiel 2009; Mwakyeja 2013). Ezekiel (2009) found that the class size in the inclusive schools surveyed ranged from 60 to 110 students. Similarly, Polat and Kisanji (see Mwakyeja, 2013) found that, many inclusive classrooms in Tanzania have more than 80 students in a class.

Research conducted on inclusive education documents that overcrowded classrooms do not only contribute to teachers' negative attitudes to inclusive education but they also demoralise teachers' readiness to teach in inclusive classrooms in addition to preventing teachers from successfully meeting and accommodating pupils with diverse needs, which negatively impacts on the academic performance of disabled students (Mmbaga, 2002; Mapea 2006; Hakielimu 2008; Ezekiel 2009).

The seemingly intractable nature of these challenges in Tanzania's educational system calls for different measures in a bid to address the situation. These include coping strategies; however, knowledge on such strategies, particularly in inclusive education, remain largely limited in the context of Tanzania. Studies conducted on inclusive education focused mainly

on primary school level, especially on the L&T process (Mmbaga 2002; Pembe 2008; Hakielimu 2008). In fact, many studies that have been conducted on inclusive education have tended to focus on the attitudes of teachers towards inclusive education or towards disabled students (Maalim 2000; Avramidis and Norwich 2002; Olson 2003; Burke and Sutherland 2004; Ezekiel 2009; Ngonyani 2011; MacFarlane and Marks 2013).

Studies that have dealt with challenges or barriers (see, for example, Guijaro 2000; Chalema 2005; Tungaraza 2012b) focused on general challenges that inclusive education faces in accommodating disabled students and not on barriers that impede educational access or progress of a particular category of impairment such as sensory impairments. A study by Mwakyeja (2013) conducted on the inclusion of students with VI focused on the challenges that teachers face in teaching students with VI, but not on the barriers that such students encounter during their education.

Moreover, there is limited knowledge on how students with SI cope with different barriers to their securing the formal education they need. It is against this backdrop that this study sets out to fill this knowledge gap by exploring the educational barriers of students with sensory impairments and coping strategies employed as they progress on the academic ladder to tertiary education. The study traces the barriers and their coping strategies from elementary level of education throughout their schooling system.

1.4 Main objective of the study

The main objective was to explore the educational barriers that students with sensory impairment in Tanzania's Higher Education Institutions (HEIs) encounter throughout their schooling system and establish their coping strategies.

1.5 Specific objectives

The study was guided by the following specific objectives:

1. To examine the academic barriers that students with sensory impairment in HEIs encounter throughout their schooling system,
2. To explore the social barriers that students with sensory impairment in HEIs encounter throughout their schooling system,
3. To establish the strategies students with sensory impairment in HEIs use to cope with academic and social barriers they encounter throughout their schooling system.

1.6 Research questions and sub-questions

The following research questions guided the research:

- i. What academic barriers do students with sensory impairment in HEIs encounter throughout their schooling system?
- ii. What social barriers do students with sensory impairment in HEIs face throughout their schooling system?
- iii. How do students with sensory impairment in HEIs cope with the academic and social barriers they encounter throughout their schooling system?
- iv. How do students with sensory impairment differ in the coping strategies they employ in relation to their demographic characteristics?

1.7 Significance of the study

This study adds new knowledge to the existing body of literature on inclusive education and coping strategies. By bringing awareness of the educational barriers and coping strategies students with sensory impairment employ, the present study has bridged the knowledge gap that exists in inclusive education in Tanzania. Specifically, this study brings unique

knowledge and skills to students with SI and other disabled students on how to cope with various barriers existing in Tanzania's inclusive schools. Hence, the coping strategies established can potentially translate into leading improvements in academic performance and reduction of school dropouts among students with SI and other impairments.

Since the study explored barriers students with SI encounter from primary education to HE using the voice of students with VI, the knowledge is useful as the findings may be used to facilitate the restructuring of the policy on inclusive and SEN provision in Tanzania, particularly in terms of understanding how to support those students in various level of the country's education system.

Moreover, since this study used the voice of students with SI themselves to explore their educational barriers and coping strategies, the findings have shed light for educational stakeholders, for example, the Ministry of Education, Science, Technology and Vocational Training, curriculum developers (with TIE) and teachers on how these students experience the education provided to them, thus providing a platform for rectifying the situation in ways that respond to the students' actual, rather than assumed needs. This is because "pupils' perspectives can help teachers and others understand any gaps between provision as it is intended and how it is actually experienced" (Richards 2016c, p.14). Similarly, the findings, especially on teachers' exclusionary practices during L&T process, are useful in the transformation of teachers' pedagogical styles in inclusive settings because "we learn best about what we should do when we ask those who are experiencing it" (Richards 2016d, p. 96).

Furthermore, this study may serve as a body of knowledge that guides lecturers, teachers, school counsellors and non-disabled students on how best to support students with SI and

others with conditions/impairments to cope with academic and social barriers they face throughout their schooling systems. Indeed, inclusive education focuses on increasing students' participation, reducing barriers to learning and all forms of exclusion in addition to the maximisation of resources to support learning and participation (Booth and Ainscow 2002, Ainscow 2006; URT 2009). Finally, this study serves as a body of knowledge to other scholars conducting more research on inclusive education and coping strategies for other categories of conditions/impairments not covered in the current study.

1.8 Scope of the study

The study was confined to students with sensory impairment, that is, visual and hearing impairments from two selected HEIs in Tanzania which are identified as Institution 1 and Institution 2. Furthermore, this study was confined to two major areas, the educational barriers and the coping strategies students with SI employ in HEI throughout their schooling system.

1.9 Limitations of the study

This study utilised a semi-structured interview as the main data collection tool. However, literature claims that, it is difficult to determine whether the interviewee is telling the truth especially when he or she expresses his or her emotions, feelings, and experiences (Denscombe 2014). The researcher used two ways to minimise this limitation. First, the researcher counter-checked the interview data with other sources through triangulation of more than one method of data collection, that is, the focus group discussions and use of an open-ended questionnaire. In addition, the researcher checked for consistency within interview data by comparing one set of interview data against another. Second, the researcher

based the findings of the research on themes emerging across several interviews and not findings of one interview (Denscombe 2014).

The study employed a sign language interpreter to interview students with HI who prefer sign language as a mode of communication. However, literature shows that there are limitations of using sign language interpreters in interviews because it introduces two more relationships to interview, which are, interpreter-client and interpreter-interviewer Farrooq and Fear (see Connolly, Rose and Austen 2006). The implication is that the interpreters' representation of interviewees' opinions and feelings can be subjective because in other occasions interpreters can provide their own understanding of the phenomenon under investigation that differs from those of the interviewees. This limitation was minimised by triangulating interview information from data collected using the open-ended questionnaire from the same respondent.

1.10 Operational definitions of key terms and concepts

Disability: This term is conceptualised in this study using a social model as any limitation or difficulty in learning caused by the outcome of the interaction between an individual with impairment and the environment and attitudinal barriers s/he may face (UNESCO 2009a).

Disabled students: This study defines disabled students as those whose difficulties in learning resulted from limitations of society/education system to accommodate their needs.

Impairment: This refers to the loss or reduced function of a body organ (Heward 2013).

Visual impairment: This study conceptualises this term using the educational definition of VI that encompasses students with blindness who use tactile and auditory method to learn.

This also incorporates those with low vision who use vision as their primary channel of learning to read instructions either by magnifying devices or large print books.

Hearing impairment: This study defines hearing impairment as a hearing loss which causes limitation in the processing of linguistic information. It includes students who require hearing aids or in severe cases instructions in sign language or speech reading to benefit from education.

Special education: This term refers to an educational system with a differentiated educational programme, which requires special materials, teaching techniques, or equipment and/or resources to meet the habitual needs of a student with SEN (Hallahan, Kauffman and Pullen 2012).

Inclusive Education: In the context of the present study, inclusive education refers to an educational system that widens access to education for disabled students to study together with non-disabled students in the same setting without any form of discrimination, while working under the principle of minimisation of barriers and maximisation of resources.

Educational barriers: In this study, educational barriers include both academic and social obstacles that can hinder an individual's access to and progress in education as well as his or her participation in learning.

Academic barriers: In this study, academic barriers specifically refer to any obstacle which hinders the access of students with SI to curriculum, teachers' instructions, learning and teaching materials, examinations and their participation during L&T process (see conceptual model Figure 2.1.)

Social barriers: In this study, social barriers refer to obstacles that hinder the socialisation of students with SI with others.

Coping: This term refers to a process by which students with SI use various strategies to overcome educational barriers encountered during their educational endeavours to enhance their access to curriculum, L&T materials, and their participation in learning as well as to manage their interaction with others.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter reviews literature related to educational barriers of students with SI as well as their coping strategies. The first section presents empirical studies on educational barriers in different countries by highlighting the academic and social barriers that hinders the education access, progress or participation of students with SI. Furthermore, the chapter describes the concept of coping and approaches to coping. The subsequent section explains the cognitive motivational relational theory of coping and provides the conceptual model which guided this study. Finally, the chapter presents empirical studies on coping by explaining different types of strategies as well as factors which influence coping.

2.1 Empirical studies on educational barriers of students with SI

2.1.1 Academic barriers

Although many barriers, which hinder successful implementation of inclusive education (as outlined in Chapter one) affect all disabled students, the intensity of these barriers may differ depending on the type of disability. In particular, students with sensory impairments have been constrained by the following academic barriers: shortage of learning and teaching resources; scarcity of trained teachers and other specialists; examination and information inaccessibility; communication problem; lack of equal access to curriculum as well as environmental inaccessibility barrier (UNESCO 2006; Lewis and Little 2007; Hakielimu, 2008; URT 2009; Tungaraza 2010; Douglas *et al.* 2011; Reed and Curtis 2012; Tungaraza 2012b; Mwakyeja 2013; AFB 2014a). Academic barriers are hereunder expounded.

i. Shortage of learning and teaching resources

Successful inclusion of students with SI and others with SEN depends on several factors which include special Learning and Teaching (L&T) resources. Specialised L&T materials do not only enhance equal access to curriculum but also foster equity and quality of education provided by any education system (Tungaraza 2012b). Generally, the inclusion of students with VI and HI in Tanzania has been hampered by insufficient L&T resources (Hakielimu 2008; Tungaraza 2012b; Lewis and Little 2007; Mboya *et al.* 2008; Mwakyjeja 2013).

Hakielimu (2008), established the problem of L&T resources for students with VI and other SEN in Tanzania, whereby out of 14 surveyed inclusive schools, only two had Braille machines which were inadequate in number to cater for the needs of students available. Similarly, Tungaraza (2012b) also found that students with VI encountered the problem of L&T resources, particularly Braille machines which were very few compared to the students' needs. Previously, Tungaraza (2010) contends that, almost all the libraries in Tanzania from elementary to tertiary education level had no books written in Braille, which increased the over-dependency of students with VI on others for accessing information.

Reasons associated with the problem of scarcity of L&T resources for students with VI include teachers' insufficient knowledge and skills of adapting teaching materials available in accordance with the needs of students with VI coupled with insufficient funds for acquiring these crucial resources (Lewis and Little 2007; Mboya *et al.* 2008; Mwakyjeja 2013; AFB 2014a). Specialised materials for students with VI such as assistive technology, Braille note takers, Braille machines and their accessories have been found to be highly expensive, hence making it difficult for countries with low education budget to afford them (Tungaraza 2012b; AFB 2014a).

Inadequacy of L&T resources for students with VI has also been evident in other countries such as Spain, Canada, England, Cambodia, Pakistan and Zimbabwe (Reed and Curtis 2011; Soorenian 2011; Simon, see Mwakyeja 2013; Phiri 2013; Ghulam *et al.* 2014). Ghulam *et al.* (2014) assert that students with VI in HEIs in Pakistan were constrained by the following barriers: inadequacy Braille machines, lack of Braille printed books, lack of Braille embosser facility, inadequate audio cassette for recording lectures, and lack of a note-taker during lectures. In this regard, Reed and Curtis (2011) also document that some universities and colleges in Canada have insufficient adaptations for students with VI as exemplified by one library where books were accessible only in type-written and not in large print or Braille.

Regarding students with HI, literature from different countries documents the scarcity/absence of L&T resources as well as assistive devices for these students: Scotland (Weedon *et al.* 2012), Pakistan (Safder *et al.* 2012; Shahminan 2012); Saudi Arabia (Alothman 2014), Jordan (El-Zraigat and Smadi 2012), and Zimbabwe (Musengi and Chireshe 2012; Mpofu and Chimhenga 2012). El-Zraigat and Smadi (2012) claim that many schools in Jordan had inadequate equipment and resources to teach students with HI. Inadequate resources in Jordan are attributed to lack of financial support from the government.

Alothman (2014) found that schools in Saudi Arabia, which include deaf students, failed to operate in accordance with the Saudi Arabia Ministry of Education policy, which requires inclusive schools to have adequate resources and to teach students with SEN. In Saudi Arabia, deaf students were accommodated in non-soundproof classrooms to block noises from outside from disrupting the classes. Other barriers to learning reported were scarcity of hearing aids and microphones for teachers (*ibid.*). Musengi and Chireshe (2012) also

argue that, L&T materials for students with HI in Zimbabwe were insufficient and inadequate. For example, mirrors, teachers need to teach speech to students with HI, were in short supply alongside a shortage of hearing aids because they were so old that they distorted sound. In addition, some hearing aids had flat batteries and too much noise in class that obstructed the use of hearing aids (ibid.). Scarcity of resources for students with HI has also been reported in Scotland by Weedon *et al.* (2012).

ii. Scarcity of trained teachers and other specialists

As documented earlier (see subsection 1.2.1 subsection teacher education in special education in Tanzania), most teachers who teach disabled students in inclusive schools' lack special/inclusive education training. Teachers, who teach students with VI, are expected to have knowledge and skills on techniques for curriculum adaptation for visual learning with adapted teaching methodology, assessment and instruction delivery skills as well as methodology in teaching different subject matter (AFB 2014b). Yet, teachers who teach students with VI have been reported to lack requisite knowledge and skills of teaching students with VI, particularly understanding their limitations to address their needs (Mwakyjeja 2013; AFB 2014b). This situation has resulted in teachers feeling incompetent and unable to accommodate them in learning activities (Richards 2016a).

Mwakyjeja (2013) in his study entitled "Teaching students with visual impairments in inclusive classrooms" conducted in Tanzania, established that there was lack of knowledge of adaptive teaching method for teaching students with VI. His findings show that teachers used teaching methods that did not address the needs of students with VI because they were only prepared to teach non-disabled students in regular classrooms. Similar findings were reported by Lewis and Little (2007), whose review of Tanzania's inclusive educational

policy, found that teachers teaching students with VI in inclusive classrooms had inadequate preparation to use Braille materials, tactile diagrams and maps.

Lack of knowledge and skills of working with students with VI has also been reported in other countries such as Zimbabwe (Musengi and Chireshe; Mpofo and Chimhenga 2013), Pakistan (Ghulam *et al.* 2014), Scotland (Weedon *et al.* 2012), Canada (Reed and Curtis 2011), Turkey (Kesiktasi and Akcamete, see Mwakyeja 2013) and Singapore (Wong and Cohen 2011). In Turkey, Kesiktasi and Akcamete (see Mwakyeja 2013) identified the insufficient knowledge and skills among teachers in teaching students with VI as a problem. Similarly, Weedon *et al.* (2012) found a shortage of qualified staff to teach students with VI and HI in Scotland due to inherent cost and lack of readiness among teachers. They reported that out of 88 teachers who teach students with visual impairment, 35 were unqualified, whereas out of 131 teachers who teach students with HI, only 24 were qualified.

Regarding teachers who teach students with HI, URT (2009) reports that, very few teachers out of those specialised in teaching deaf students, can use the Tanzanian sign language. This report concurs with the finding of a study conducted in Jordan by El-Zraigat and Smadi (2012), which established that teachers were ill-prepared to teach students with HI because they were trained to teach students without SEN in regular schools. These teachers were reported lacking necessary skills to make curriculum adjustment and found it difficult to communicate with students with HI. In other words, teachers were ill-prepared for the diversity they faced in their classrooms (Richards 2016a) which as explained earlier, requires requisite for knowledge and skills of supporting students with HI.

Musengi and Chireshe (2012) in their study conducted in Zimbabwe found that primary school teachers were less competent in sign language and lacked appropriate skills to support students with HI. Thus, they depended solely on oral-aural method of teaching, which

negatively affected the participation of students with HI during L&T processes. Two reasons attributed to the lack of teachers' competence in sign language in Zimbabwe include among other things; the sign language training is provided by non-native users of sign language. Second, training was not followed by regular practice, thus many teachers forgot the learned signs. Insufficient training among teachers of students with HI can negatively affect their mode of instruction. This problem can be exemplified by a study by Safder *et al.* (2012), which established that students with HI in Pakistan universities complained about not understanding their teachers during the L&T process because they did not use sign language, taught at a faster pace, paid little attention to them and had little concern about their hearing status. Moreover, education of students with HI is affected by the scarcity of sign language interpreters which hinders their participation during the L&T process and made them feel excluded from the class (Safder *et al.* 2012). The findings of Safder *et al.* (2012) on teachers' inadequate knowledge and skills to teach students with HI are consistent with the findings by Alshahrani (2014) in Saudi Arabia where teachers were found to have a negative attitude towards the inclusion of deaf students, mainly due to lack of professional training and skills in sign language.

Literature also documents scarcity of peripatetic teachers as well as orientation and mobility specialists (Reed and Curtis 2011; AFB 2014a). The shortage of peripatetic teachers increased the chances of students with VI being taught using regular and rigid curriculum, instructions and teaching methodology which had not been modified according to their specific needs (Heward 2013). Similarly, inadequate specialists in orientation and mobility training impede on the independence in addition to hindering the movement of students with VI from one point to another, thus, restricting their access to specialised skills. Reed and Curtis (2011) report the scarcity of adaptive technologists and other specialists in Canada's high schools. For instance, one adaptive technologist served more than one school. They also

reported scarcity of teachers of students with VI, peripatetic teachers, note-takers, and readers. Lack of professional training among teachers who teach students with SEN suggest that, these students are being taught using the core curriculum designed for students in regular classes without any adjustment being made to suit their needs. This problem arises because curriculum modification requires teachers' awareness of the needs of the learner for them to adjust curriculum materials accordingly. Therefore, lack of professional training among teachers can hinder not only the participation of these students during L&T process but also curriculum modification which, in turn result into the exclusion of these students during L&T process and poor achievement.

The reasons attributable to lack of special and inclusive education training among teachers in Tanzania are various. First, the teacher education curriculum in general has an insufficient package of inclusive and SEN content (URT 2009; Tungaraza 2012a). For instance, the University of Dar es Salaam (UDSM) has very few courses on inclusive and special education (Mboya *et al.*, 2008). Second, there are few colleges and universities which offer courses that empower teachers with knowledge and skills of teaching disabled students. Kapinga (2012) reveals that only three out of 28 universities and university colleges operating in Tanzania offer degree programmes in SEN. Similarly, for more than one-and-a-half decades, Patandi has been the only Teachers' Training College offering SEN at the certificate and diploma level in Tanzania. However, its curriculum is not designed in line with the principles and practice of inclusive education (URT 2009; Tungaraza 2012a). Tungaraza (2012a) asserts that, Patandi Teachers' Training College prepares teachers in one category of impairment, that is, visual or hearing impairment and not necessarily in different categories of conditions/impairments in inclusive schools. In this regard, training in special education seem to be a necessary but not sufficient requirement for a teacher in inclusive education settings to respond to diverse needs of students.

iii. Examination and information accessibility barrier

Students with VI have various ways of accessing information, such as materials available, that optimise access, for example, large print, the use of Braille and other technological based tools such as Low Vision Aids (LVAs), Closed Circuit Television (CCTV) and electronic magnification, which assist the learner to access regular print that have emerged (Hall Lueck *et al.* 2003; Douglas *et al.* 2011). Douglas *et al.* (2011) claim that optical devices with regular print are more efficient, increase accessibility to information and more effective in terms of space and time because optical devices allow students to access materials at any place and time, as opposed to when they were using large print books, which are only accessible at the library. Moreover, optical devices encourage independence among learners with VI as they reduce dependence on teachers and others in accessing information (*ibid.*).

Literature documents some barriers in the ways of accessing information among students with visual impairment. In his study in England, Cobb (2008) identified barriers in assessment and examination in England. These examinations were not accessible to students with VI because the examination presentation format available failed to address the needs of students with VI, especially those with low vision who could not use optical devices such as LVAs. Apart from limited examination format in England, students were also found to lack essential skills to access examinations, which could be attributed to lack of training.

Regarding the provision of large print materials for students with low vision, literature emphasises considering each individual optimal font size to enhance their reading efficiency (Hall Lueck *et al.* 2003; Swenson, see Jones and Maloney 2015). Hall Lueck *et al.* (2003) conducted a study on print sizes requirements and reading for students with low vision in San Francisco, California, in the US and found differences in reading speed among students with low vision associated with changes in print sizes. The study established that the reading speed of students with low vision increased with the print size. Indeed, when the students

were provided with their optimal print size, their reading speed increased and, conversely, when the print was not optimal their reading speed dropped at 40 percent of the optimal size speed (Hall Lueck *et al.* 2003). This outcome implies that, when students with low vision are provided with examinations in large print format, which does not consider their optimal print size, they will require more time in doing such an examination compared to when the examination is in optimal print size. In other words, the students would require additional time to finish doing such an examination paper to compensate for their compromised reading speed. Since students with low vision differ in their intensity of their impairment, their needs in print size will not be the same. In this regard, teachers who work with these students need to establish each student's print size before preparing any L&T materials or examination for the materials to be accessible.

Inaccessibility of information and examination for students with VI has also been evident in Pakistan. Ghulam *et al.*'s (2014) study in that country found that students complained about reluctance of some lecturers and instructors to be recorded or audio-taped during lectures or workshops. Most students with VI in Pakistan were provided with only one mode of presentation which does not cater for the diversity needs of these students during examinations (Ghulam *et al.* 2014). Similarly, in Canada, Reed and Curtis (2011) found that students with VI in HE had difficulty in accessing materials in Braille format because of the delay in transcription process taking longer than expected, and the transcription of the Braille materials was of poor quality. Also, Reed and Curtis (2012) found that many learning materials were in inaccessible format and lecturers largely relied on visual formats such as power point presentations during teaching, which were inaccessible to students with VI.

Similar results were obtained in Wales, United Kingdom by Morris (2014) who found that students with VI had difficulties in accessing L&T materials such as graphs and diagrams

because those materials were provided in inaccessible format, particularly in the absence of assistive devices to enhance their reading. Morris' (2014) findings on in accessibility of graphic learning materials concur with those of previous studies conducted in South Africa, for example, by Mokiwa and Phasha (2012).

In Tanzania, the situation is not as good as that of England, Wales, Canada, Pakistan and South Africa because of low technology application. As a consequence, many students with VI rely more on either Braille or large print when accessing information than optical devices such as LVAs and CCTVs. For instance, the National Examinations Council of Tanzania (NECTA) presents examinations to students with VI using either Braille or large print format (Mwakyeya 2013). The two-examination format seems to be insufficient when one considers the varying needs of students with VI, as some might prefer to use computers to the use of Braille format. This mechanism of accessing information fosters the over-reliance of these students on others (Douglas *et al.* 2011). A similar information barrier has been experienced in Tanzania by Tungaraza (2010) and Mwakyeya (2013). Mwakyeya (2013) also attests to the problem of the examination system for students with VI, claiming that the massive failure of students with VI in Standard 7 National Examinations (Primary school leaving Examinations or PSLE in short) is partly attributed to the poor examination system in place, which does not address the needs of students with VI.

iv. Communication barriers

Although various barriers to communication can affect all students regardless of their physical state, the situation is worse for students with learning difficulties associated with their primary channel of learning, particularly those with HI who require either assistive devices or sign language as well as lip reading to process linguistic information. Indeed, the

communication barrier is one of the major hindrances to learning among students with HI (Soorenian 2011; Msengi and Chireshe, 2012; Shahminan 2012; Mpofu and Chimhenga 2013; El-Zraigat and Smadi 2012; Alothoman, 2014; Wadesango, Eliphanos and Gudyanga 2014).

In this respect, lack of assistive devices and/or poor quality of assistive devices, such as hearing aids or attending a lesson/ lecture without an interpreter or difficulty in lip reading, may result into communication barrier among students with HI because their communication largely depends on those adaptation strategies (Soorenian 2011; Msengi and Chireshe, 2012; Shahminan 2012; Mpofu and Chimhenga 2013). In other words, communication styles of an inclusive teacher should consider needs diversity in terms of various ways that students use to receive information in education settings. In this regard, a teacher in an inclusive setting needs to integrate all the three approaches in a single lesson: oral/aural approach, total communication or the bilingual-bicultural approach in a bid to assist every learner to receive the information in his/her preferred way.

Literature has also documented the necessity of improving the acoustic environment for students with HI to enhance their ability to receive and process linguistic information in educational settings (Ainscow 1995; Building Bulletin [BB] 93: (Department for Education and Skills [DfES] 2003); Alothman 2014; Sirimanna 2016). Various studies have reported that most of the students with HI are accommodated in uncondusive classrooms, which lack a mechanism for controlling inside and outside noise which interferes not only with the L&T process but also the use of assistive devices such as hearing aids resulting to communication barriers (El-Zraigat and Smadi 2012; Alothoman, 2014; Wadesango, Eliphanos and Gudyanga 2014). From this perspective, the education of students with HI seems to be

influenced by the availability of assistive devices and/or sign language interpreters, appropriate teaching strategies, effective communication styles as well as supportive classrooms with minimal distraction from outside and inside noise.

v. Curriculum barriers

Students with VI have exceptional academic and non-academic curriculum needs which could not be achieved using core curriculum designed exclusively for sighted students (AFB 2014a). To benefit fully from education, AFB (2014a) claims that students with VI require curriculum adaptation which involves the modification of the core curriculum in the following areas: concept development, academic functioning, communication skills, orientation and mobility skills, career development skills, daily living skills and sensory motor skills to mention the few. In this regard, curriculum modification has been emphasised not only for students with VI, but also for students with HI whereby students with HI need to be taught using special language, speech, and audio logical rehabilitation curriculum (Eccarius, see El-Zraigat and Smadi 2012). Despite the importance of curriculum adaptation for students with visual and hearing impairment, literature in Tanzania, and some parts of Africa as well as outside Africa in Jordan, Pakistan and Canada indicates that most of the inclusive schools with students with SEN including those with VI and HI do not follow curriculum adaptation (Tungaraza 2012b; Mwakyeja 2013; Mongwaketse 2011; El-Zraigat and Smadi 2012; Shahminan 2012; Reed and Curtis 2012).

Tungaraza (2012b), in her study, “Including the Excluded” found that teachers were using the national curriculum without any modification to teach students with SEN. She further claims that, some students who were taught in special classes within inclusive schools did not have any planned curriculum; instead teachers decided what to teach them depending on what they thought was appropriate for the learners. Literature also shows that some

teachers/lecturers perceive curriculum adaptation as additional workload and that they lack necessary skills to implement it (Reed and Curtis 2012). For example, Reed and Curtis (2012) found that lecturers in Canada's HEIs had limited time to access material in alternative formats suitable for students with VI. A similar case was also reported in Zimbabwe by Musengi and Chireshe (2012) who found that the syllabi used to teach students with HI did not fully address the needs of students with HI and that, large class size and time constraints hindered teachers' attempts to attend to individual learners with HI in regular class. Barriers in curriculum for students with HI was also documented in Jordan by El-Zraigat and Smadi (2012) who found that students with HI were being taught using the same curriculum designed for non-disabled students without any modifications to suit their needs.

Other studies have reported time constraints among teachers when conducting curriculum adaptation in relation to large classes they teach (Mongwaketse 2011; Shahminan 2012). Large class sizes tend to hinder the teachers' ability to respond to the SEN, especially for primary school teachers who do not have specialisation in teaching subjects, with some teachers teaching up to nine subjects (Mongwaketse 2011).

Apart from large class size, the examination-oriented curriculum was found to be another barrier that impedes curriculum adaptation among teachers (Mongwaketse 2011). In an examination-oriented curriculum, teachers tend to conduct curriculum adaptation in lower classes as compared to upper classes (ibid.). In upper classes, teachers teach under examination pressure because of the need to finish the syllabus to prepare their students for these examinations. However, some teachers who teach large class opined that, if they could be given assistant teachers to lessen their work load they could be able to differentiate curriculum accordingly (Mongwaketse 2011). The vital role of teaching assistants in

developing effective inclusive practices was also documented by Armstrong (2016b) who found that, they facilitate teaching in inclusive settings through collaboration and support.

Nevertheless, nature of placement has been reported to determine effective implementation of curriculum adaptation to students with VI. AFB (2014a) asserts that it is difficult for students with VI to learn specialised skills through curriculum adaptation when they are fully included in regular classrooms, as they need to be out of the regular classroom for some time either in special class or residential schools to learn specialised skills.

Inaccessible core curriculum limits students' participation in some subject areas as reported in science and mathematics subjects: Canada and Wales, respectively (Reed and Curtis 2011; Morris 2014). The nature of these subjects created additional challenges for students with VI as they demand conceptualisation of symbols and diagrams which tend to be difficult for these students in the absence of assistive devices and expertise (Morris 2014). In this regard, the teaching of science and mathematics subjects to students with VI seems to pose serious challenges for developing countries such as Tanzania with low technological advancement and application of assistive devices.

vi. Environmental inaccessibility barrier

The overall goal of the National Strategy on Inclusive Education of 2009 in Tanzania is to achieve universal equitable access to quality education for students enrolled in inclusive settings (URT 2009). The inclusive educational strategy further stipulates that equitable access means providing an equal opportunity to all children, including those with SEN to succeed and realise their potential through minimisation of barriers and maximisation of resources (ibid.). Tungaraza (2012b) asserts that, equitable access to education involves equal physical access and intellectual access to all children regardless of their differences.

This is contrary to the current situation of Tanzania's inclusive schools from lower level to HEIs. The URT (2004), Hakielimu (2008) and Tungaraza (2012b) found that the school buildings available were not user-friendly to disabled students, especially to those with VI and physical impairment.

In Tanzania, many buildings are generally constructed without considering the universal design in education principles which require that all educational products and environments be designed to fit all users regardless of their characteristics (The Centre for Universal Design 1997; Burgstahler 2012). Burgstahler (2012) further claims that, universal design in education ensures that physical spaces are not only accessible but also welcoming, comfortable, attractive and functional to everyone regardless of one's disability, gender, race, ethnicity, age, stature and learning style. This implies that any education infrastructures should embrace the universal design principles to meet diverse needs of users. However, the accessibility of education infrastructures and environment in Tanzania remains problematic. Tungaraza (2012b) reports physical barriers as the leading obstacle to disabled students in Tanzania.

In-accessibility to school infrastructures and environment was also reported in other parts of Africa (Phiri 2013), and outside Africa in Pakistan (Ghulam *et al.* 2014) as well as Europe (Soorenian 2011). Phiri (2013) documented barriers to the accessibility of infrastructures in one University in Zimbabwe claiming that, students with physical impairment and those with VI face difficulties in accessing lecture halls located upstairs. Although some students with VI struggled to attend lectures in lecture and seminar rooms located upstairs through their own efforts or with assistance from someone, those with physical impairment had to request their fellow non-disabled students to lift them up and down because there was no elevator.

Some students reportedly forfeited all lectures conducted in inaccessible lecture halls (Phiri 2013). Other accessibility barriers reported in Phiri's study include inaccessible toilets in halls of residence as they did not accommodate wheelchairs. Moreover, students with VI reported the presence of scattered trenches in their environment which obstruct the mobility of students with VI. Although Soorenian (2011) reported similar experiences of students with physical impairment inaccessibility to some England HEIs lecture halls, there is a slight difference between the findings by Soorenian (2011) and Phiri (2013). Whereas the former describes malfunctioning lifts and small size of the lifts to accommodate wheelchairs as a reason for inaccessibility, the latter explains the absence of an elevator as the root cause of inaccessibility. This implies that the University studied by Phiri (2013) did not consider either the needs of students with VI or those with reduced mobility in their buildings. Similar findings on physical barriers were reported in Pakistan by Ghulam *et al.* (2014) that, students with VI were not provided with a barrier-free environment in their education institutions.

2.1.2. Social barriers

Acceptance of children in society relies much on their ability to conform to social norms and their positive interactions with other people, which is highly dependent on individual social skills (Salleh and Zainal 2010; Heward 2013). Salleh and Zainal (2010) assert that social skills help an individual to adapt to the unfamiliar environment, attract other people's attention, and participate in social discourse and other group activities. Similarly, Shepherd and Linn (see Scruton 2016) argue that social skills enhance students' ability to develop relationships with their peers and other staff in addition to preventing rejection from peers. However, the loss of vision for students with VI may have a negative effect on their social skills development because most social learning depends on vision (Salleh and Zainal 2010; Hallahan Kauffman and Pullen 2012; Heward 2013). For example, the loss of vision hinders

one's ability to respond to socially-appropriate eye-contact, make facial expression and gestures (Heward 2013).

On the one hand, literature consistently shows that, many adolescents with VI struggle with social isolation, difficulties in making and maintaining friendship and difficulties in interacting with peers without VI (Salleh and Zainal 2010; Reed and Curtis 2011; Reed and Curtis; 2012; Hallahan Kauffman and Pullen 2012; Heward 2013). Salleh and Zainal (2010) found that most of the students with VI in Malaysia were passive and had difficulty in interacting with others.

A similar finding was reported by Reed and Curtis (2012) in Canada. The inherent difficulty was associated with their inability to see facial expressions, body language, and social cues in addition to lacking feedback in their social behaviour (Salleh and Zainal 2010; Reed and Curtis 2011; Hallahan Kauffman and Pullen 2012; Heward 2013). Other reasons associated with socialisation difficulties for students with VI include their poor understanding of peer-related social skills, and lack of information about socially-acceptable behaviour; moreover, sighted people often tend to be uncomfortable when interacting with their visually-impaired colleagues (Reed and Curtis 2011; Hallahan Kauffman and Pullen 2012; Heward 2013). Perhaps due to reasons explained earlier by (Salleh and Zainal 2010; Reed and Curtis 2011; Hallahan Kauffman and Pullen 2012; Heward 2013).

On the other hand, social isolation among students with HI depends on the intensity and severity of their HI. For example, students who are deaf have been reported to be at a high risk of loneliness than those who are hard of hearing. This is because, students who are deaf face difficulty in finding others with whom they can communicate as communication plays a vital role in social development and adjustment (ASHA 2015; Hallahan, Kauffman and

Pullen 2012). Moreover, learners with HI have been frequently reported as lonely, without friends and unhappy in school, especially when they face limitation in their socialisation skills (ASHA 2015; Heward 2013). This is because hearing loss tends to interfere with the developmental pace of all modes of communication (ASHA 2015). Other social barriers encountered by students with HI are depression, withdrawal and isolation (Connolly, Rose and Austen 2006).

Hallahan, Kauffman and Pullen (2012) describe two factors associated with isolation of students who are deaf. These are poor interactions between deaf and non-deaf students in inclusive setting, and hearing status of parents. Very few interactions were observed in inclusive settings between students who are deaf and those who are not, because deaf students feel more emotionally secure in interacting with their fellow deaf students. However, this can be attributed to lack of emotional understanding from their peers without HI due to the prevailing negative attitudes.

Regarding the hearing status of parents, a deaf child whose parents are not deaf or are hard of hearing, is at greater risk of being unhappy and being limited in socialisation skills than the child whose parents are deaf because non-deaf parents and parents who are hard of hearing have been found to lack skills in sign language, hence their inability to communicate easily with their children (Mitchell and Karchmer 2005). However, other studies did not establish the problem of socialisation among students with HI (Musengi and Chireshe 2012; Safder *et al.* 2012).

It is apparent that educational barriers to students with SI experience can hinder their progress in education mentally. When these barriers top the resources of an individual, then there is a need for coping strategies to manage the problems encountered or change the

negative emotion associated with the encounter (Lazarus and Folkman 1984). Prior to discussing the coping strategies, the next section begins by describing the concept of coping and its cognitive motivational relational theory.

2.2 Concept of coping

Coping has been defined as ongoing cognitive and behavioural efforts employed by an individual to manage certain external and/or internal demands that are considered as demanding or exceeding the resources of the person (Lazarus and Folkman 1984; Lazarus 1993). Similarly, Garmezy and Masten (see Givon and Court 2010) define coping as the capacity to successfully reach the stage of self-adjustment regardless of challenging or threatening circumstances. In line with that, Yampolsky *et al.* (2008) describe coping as a process by which one makes use of intrapersonal, interpersonal and environmental resources to manage a situation. The three definitions of coping suggest that, coping is an outcome of a stressful condition due to an individual's interaction with his/her environment. Second, it involves not only personal efforts, but also other people's support, as well as other environmental resources necessary in managing a difficult situation.

However, the first definition offered by Lazarus and Folkman (1984) and Lazarus (1993) differ from the other two definitions in that, it underscores the importance of cognition in coping, as coping is determined by an individual's evaluation of stressful encounter. Moreover, the first definition emphasises three important things pertaining to coping: first, coping is process oriented, which changes over time and includes anything (cognitive and behavioural efforts) that a person does or considers when managing a stressful encounter, irrespective of how good or badly it works (Lazarus and Folkman 1984). This suggests that coping with a stressful condition can involve both positive and negative actions.

Secondly, the term “manage” in the definition implies that, coping does not necessarily lead to mastery of one’s environment, but rather it may involve avoiding, tolerating, minimising and accepting the stressful situation (Lazarus and Folkman 1984). However, how a person handles a situation, depends not only on the coping resources and how they are evaluated, but also on what has driven a person to invest his/her efforts and resources into managing a stressful situation (Lazarus 1991). In other words, a goal that an individual wants to achieve in a particular situation can influence the coping process of an individual. Thus, this study defines coping as a process by which students with SI use various strategies to overcome educational barriers encountered during their educational endeavours to enhance their access to curriculum, L&T materials, their participation in learning as well as their capacity to manage their social interactions with others.

Lazarus (1993) categorises two approaches to coping: one that focuses on style or stable trait (Traditional approach), and one that views coping as a process. The traditional approach to coping views coping strategies as fixed over time, with influences coming from an individual’s personality (Amirkhan *et al.* 1995; Hallberg, Passe and Ringdhal 2000; Thompson *et al.* 2007; Cash and Gardner 2011).

In this respect, once coping skills have been developed, they become stable across time and situations. This perspective of coping suggests that, people encounter similar experiences in life situations, which is not always the case as sometimes people may face new situations which may demand new approaches to deal with them. The limitation of perceiving coping according to people’s personality and making predictions of their coping style in different situations has attracted major criticism of the traditional approach to coping (Lazarus and Folkman 1984).

Coping as a process or the transactional approach is the second approach to coping. It also goes by the name of “transactional approach” because it involves an exchange between individuals and their surroundings (Lazarus and Folkman 1984; Thompson *et al.* 2007). From a process perspective, coping, changes over time in accordance with the situational context in which it occurs (*ibid.*). This implies that coping strategies can be determined by time and situations. In this regard, it is likely to observe differences in coping between two individuals experiencing a similar stressful condition in different situations. Similarly, coping strategies of an individual can change across time because of changes in levels of cognitive maturity (Seiffge-Krenke 2004; Gelhaar 2007). This development occurs because cognitive maturity can influence an individual way of looking at the problem and the selection of appropriate strategies to manage the situation (*ibid.*). However, there are some cases where an individual will use earlier developed coping strategies due to their effectiveness in managing similar situations (Carver *et al.* 1989).

Other literatures contradict Lazarus and Folkman’s (1984) idea that coping is situation-dependent by reconsidering the role of personality in coping (Suls *et al.* 1996; Thompson *et al.* 2007). This new approach to coping emerged in the 1980s as the transactional approach to coping had overlooked the role of personality in coping (Thompson *et al.* 2007). The major reason for the change is the emergent research findings insistence on the influence of personality on behaviour (Suls *et al.* 1996). Thus, the new approach to coping considers both the situation and one’s personality in the coping process (Thompson *et al.* 2007). In this regard, the new approach constitutes an extension to the transactional approach or a fusion of the traditional and transactional approaches.

However, the degree to which coping is dependent on a given situation or personality remains controversial. Whereas Lazarus and Folkman (1984) support the notion that coping

is dependent on the situation, other literatures contend that coping is highly influenced by personality (Amirkhan *et al.* 1995; Hallberg *et al.* 2000; Cash and Gardner 2011). Thus, both personality and situation play a role in an individual's coping with a stressful encounter.

2.3 Theoretical grounding

With regard to theories of coping, literature has categorised them into psychodynamic and cognitive theories of coping (Radnitz and Tiersky 2007). Psychodynamic theories are related to “coping as a style”, according to Lazarus (1993). Cognitive theories of coping, on the other hand, are related to “coping as a process” (*ibid.*) or what Thompson *et al.* (2007) describes as the transactional approach. Cognitive theories of coping emphasise the cognitive processes that mediate between the stressful condition and an individual's emotional and behavioural reactions to the stressor. Lazarus' (1991) cognitive motivational relational theory is one of the cognitive theories of coping which specifies an intricate relationship between cognition, coping, emotion, and personal environment fit.

This study found the cognitive motivational relational theory appropriate due to the reasons explained in subsequent sections. As it adopted Lazarus' (1993) view of coping as a process that treats coping as a dynamic process which changes over time, in accordance with the situational context in which it occurs. This particular theory was a good fit for the study because it explored the coping strategies of students with SI throughout their schooling system (across time/education levels). On the other hand, the study also acknowledges that, coping strategies can sometimes stabilise over time depending on situations and the nature of coping resources available.

2.3.1 Cognitive-motivational-relational theory (CMRT) of coping

This theory was first developed by Richard Lazarus in 1966 as a theory of emotion and it later revised in 1991 into a theory of coping (Lazarus 1991). The theory is considered cognitive as it involves an individual's interpretation of an encounter, whereby the meaning attached to the situation—controllable/uncontrollable—encountered determines the coping process (Lazarus 1991; Frijda 1994). It is also motivational, as an individual's reaction to an encounter depends on whether his/her motives in the encounter are at stake (ibid.). Furthermore, the theory is relational as an individual reaction to an encounter constitutes an outcome of the relationship between an individual's interactions with his/her environment (Lazarus 1991; Frijda 1994). To this end, the CMRT of coping involves interpretation of the stressful situation encountered in relation to an individual motive in the encounter.

2.3.2 Role of cognitive appraisal in the coping process

Cognitive appraisal refers to the interpretations and meanings that people attach to sensory stimuli. Emotional responses result from people's interpretation of the stimuli or appraisal of the stimuli, which gives the situation its perceived meaning and significance (ibid.). This concurs with Lazarus (1991) who perceives appraisal as an evaluation of the significance of an encounter in the person-environment relationship. This appraisal can either be a process or a style. It is process-oriented as it can change according to the conditions within an individual or in the environment where a stressful condition occurred. It can also be, trait/style oriented as people may develop relative stable ways of evaluating a stressful encounter either in a positive or negative manner as with optimists versus pessimists (Lazarus 1991). In this regard, different people can be subjected to similar environmental demands and pressure; however, their reactions will depend on their cognitive appraisal, that is, how they have perceived the situations. There are two categories of cognitive appraisals: primary and secondary appraisals.

i. Primary appraisals

Lazarus (1991) argues that primary appraisals are concerned with the stake one has in the outcome of an encounter. These types of appraisals involve an individual evaluation of a stressful situation, its potential personal relevance and significance in terms of its impact on valued personal goals. A primary appraisal involves three kinds of evaluation of stressful situation, which are, irrelevant, benign-positive or stressful (Lazarus and Folkman 1984). Furthermore, stress appraisals can also be perceived into three categories of harm/loss, threat and challenge. Harm/loss appraisal refers to psychological damage that has already been done and is associated with reactions to negative emotions (Lazarus 1991). Threat appraisals refer to potential for harm or loss and are associated with the feeling of fear, anxiety and anger (Lazarus and Folkman 1984). Challenge appraisals are more likely to occur when the person has a sense of control over the situation encountered (Lazarus and Folkman 1984). In this regard, negative emotions in an encounter occur when an individual perceives a stressful condition as uncontrollable, whereas positive emotions are related to manageable stressful conditions.

ii. Secondary appraisals

Secondary appraisals focus on an individual's option for coping, as well as opportunities for coping resources (Lazarus and Folkman 1984; Lazarus 1991). Such appraisals involve the evaluation of a stressful condition to determine the controllability of the stressor and the resources and options available. Secondary appraisal is a multifaceted evaluative process that goes beyond considering the coping options available; it includes the evaluation of the effectiveness of a given coping strategy towards achieving the desired goal as well as ability of an individual to apply a certain strategy or set of strategies successful (Lazarus and Folkman 1984). An individual considers all these aspects before engaging in a coping behaviour which can either be adaptive or non-adaptive/maladaptive (Givon and Court

2010). Adaptive coping behaviours focus on the source of the problem and lead to positive outcomes such as social functioning (Lazarus 1991) and involve positive strategies, which Thompson *et al.* (2007) call “rational actions” such as support seeking. Maladaptive coping behaviours use non-constructive strategies such as escape-avoidance and substance abuse to manage negative emotions associated with the encounter (Forkman and Lazarus 1988; Manfred 2000; Anderson and Hagnebo 2003; Howard and Medway, see Yampolsky, *et al.* 2008; Givon and Court 2009).

2.3.3 Types of coping strategies

Lazarus and Folkman (1984) proposed two major types of coping strategies, which are problem-focused and emotional-focused. The two major strategies have been drawn from various coping strategies existing in literature. Problem-focused and emotional-focused coping mechanisms are both influenced by cognitive appraisal. Whereas problem-focused is employed when people perceive the stressful conditions as controllable by action, emotional-focused occurs when people view stressful conditions as refractory to change (Lazarus and Folkman 1984; Lazarus 1993). The aim of problem-focused coping is to resolve the stressful encounter by using strategies, which act directly to the environment or oneself, in other words, they are an action-centred type of coping (Lazarus and Folkman 1984; Lazarus 1991).

Emotional-focused coping concentrates on regulating negative emotions that arise during stressful condition, either by changing the way in which a person reacts to stressful situation or change the negative feelings associated with the encounter which lessens the negative emotions, despite the actual source of the problem having not changed (Lazarus and Folkman 1984; Lazarus 1991). These coping strategies do not focus on the problem such as distancing, avoidance, positive comparison, positive reappraisal and selective attention (Lazarus and Folkman 1984).

Changing the relational meaning of what is happening is a very powerful and widely employed device for regulating stress and emotions (Lazarus 1993). Some of the indicators of emotion-focused coping strategies include the following: maintaining hope and optimism in stressful situations; denying both fact and its implication; rejecting accepting the worst; behaving as if nothing had happened (Lazarus and Folkman 1984).

In this regard, emotional-focused coping can facilitate or hinder problem-focused coping during the coping process (ibid.). For example, in the present study some students with SI coped with the negative perception that they are incapable by perceiving their disability as an opportunity to demonstrate their ability (positive reappraisal). Such emotion-coping enhances students' ability to engage in problem-focused coping including studying hard, as well as embracing determination and persistence (see section 5.1.3). The employment of the avoidance/distancing as an emotional-focused coping strategy have hindered the ability of those who employed it to use problem-focused coping to manage society negative attitudes and or communication barrier (see section 5.2.1, 5.2.2). Regarding coping strategies, there are neither universally appropriate coping strategies nor inappropriate ones, although some coping strategies are more often better or worse than others (Lazarus 1993). Similarly, coping strategies that are effective for one individual might not be effective for another person in the same encounter (ibid.). Generally, effective coping strategies require a fit between situational appraisal and choice of coping responses (Lazarus and Folkman 1984).

This study found this theory appropriate because its elements in the model can explain /suggest procedures on how an individual with SI can cope with a stressor. In addition, the model is dynamic as a change in the appraisal process influences a change in coping behaviour and it considers individual differences in appraising and coping with a stressor. Furthermore, the theory is environment free, that is, it is capable of being used in any

stressful situation or circumstance (Lazarus 1991). Moreover, its elements in the model are not rigid; they can be extended or modified to fit other similar environments (Thompson, *et al.* 2007). Finally, different scholars have widely used and cited the model in their studies on coping (see, for example, Radnitz and Tiersky 2007; Thompson *et al.* 2007; Ntoumanis *et al.* 2009; Cash and Gardner 2011; Krohn and Hock 2011).

2.4. Conceptual model

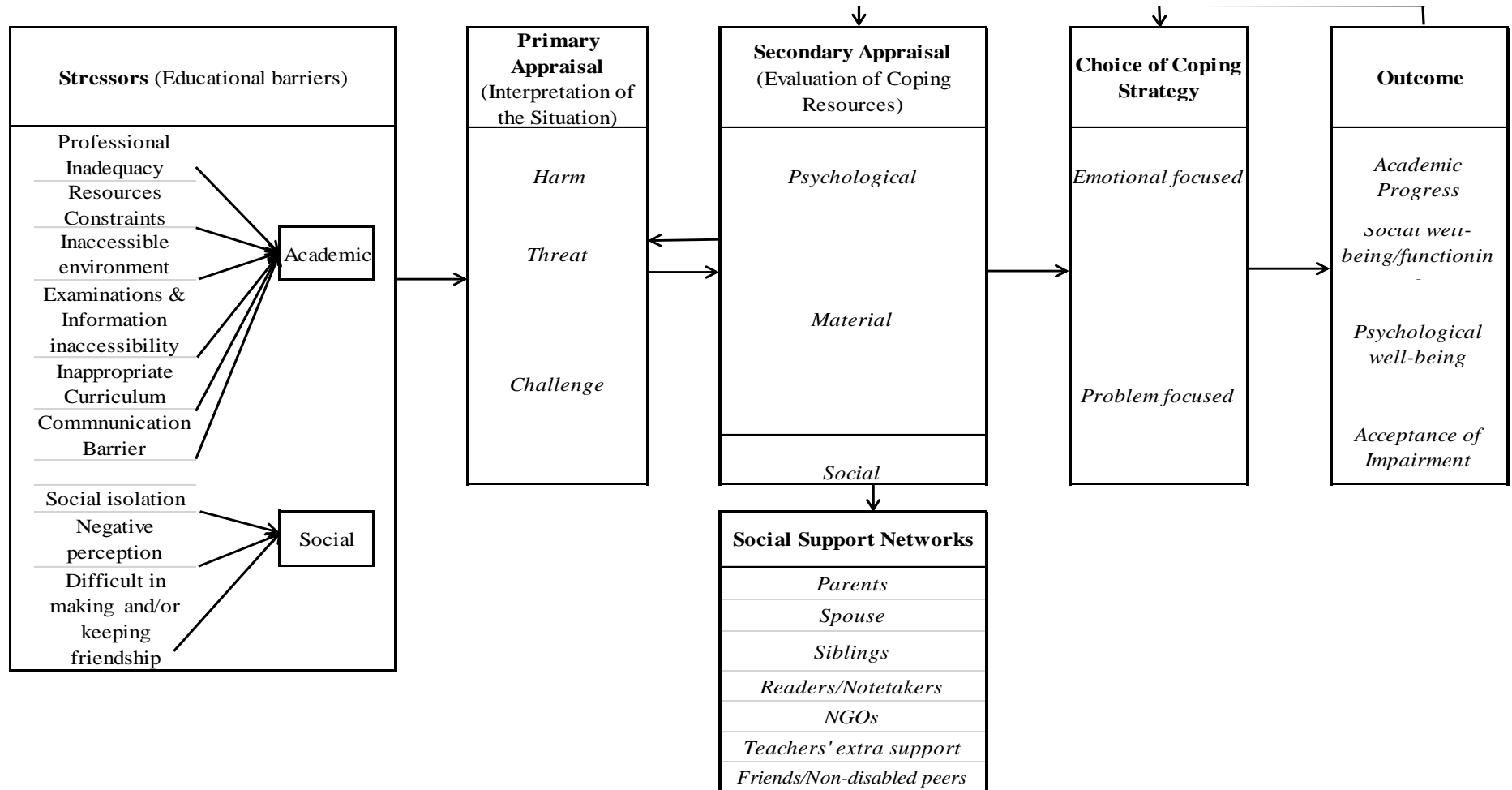


Figure 2.1: Conceptual model for coping with academic and social barriers adapted from Thompson *et al.* (2007)

The conceptual model in Figure 2.1 has been adapted from Thompson *et al.* (2007) process model of coping with family-work conflict, which has been customised to reflect coping with academic and social barriers. The adapted model has five elements: stressor or educational barriers, primary appraisal, secondary appraisal, choice of coping strategy and outcome. For the coping process to occur in the first element, there must be a stressor, which in this study has been categorised as academic and social barriers. On the one hand, *academic barriers* involve lack of professionals, such as trained teachers capable of teaching and/or supporting students with sensory impairment, and other non-teaching professionals who in one way or another facilitate the learning of students with SI. The non-teaching professionals include teaching assistants and other specialists such as sign language interpreters, experts in Braille, orientation and mobility specialists and adaptive technologists.

Academic barriers can also include resource constraints, such as lack of learning and teaching resources, for example, Braille reading and learning materials and hearing aids. Similarly, inaccessible environment or poor infrastructures such as inaccessible classrooms, teachers' offices, and libraries can also affect students academically. Examination and information inaccessibility is another factor associated with academic barriers. Such barriers include presentation of information/examination in a format that does not address the needs of students with visual impairment, like normal print. Communication barriers is another academic hindrance to students with HI. Finally, a curriculum inappropriate to the needs of students with sensory impairment as outlined in section 2.1.1(v) constitutes another barrier.

On the other hand, *social barriers* include those which affect the socialisation of students with SI with others. These include society's negative perception of disabled people, that they are "incapable", "beggars" and "a burden", social rejection and isolation, and difficulty in making and/or maintaining friendship (Connolly, Rose and Austen 2006; Salleh and Zainal

2010; Reed and Curtis 2011; Hallahan and Kaufman 2012; Heward 2013). Social barriers become “barriers” when the society views these students as unable, that is, their social and education wellbeing depends entirely on others who are to be defined as “abled”. Scruton (2016, p. 102) argues that “it is the society that creates barriers, which may prevent children from accessing learning opportunities.” Academic and social barriers become stressors to students with SI when they are perceived as exceeding resources of a student.

The second element of the model is *primary appraisal*. This is the first stage toward coping with academic and social barriers which involve students with SI evaluation of academic and/or social stressor encountered either as a harm, threat or challenge (Lazarus and Folkman 1984). Students who appraise the situation as harm believe that the damage has already been done; hence, nothing can be done to change the situation. On the other hand, those who appraise the situation as a challenge to be met or controllable, consider various options to solve a problem and move on to the next stage of coping process which is secondary appraisal.

Secondary appraisal is the second stage of coping and the third element in the model. At this stage, students with SI have evaluated coping resources at their disposal. It encompasses the evaluation of psychological, material and social support available. Psychological support in this study involved emotional support necessary to manage negative emotions, as well as motivations and encouragements to improve an individual’s ability and confidence in overcoming certain stressful conditions. It also involves positive belief of the self, especially with regard to the ability to manage the situation by accepting that the situation is controllable and that one has influence over stressful conditions (Lazarus and Folkman 1984). Material support includes items relevant to the problem, such as financial support to buy resource needed, stationery, as well as assistive devices that can facilitate learning.

Social support includes social networks such as colleagues or friends, readers and note-takers, teachers, parents and/or spouses, siblings and other relatives, as well as non-governmental organisations. Social support networks have been identified as a powerful coping strategy (Hallberg *et al.* 2000; Burns *et al.* 2013). Burns *et al.* (2013) found that, all the participants involved in their study reported being supported and encouraged by people surrounding them.

At this stage of appraisal, students with SI also evaluated the effectiveness of a certain strategy in managing certain barriers and their ability to apply the strategy successfully. For example, in the present study, some students reported the relevance of computer technology in overcoming the problem of the absence of Braille and large printed books; however, they were limited by their computer illiteracy. In other words, coping resources also entails an individual's competency in problem-solving and social skills (Lazarus and Folkman 1984).

Choice of coping strategy is the fourth element in the model, which depends much on how students with SI have appraised the encounter and coping resources available. In this study, when students with SI appraised the stressor as controllable they employed problem-focused coping which is aimed at solving the problem. In this regard, a fellow student assisted students with VI in reading activities as a coping strategy not only with the absence of learning and teaching materials in an alternative format but also with absence/shortage of assistive devices. In contrast, when they appraised a stressor (academic or social challenge) as refractory to change, they employed emotional-focused coping which manages negative emotions associated with the encounter. For example, when students with SI perceived the society's negative perception of them as uncontrollable some students coped with this situation by "distancing" themselves through mental disengagement with the problem (see section 5.2.1 subsection titled distancing).

The final element in the model is the *outcome of the coping strategy*. When the coping strategy is effective among students with SI we expect to observe psychological wellbeing (Carnicer and Calderon 2013), academic progress, acceptance of their disability and social wellbeing, which Lazarus and Folkman (1984) termed as “social functioning”. Documenting a relationship between coping strategies and psychological wellbeing, Carnicer and Calderon (2013) noted that adaptive strategies, such as problem-focused coping, can result in positive psychological wellbeing, whereas non-adaptive coping such as behaviour disengagement can result in negative psychological wellbeing. However, due to the qualitative nature of this study, the relationship between coping strategies and its outcome, that is, psychological wellbeing and/or social functioning, was not examined. Although the study did find acceptance of one’s disability, social well-being/functioning among students with SI, these aspects were reported by those who largely depended on problem-focused rather than emotional-focused coping strategy.

The model also demonstrates interrelation between variables. Primary and secondary appraisal can influence each other, implying that in an encounter appraised as controllable, a person tends to move to secondary appraisal and evaluate coping resources available. On the other hand, if the person fails to identify the coping resources, he or she goes back to the first stage of primary appraisal (Lazarus and Folkman 1984). Thus, primary and secondary appraisals influence the choice of coping strategy and the outcome of the coping strategy. Students with SI chose problem-focused or emotional-focused coping strategies depending on their evaluation of the available resources, suitability of the strategy in achieving their goal and their ability to apply the strategy effectively. Similarly, the outcome of coping can directly influence both the choice of coping strategy and secondary appraisal and indirectly influence the primary appraisal. In this regard, those who have experienced a positive outcome from the coping strategy employed have replicated the strategy in similar situations.

For example, the use of peer support across educational levels in this study demonstrates a positive outcome. This is in line with Thompson *et al.* (2007) who found that, a positive outcome in coping increases a future likelihood of an individual using the same strategy and appraisals. This also concurs with previous findings by Hallberg *et al.* (2000) who claim that a challenge managed by an individual in a satisfactory manner enhances the self-esteem and desire to approach a new challenge.

2.5 Empirical studies on coping strategies

2.5.1 Introduction

A thorough literature review was conducted on coping strategies of students with SI. The review indicated limited research in the area (see section 2.6). The present section describes research findings related to coping strategies in general and coping strategies of people (including students) with sensory impairment as well as other type of impairments in relation to the conceptual model that guided this study. (In some studies, the author's terminology is used rather than terms like disabled people and impairments/conditions).

2.5.2 Coping strategies of individuals with hearing impairment

Hallberg *et al.* (2000) conducted a study in Sweden on *coping with post-lingual severe-profound hearing impairment*. The qualitative study involved 17 respondents. Six coping strategies were grounded from the analysis: coaching, belonging to two worlds, direct coping, self-efficacy and hardiness (Hallberg *et al.* 2000). Coaching is one of the parenting styles used to teach their hearing-impaired children how to deal with difficult situations. Coaching prepares hearing-impaired children with knowledge and skills to be independent in addressing the barriers that they face in life. Thus, children are equipped with various ways to enhance their social skills with others whether with or without HI to avoid social isolation. Parents who use coaching, as a strategy to assist their children to overcome their

daily challenges, have high expectations of their children and believe that they can deal with challenging situations (Hallberg *et al.* 2000). This strategy was found to be effective not only for students with HI coping with the barriers encountered, but also for improving academic performance, as well as developing independency among students with HI. This coping strategy alerted the parents and care-givers to the fact that they had a vital role to play in assisting their children to cope with their impairment, as well as barriers associated with their impairment. This suggests that effective parental intervention in the education of their disabled children enhances their coping process and academic progress.

Another strategy used to cope with HI limitations documented by Hallberg *et al.* (2000) is to belong to two worlds, which entails that, individuals with HI cope with their limitation by belonging to their fellow peers with HI for mutual understanding and emotional support and to those without HI for social acceptance. Belonging to those with impairment and those without impairment seems to be essential not only for individuals with HI but also other disabled students as it strengthens their social acceptance, thus reducing/eliminating the social isolation revealed in the literature (see, for example, Connolly, Rose and Austen 2006; Salleh and Zainal 2010; Reed and Curtis 2011; Shahminan 2011; Reed and Curtis 2012; Hallahan, Kauffman and Pullen 2012; Heward 2013; Alothoman, 2014; ASHA 2015; Plasket 2015).

Similarly, belonging to their counterparts with similar SEN tends to promote not only understanding, but also a sense of self-worth (Jones 2002), which they do not feel when they identify themselves with individuals without SEN who perceive them as 'abnormal'. An inconsistent finding was reported by Plasket (2015) who found that, students with VI preferred to identify themselves more with their fellow peers with VI than with sighted who were found to lack emotional understanding.

Coping with HI also involves direct or active coping. Direct coping involves planning, controlling, informing and educating people. People without HI have been educated on the needs of individuals with hearing loss and how to adjust their behaviour towards those with HI to meet their needs and wishes (Hallberg *et al.* 2000). The other two coping strategies revealed in this study were self-efficacy and personality disposition of hardiness. These are rather internal factors which can facilitate coping in an individual. Other scholars perceive them as factors that influence coping but do not treat them as coping strategies. They are further expounded in section 2.5.6.

A similar study was also conducted in Sweden by Anderson and Hagnebo (2003) on *hearing impairment, coping strategies, and anxiety*. In contrast, the study by Anderson and Hagnebo (2003) was quantitative which involved 94 respondents aged 18 to 94 years. This study found that, individuals with HI use “plan-full” problem-solving more often, followed by distancing and seeking social support to cope with limitations caused by their impairment. Other coping strategies in the scale such as confrontative coping, accepting responsibility, and escape avoidance were seldom utilised. Plan-full problem-solving occurs when an individual uses his or her past experience to deal with his or her current situation, as well as to make a plan of action and follow it accordingly. Similarly, self-controlling involves an ability of a person to prevent himself/herself from reacting quickly to a situation (Forkman and Lazarus 1988; Anderson and Hagnebo 2003).

Whereas confrontative coping may involve an expression of anger or aggressive behaviours, distancing coping involves an individual’s effort to forget the problem and continue living as though nothing had happened and try to establish the positive side of an encounter (Forkman and Lazarus 1988). Although the two studies conducted in Sweden shed light on the coping strategies used by individuals with HI, the respondents used were not students,

but individuals with HI who are already in careers and whose barriers and remedial strategies might be different from those experienced by students.

2.5.3 Coping strategies of students with VI in lower level education

Vik and Lassen (2010) conducted a study in Norway to explore how students with VI from grade 5-10 (aged 10-15) cope with reading activities. The study used a semi-structured interview, as well as Likert scale questions to collect data from 11 students with VI in addition to teachers, teaching assistants and parents. It established that both problem-focused and emotional-focused coping were used by these students. Problem-focused strategies used in this study include the audio method, CCTV, computer, expressive verbal coping, as well as social support seeking.

Vik and Lassen (2010) claim that students with VI preferred more audio format in reading than Braille and reading print, because they perceived the later as tiresome as well as too-involving because the two procedures exert pressure on their eyes and finger-tips, respectively. Students seem to prefer the audio format because they can learn in a relaxed posture even on a bed without involving their eyes. Under social support, teachers' support was broadly employed compared to other forms, whereby students received assistance in adaptation of written materials, and individual instructions to name the few. Similarly, peers as well as parents rendered support; however, parental support was used exclusively for students with individual education plans.

Emotional-focused coping strategies reported were those related to students' relaxation activities or extra-curricular activities such as music, games, and reading for pleasure (novels, songs and internet). According to Vik and Lassen (2010), these emotional strategies did not only assist students with VI to cope with negative emotions, but also enhanced social

skills for effective participation in inclusive settings, as well as future career choices and development. However, these strategies were not directed to the sources of the problem; thus, there was overdependence on emotional coping rather than on problem-focused strategies, which may hinder students' adjustment from stressful situations, social functioning and psychological wellbeing (Lazarus and Folkman 1984; Givon and Court 2010; Carnicer and Calderon 2013). This study differed from the present study as it focused on elementary level of education and a single academic barrier, reading activities. Also, its findings were not based on the voice of the students alone but also on the teachers, parents and teaching assistants.

2.5.4 Coping strategies of disabled students, including students with VI in HE

Phiri (2013) conducted a study focuses on learning experiences, service provision and support for disabled students in HE in Zimbabwe. Using a case study design, the research generated data from nine students with varying impairments including students with VI. Although this study documented some coping strategies of students with VI, the focus of this study was not on coping strategies of these students, but on the learning experiences of disabled students in general in-service provision. The study established that internal and external factors motivated students with VI to progress up to HE as well as peer support received from sighted students. One of internal motivating factors revealed in this study is the desire of self-esteem. Students with VI were not happy with the low economic status of their fellow individuals with VI in their society and their family. Hence, they perceived education at the university level as the only liberating tool for them to find decent employment and in turn, gain self-respect in the society.

The desire for self-esteem was influenced by presence of good role models, that is, employment of individuals with VI and other conditions/impairments in different sectors. In this regard, both poor socio-economic status of their families and other disabled people, as well as the presence of good role models with similar conditions/impairments in society aroused an inner desire for self-esteem which facilitated their progress to HE. This implies that exposing students with SI and other disabled students to successful individuals with similar impairments is vital not only for their career choice, but also for developing resilience and commitment in their education. These internal and external motivating factors concur with Givon and Court's (2010) idea of determination coping strategy among students with learning disability. This also corresponds with Lazarus and Folkman (1984), who contend that coping process depends much on what is at stake in the encounter.

Other coping strategies revealed in this study are family and peer support. However, in this study peer support was broadly reported compared to parental support. Regarding support from sighted peers, Phiri (2013) found that, they assisted VI students in reading inaccessible books/lecture notes and other materials in addition to writing notes and rendering other academic supports. Similar findings were also reported by Givon and Court (2010) where students with learning disabilities were supported by their non-disabled peers in reading and writing challenging tasks. The findings by Givon and Court (2010) and Phiri (2013) on peer and parents support in the coping process of disabled students suggest that, effective coping requires a combination of efforts from an individual in stressful situation as well as those who surround them such as parents, siblings, teachers, and non-disabled students.

2.5.5 Coping strategies of students with other conditions/ impairments

Firth *et al.* (2010) conducted a study on coping strategies among secondary students with learning disabilities from the general Australian population. This quantitative study involved

98 students with learning disabilities. The study found extensive use of non-productive coping strategies, compared to productive coping strategies among students with learning disabilities. Students with learning disabilities were found to be more likely to ignore the problem they encountered than dealing with it. This finding on ignoring the problem is consistent with Folkman and Lazarus (1988) coping strategy called 'escape avoidance' as well as mental disengagement (Carver *et al.* 1989).

The study also reported lower use of productive coping strategies such as working hard in their studies; instead, they preferred to demonstrate their abilities in extra-curricular activities to compensate for the difficulties they experienced in their studies. However, preference in sport by students with learning disabilities can be regarded as adaptive, on the one hand, and non-adoptive on the other. It is adaptive as it assists students to manage negative emotions associated with difficulties encountered in academic matters in positive ways and, thus, it works as emotional coping strategy (Lazarus and Folkman 1984; Lazarus 1991; Lazarus 1993). In contrast, it is non-adaptive because as it does not deal with the root-cause of the problem, hence it could not assist an individual to adjust during a stressful condition (Lazarus and Folkman 1984; Givon and Court 2010).

Students in this study also reported higher use of positive focus. However, positive thinking employed in this study is different from Folkman and Lazarus (1988) positive reappraisal and Carver *et al.*'s (1989) positive re-interpretation. Whereas positive thinking by Folkman and Lazarus (1988) and Carver *et al.* (1989) involves looking at the stressful condition in a more positive way which allows for creativity in dealing with the problem, positive thinking in Firth *et al.*'s (2010) interpretation is partly non-adaptive. This is because students with learning disabilities used this method to steer focus away from the root of the problem and,

instead, focused on other brighter dimensions of life, thus blocking out the difficulties they faced because of their learning disability.

In other words, most of adaptive coping documented by Firth *et al.* (2010) are aimed at ignoring the source of their problems. The use of non-adaptive coping among students with learning disabilities was also reported in Israel by Givon and Court (2010). However, Firth *et al.*'s (2010) findings differed from those of Givon and Court (2010): the former reported extensive use of non-adaptive coping and the latter documented both adaptive coping (reconciliation and determination) and non-adaptive (avoidance and rebellion).

Givon and Court (2010) also conducted a study in Israel on coping strategies involved 20 high school students with learning disability aged 16 to 18. In this longitudinal qualitative study, participants were interviewed over a period of three years during their studies to explore their main coping strategies. Four types of coping strategies were revealed in this study: avoidance, rebellion, reconciliation and determination. Avoidance and rebellion are perceived as negative as they do not lead an individual to adaptive coping, whereas reconciliation and determination are considered as constructive as they can lead a person to adaptive coping, that is, adjustment and integration with self-identity.

This result concurs with Lazarus and Folkman's (1984) idea of adaptive and non-adaptive coping. Whereas the former uses constructive, the latter employs non-constructive ways to manage stressful conditions. Students, who use avoidance as coping strategy in this study, were reported to avoid all tasks that were associated with academic-related stresses by absenting themselves from class or submitting incomplete homework and assignments as well as over-dependence on others in academic tasks (Givon and Court 2010). Students who

reported reconciliation as a coping strategy demonstrated an awareness of their limitations and enthusiasm in dedicating all necessary energy and resources to coping with them.

Whereas those who employed determination as a coping strategy perceived their conditions/impairments as part of their self-image and something that can be changed from a threat to the challenge to be met (Givon and Court (2010). This perception is essential in the coping process as it influences an individual's ability to evaluate the coping resources available as well as the coping strategy to be employed (Forkman and Lazarus 1984). In this regard, determination is regarded as the most adaptive coping strategy because those who employed this strategy demonstrated an ability to persevere in stressful conditions and commitment to deal with challenges of their limitations and achieve their goals despite their conditions/impairments (Givon and Court 2010).

2.5.6 Factors influencing coping

Literature also identifies the factors that influence coping among individuals. These factors include personality disposition of hardiness, self-efficacy, self-esteem and locus of control (Hallberg *et al.* 2000; Thompson *et al.* 2007; Cash and Gardner 2011). Other literature reports the influence of demographic characteristics such as age and gender in the coping process (Seiffge-Krenke 2004; Gelhaar *et al.* 2007; Melendez *et al.* 2012; Zsolnai, Kask and Braunitzer 2015). Literature that associate age with coping indicates that coping strategies vary according to age as a result of cognitive maturity. Young people (before and during early adolescence) become more dependent on others in their coping strategies especially parents as other strategies demand cognitive reflective processes (Seiffge-Krenke 2004; Gelhaar 2007; Zsolnai, Kask and Braunitzer 2015). Those who associate gender and coping infer to differences in coping strategies between males and females with extensive use of social and emotional support being more pronounced in females than males (Matud 2004;

Gelhaar *et al.* 2007; Melendez *et al.* 2012), and females being more sensitive with certain stressful conditions than men (Matud 2004; Seiffge-Krenke 2004).

Personality factors that influence coping, according to Cash and Gardner (2011), include hardiness which is a personality trait that differentiates individuals who can cope better in stressful situations than others. The personality disposition of hardiness protects a person from a negative reaction to a stressful life event (Hallberg *et al.* 2000). In this regard, individuals with HI who perceive themselves as tough, hard and resilient in difficult situations could manage their auditory demanding situation. Individuals with this personality are resistant to stressful situations because they are committed to what they engage in; they have a sense of control and like challenges (Hallberg *et al.* 2000; Maddi *et al.*, see Cash and Gardner 2011). Similarly, those who display a sense of control are those who believe that they can alter the situation they encounter, and those who take on high level challenges are flexible in life and perceive changes as opportunities rather than threats to dread (Kobasa, see Cash and Gardner 2011).

Moreover, Hallberg *et al.* (2000) found that, self-efficacy plays a vital role in coping with profound hearing loss. They claim that individuals who demonstrate a strong belief in their capacity to deal with limitations of hearing loss cope better than their fellows. When faced with stressful situation, individuals with poor self-concept may easily perceive the situation as too difficult to handle, thus allowing their morale to solve the problem to go down (Judge *et al.*, see Thompson *et al.* 2007). This idea is in line with Lazarus and Folkman's (1984) contention that secondary appraisal in coping also involves the evaluation of an individual's ability to apply a certain strategy in a stressful situation.

The locus of control and self-esteem tend to influence the appraisal process and choice of coping. Locus of control is a belief system regarding the extent to which an individual outcome and rewards in life result from external factors or internal factors (Thompson *et al.* 2007). On the one hand, individuals with a strong internal locus of control believe that any negative or positive outcome in their life is caused by one's own actions such as efforts directed towards attaining something. On the other hand, those with strong external locus of control believe that any positive or negative outcome in life is caused by external factors, such as having good or bad luck in something. Individuals with a strong perception of control have been found to perceive a stressful situation as challenging and not harmful or life-threatening (Forkman, Rotter, Schan and Albert, see Thompson *et al.* 2007).

Regarding the types of coping, individuals with internal locus of control have been associated positively with direct coping, whereas those with external locus of control were associated positively with suppression or avoidance and negatively to direct coping (*ibid.*). The role of self-esteem in coping is more or less the same as that of locus of control. Self-esteem is the positive or negative evaluation of the self. It may comprise feelings of worthiness, pride and discouragement. Lazarus and Folkman (1984) underscore the role of self-esteem in coping that influences cognitive appraisal and an application of problem-focused coping strategies to an individual whereby individuals with high self-esteem tend to cope better in stressful life event than those with low self-esteem (Brown and Dutton, see Thompson *et al.* 2007).

2.6 Synthesis and the research gap

2.6.1 Synthesis

A comprehensive review of literature covered in the previous sections has provided an insight into educational barriers students with sensory impairment face by highlighting the academic and social barriers that hinder the access or progress of those who have a sensory impairment in education. The literature review also shows how coping approaches have been conceptualised by different scholars in addition to elaborating various ways of coping. The review has also elaborated the cognitive motivational relational theory to coping by Lazarus (1991) and the resulting conceptual model, as well as the rationale for adopting the theory. The literature review indicates six major academic barriers, which can hinder the education of students with SI. These barriers include the shortage of L&T resources, scarcity of trained teachers and other specialists, examination and information accessibility barriers, communication barriers, curriculum barriers and physical barriers. The analysis of these barriers suggests that the presence of some of them could be environmental, that is, physical barriers were found to dominate mostly in developing countries, whereas the scarcity of trained teachers and other specialists was apparent in both developed and developing countries (see subsection 2.1.1[iii]). This implies that training in special and inclusive education is a major challenge in many education systems regardless of the development level of a given country. The literature reviewed has also associated social isolation, withdrawal, difficulty in making and maintaining friendship, and depression to social barriers among students with SI.

Literature related to coping reveals that coping can be either problem-focused or emotional-focused and can occur when the environmental demands exceed an individual's resources. When it comes to opting for coping strategies, an individual would not only depend on the coping possibilities and how they are appraised, but also on what s/he wants to accomplish

in the encounter (Forkman and Lazarus 1984; Lazarus, 1991). Other literatures affirm the influence of personality on coping (Amirkhan *et al.* 1995; Hallberg *et al.* 2000; Thompson, *et al.* 2007; Cash and Gardner 2011) whereas others indicate the influence of environment or situation on coping (Forkman and Lazarus 1984). Generally, there are no universally-appropriate or inappropriate coping strategies, although some coping strategies are more often better or worse than others (Lazarus 1993).

2.6.2 Research gap

The review of literature shows that studies conducted on challenges or barriers that disabled students in Tanzania's inclusive education face have mainly focused on disabled students or inclusive education in general, and not necessarily on category-specific disability such as SI (Guijaro 2000; Mmbaga 2002; Chalema 2005; Lewis and Little 2007; Pembe 2008; Hakielimu 2008; Tungaraza 2012b). Those studies, which concentrated on students with SI, focused on primary or secondary schools and not across education levels or HE. Moreover, most of these studies did not use students with SI exclusively as their main respondents (Mwakyeya 2013; Kiomoka 2014).

Moreover, most of the studies which focused on barriers that students with SI face have been conducted in other parts of the world, mainly outside Africa (Douglas *et al.* 2011; Reed and Curtis 2011; Reed and Curtis 2012; Weedon *et al.* 2012; El-Zraigat and Smadi 2012; Safder, *et al.* 2012; Shahminan 2012; Ghulam *et al.* 2014; Alothoman 2014; Alshahrani 2014; Plasket 2015). In addition, very few studies (Reed and Curtis 2012; Safder *et al.* 2012; Ghulam *et al.* 2014) have explored barriers students with SI face in inclusive settings from the perspectives of students themselves without involving other educational stakeholders such as teachers, specialists, heads of school as well as parents. Similarly, none of these studies explored the educational barriers across different levels of education.

Furthermore, the literature on coping strategies, apart from originating outside Africa, has mainly focused on coping strategies in general (Lazarus and Folkman 1984; Carver *et al.* 1989; Lazarus 1993; Armirkhan 1995; Cash and Gardner 2011; Berry and Kingswell 2012). Other studies have focused on medical discipline, especially coping with chronic illness (Cheryl *et al.* 2009; Claire 2015). Those which were conducted on students with SEN were mostly conducted outside Africa and focused on other categories of conditions/impairments such as learning disabilities, Autism and dyslexia (Firth *et al.* 2010; Givon and Court 2010; Burns *et al.* 2013).

Meanwhile, those studies that have focused on SI tended to concentrate on coping with an impairment itself rather than barriers associated with environmental/educational system limitations. Similarly, they involved individuals with SI who were not students. (Hallberg *et al.* 2000; Anderson and Hagnebo 2003; Yampolsky *et al.* 2008). Another study on coping, which employed students with VI, did not only base its findings on students themselves but also included other educational stakeholders that are, teachers, parents and teaching assistants. In addition, it only employed students with VI in lower levels of education (Vik and Lassen 2010). Research gap is further illustrated in the table below;

Table 2.1: Sample of literature reviewed

S/N	Author	Year Published	Inclusive Education			Coping Strategies		Country of Study	Nature of Respondents			Nature of Material Reviewed			
			General challenges /T&L	Educational Barriers of Students with SI		In General	For Individuals /students with SEN		Students with SEN	Students without SEN	Teachers/ Other /Education stakeholders /Parents/Stu dents	Journal Article	Book	Thesis	
				Academic	Social									PhD	Master
1	Alothman	2014		√ (HI)				Saudi Arabia			√		√		
2	Alshahrani	2014		√ (HI)				Saudi Arabia			√		√		
3	Amirkhan et al.,	1995				√		USA		√		√			
4	Armstrong, F	2016	√					UK				√			
5	Anderson and Hagnebo	2003					√ (Non-student HI)	Sweden			√ (Non-student with HI)	√			
6	Berry and Kingswell	2012				√		UK		√		√			
7	Burns, <i>et al.</i> ,	2013				Dyslexia		Finland			√ Dyslexia	√			
8	Carver et al	1989				√		USA				√			
9	Cash and Gardner	2011				√		New Zealand			√	√			
10	Cheryl's, <i>et al</i>	2009				Chronic Illness		USA			√ Non-students without SEN	√			
11	Claire	2015				Chronic Illness		UK			√ Parents			√	
12	Douglas, <i>et al.</i> ,	2011		√ (VI)								√			
13	El-Zraigat and Smadi	2012		√ (HI)				Jordan			√	√			
14	Firth et al.,	2010					LD students	Australia	√ (LD)	√		√			
15	Ghulam, <i>et al.</i> ,	2014		√ (VI)				Pakistan	√ (VI)			√			
16	Givon and Court	2010					(Students with LD)	Israel	√ (LD)			√			
17	Gordon <i>et al.</i> ,	2002				Chronic Illness		USA			√ Non-students without	√			

S/N	Author	Year Published	Inclusive Education			Coping Strategies		Country of Study	Nature of Respondents			Nature of Material Reviewed			
			General challenges /T&L	Educational Barriers of Students with SI		In General	For Individuals /students with SEN		Students with SEN	Students without SEN	Teachers/ Other /Education stakeholders /Parents/Students	Journal Article	Book	Thesis	
				Academic	Social									PhD	Master
18	Gonzalez and Artuch	2014				√		Spain		√		√			
19	Hakielimu	2008	√					Tanzania			√	√			
20	Hall Luck et al., 2003	2003		√(VI)				USA	√(VI)			√			
21	Hallberg et al.,	2000					√(Non-student with HI)	Sweden			√(Non-student with HI)	√			
22	Heward	2013		√(SEN)	√(SEN)			USA					√		
23	Jones and Maloney	2015		√(VI & LD)								√			
24	Kiomoka	2014		√(VI)				Tanzania	√(VI)		√				√
25	Lazarus and Forkman	1984				√		USA					√		
26	Lazarus	1991				√		USA					√		
27	Lazarus	1993				√						√			
28	Mmbaga	2002	√					Tanzania			√				
29	Melendez et al.,	2012				√		Spain			√ Non-students without SEN	√			
30	Mokiwa	2013		√(VI)				South Africa	√(VI)			√			
31	Morris	2014		√(VI)				UK	√(VI)					√	
32	Musengi and Chireshe	2012		√(HI)	√			Zimbabwe			√	√			
33	Mwakyeya	2013		√(VI)				Tanzania			√ Teachers				√
34	Pembe	2008	√					Tanzania			√				√

S/N	Author	Year Published	Inclusive Education			Coping Strategies		Country of Study	Nature of Respondents			Nature of Material Reviewed			
			General challenges /T&L	Educational Barriers of Students with SI		In General	For Individuals /students with SEN		Students with SEN	Students without SEN	Teachers/ Other /Education stakeholders	Journal Article	Book	Thesis	
				Academic	Social									PhD	Master
35	Phiri	2013		√ (SEN)				Zimbabwe	√ (SEN)					√	
36	Plasket	2015		√ (VI)				UK	√		√				
37	Reed and Curtis	2011		√ (VI)				Canada			√	√			
38	Richards, G	2016	√					UK				√			
39	Safder, <i>et al.</i> ,	2012		√ (HI)	√			Pakistan	√ (HI)			√			
40	Seiffge-Krenke	2004				√				√		√			
41	Shahminan	2012		√ (HI)				Pakistan	√ (HI)		√			√	
42	Soorenian	2011	√					UK	√ (SEN)					√	
43	Thompson	2007				√						√			
44	Tungaraza	2010	√					Tanzania			√	√			
45	Tungaraza	2012	√					Tanzania			√ Teachers	√			
46	Vik and Lassen	2010					(Student s with	Norway			√	√			
47	Wadesango etal.,	2014		√(HI)								√			
48	Waterson	2011				Autism		UK			√ Parents			√	
49	Weedon, <i>et al.</i> ,	2012		√ (SD)				UK			√ Teachers	√			
50	Yamposky	2008					√ (Non-student VI)	Canada	√(VI)		√ (Non-student VI)				
51	Zsolnai et al.,	2015				√		Hungary		√		√			
Total (out of 50)			8	20	3	17	6		10	6	26	34	3	7	3

Key: *HI* -Hearing Impairment; *VI* -Visual Impairment; *LD* -Learning Disability; *SEN* -Special Education Needs

Table 2.1 presents characteristics of some of the literature reviewed. Out of the 51 documented studies on inclusive education and coping strategies only eight (16%) were conducted in Africa. The remaining (84%) were conducted elsewhere. Similarly, out of 18 studies conducted on the challenges students with SI face only two (11%) were conducted in Tanzania and another two (11%) in other African countries, one in Zimbabwe and one in South Africa. The remaining 14 (78%) originated from outside Africa.

Studies on coping strategies show that out of the 23 researches reviewed (see Table 2.1), none (0%) were conducted in Africa. Moreover, out of those 23 studies, only six (26%) focused on coping strategies of either individuals/students with SI. The remaining 17 (74%) focused either on coping strategies in general, chronic illness or other conditions/impairments. Thus, this study responded to this knowledge gap to explore the educational barriers that students with SI encounter and their coping strategies from their elementary level to HE.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter presents the methodology employed in data collection and analysis. Specifically, it covers the research design, research paradigm, area of the study, sampling procedures and sample size. It also describes the methods used in data collection and administration, ethical considerations, data analysis procedure and trustworthiness (reliability and validity) of research data. In this regard, the chapter answers three basic questions pertaining to the research methodology of where, why and how data was collected and analysed?

3.1 Research design

A research design is a plan of action that guides the researcher in the whole process of data collection and analysis in accordance with the research objectives and research questions (Creswell 2009; Kumar 2011). It explains the procedures used by the researcher in the selection of respondents, data collection, data analysis and how to report the findings (Kumar 2011). This study used a case study design to explore the barriers and coping strategies employed by students with sensory impairment. Yin (2014) defines a case study as “an empirical inquiry that investigates a contemporary phenomenon (the case) in depth and within its real-world context, especially when the boundaries between phenomenon and context may not be clear” (p.16). In this regard, a case study design includes research on a “single community, school, family, organisation, person and event” (Bryman 2016, p. 60).

The case study design was appropriate in this study for the following reasons. First, it is the nature of research questions (see subsection 1.6), especially the *how questions*, which

demands detailed information from respondents that could otherwise not be obtained through the deployment of other designs, such as a survey (Denscombe 2014; Yin 2014). Second, a case study design allowed the researcher to obtain an overview and in-depth understanding of academic and social barriers of students with SI and their coping strategies because of freedom of expression among the respondents (Kumar 2011; Bryman 2012; Yin 2014). Third, the flexibility of a case study design in data collection, which allows for multiple methods of data collections, assisted the researcher to gather detailed and in-depth information from respondents using semi-structured interviews, Focus Group Discussions (FGD), and open-ended questionnaires (refer appendix I, II, and III for instruments) which suited the demands of the research questions (Kumar 2011; Robson 2011; Creswell 2014; Denscombe 2014; Yin 2014).

Fourth, a case study design allowed participants to share their experiences in the educational barriers they encountered and the coping strategies they employed over time, that is, from their elementary to tertiary education level (Yin 2014). Fifth, due to limited knowledge on educational barriers that students with SI encountered and how they cope in the context of Tanzania (see section 2.6.2), a case study design provided a holistic understanding of the phenomenon (Kumar 2011; Creswell 2014; Denscombe 2014). Finally, a case study was deemed important, because the educational barriers and coping strategies of students with SI were explored within their learning environment (natural setting) with the researcher taking an active role during data collection (Cohen *et al.* 2011; Creswell 2014; Denscombe 2014).

To predict similarity of results (literal replication), the researcher employed a multiple-case study design (Yin 2014). One of the potential benefits of multiple-case design study is that results can be used for replication purposes, that is, results obtained from two or three cases

can be assessed for either similarities or differences to enhance validity of the findings (Yin 2014). In this regard, the study employed two cases of HEIs, that is, a new and an old institution (see section 3.4.1) and two cases of students with learning difficulties, VI and HI (see section 3.4.2). The deployment of multiple cases in this study allowed the researcher to collect rich data, and to compare the educational barriers and coping strategies apparent in each case (see section on findings; chapters four and five).

Moreover, findings from multiple-case design are more persuasive than from a single case study and, thus, the results obtained from a multiple-case study are stronger than those obtained from a single-case study (Campbell, see Cohen *et al.* 2011; Yin 2014). To emphasise the importance of multiple-case design in research, Campbell (see Cohen *et al.* 2011) claims that, “two case studies is more than worth having double the amount of data on a single case” (p. 291) because data from multiple-case studies are more amenable to generalising just like the replication of a single experiment (Cohen *et al.* 2011; Yin (2014). Yin (2014) further explains that, conducting a single case study is like being involved in a risk of “placing all eggs in one basket”. Multiple-case study was also employed to enhance the trustworthiness of the research data in terms of its transferability to other contexts (see section 3.9.3)

Despite all the strengths of a case study design, literature also documents some misgivings pertaining to the difficulty inherent in generalising the resultant findings to the wider population (Kumar 2011; Denscombe 2014; Yin 2014). However, the focus of this study was not to make generalisation of its findings to wider population, but rather to provide a holistic understanding of the phenomenon because of the limited knowledge in the area (Yin 2014). In addition, the study focused on providing students with sensory impairments, as

well as institutions with similar characteristics to those involved in the study, with coping strategies that can be applied in situations where similar barriers are encountered, that is, in terms of transferability. Towards this end, the researcher involved students with SI from HEIs to capture students from different parts of Tanzania with different background characteristics and wider experiences in coping with educational barriers (see section 3.9.3). Denscombe (2010) claims that “for a case study finding to be generalised to other examples in the class depends on how far the case study example is similar to others of its type” (p. 60). Generally, case studies do not seek statistical generalisation, but analytical generalisation whereby the case represents itself to allow the researcher to understand other phenomena or situations which are similar to the case under review (Cohen *et al.* 2011; Denscombe 2014).

3.2. Research paradigm

Different researchers have different ways of searching for truth; however, those variations in searching for truth are guided by standards, principles, and clusters of beliefs which can be referred to as a paradigm. A paradigm can be perceived as patterns of beliefs and practices which guide a researcher’s actions in the whole process of conducting research (Bryman 2012). Bryman further argues that, a paradigm influences researchers’ actions, especially on what should be studied, the manner of conducting the research and the method of interpreting the findings. Cohen *et al.* (2011) identify post-positivism and constructivism as the two main paradigms which form the basis for research in social sciences for exploring social reality.

3.2.1 Post-positivism Paradigm

Post-positivism is based on the belief that human behaviour is fundamentally rule-governed and can be understood solely by observation and reasoning through the application of

methods of natural science such as experiment (Dash 2005; Cohen *et al.* 2011; Bryman 2012; Creswell 2014). It is called post-positivism because it denotes the thinking in the aftermath of positivism, which contests the belief of absolute truth of knowledge, and whose applicability relies more on quantitative than qualitative research (Creswell 2014). Moreover, just like positivism, post-positivists perceive research to be objective, which means social phenomena and their meanings have an existence that is independent of social actors (Bryman 2012) and that the researcher and researched person are independent of each other (Denscombe 2014). However, contrary to positivism, post-positivism works on the assumption that during data interpretation the researcher might influence what has been observed (Cohen *et al.* 2011). Similarly, Creswell (2014) contends that it is difficult to have an absolute truth of knowledge when studying human behaviour and actions. Thus, post-positivism advocates for a need for multiple measurements and observations for triangulation purposes (Cohen *et al.* 2011). Towards this end, post-positivism focuses on measuring possible causes of a phenomenon that influences the outcome through statistical tools (Creswell 2014).

However, the objectivist nature of reality, which underlies post-positivism, and the tendency to disregard the subjective states of individuals coupled with inability to provide an in-depth understanding of a phenomenon inspired the researcher to opt for the constructivist paradigm, which works on the assumption that social phenomena and their meanings are continually being accomplished by social actors (Dash 2005; Creswell 2009; Bryman 2012; Bryman 2016). This constructivist paradigm is further described in the following section.

3.2.2 Constructivist paradigm

Constructivism is as an approach to qualitative research which works on the assumption that knowledge is socially-constructed by people through interactions with others and their environment (Robson 2011; Creswell 2014). In other words, social phenomenon and their meanings depend on social actors. ‘Constructivism’ also goes by the names of ‘social constructivism’ (Creswell 2009; Robson 2011; Creswell 2014) and ‘interpretive paradigm’ (Cohen *et al.* 2011). Unlike post-positivism, which considers knowledge as objective, constructivist perceives knowledge as subjective because social reality can be understood within people, who are active—rather than passive—in constructing meaning out of their interaction with their environment (Cohen *et al.* 2011). This concurs with Vygotsky’s (1978) and Bruner’s (1990) idea to the effect that, meaning/knowledge is a product of an individual’s interaction with his/her environment (see section 1.2.3 subtitled “inclusive teaching strategies”).

The constructivist paradigm was deemed to be appropriate in this study because it allowed the researcher to generate an understanding of academic and social barriers as well as coping strategies of students with SI through in-depth interviews, FGDs and a questionnaire with open-ended questions (refer appendix I, II and III) which allowed respondents to share their experiences, opinions and views on the subject under study (Robson 2011; Creswell 2009). As the constructivist paradigm accommodates varied and multiple meanings, the researcher utilised the three different methods of data collection to collect meanings associated with educational barriers and coping strategies of students with SI.

In addition, the essence of using in-depth interviews and open-ended questionnaires was to permit broader and general questions that will allow the respondents to generate different

and personal responses on educational barriers and coping strategies out of their experiences (Creswell 2014). This idea is consistent with Cohen *et al.* (2011) who contend that the main focus of the interpretive paradigm or constructivism is to understand the subjective world of the human experience by getting inside the person (that is through in-depth interview and/or open-ended questionnaire) and generate meaning from within the person.

Furthermore, constructivism or social constructivism focuses on specific contexts in which people live to generate meaning of a certain social phenomenon because people interact with their environments and make sense of it based on their historical and social perspective (Creswell 2014). Constructivism was applicable in this study because the researcher explored the educational barriers students with SI encounter and the coping strategies they employ based on their experiences as they interact with the school environments, teachers, their fellow peers and others in society. With this understanding, the researcher was able to personally visit the context (students' learning environment) and collect information on the topic under study. In this regard, Cohen *et al.* (2011) claim that under the constructivist paradigm social reality can be understood by studying direct experiences of individuals in specific contexts.

3.3 Area of the study

The study involved two HEIs in the country, one public and the other private. In this study, the two HEIs are referred to as Institution 1 and 2, respectively. Students with VI and HI were the target population for this study (see more details in the sampling section).

3.4 Sampling procedures

This study utilised purposive sampling to select institutions and respondents involved in the study (Bryman 2012). Purposive sampling was deemed appropriate in this study because it allowed the researcher to work with the respondents who had relevant information on barriers as well as coping strategies which enhanced the understanding of the problem and the research questions (Bryman 2012; Creswell 2014; Bryman 2016).

Purposive sampling was guided by the researcher's judgment that the sample selected had useful information on the topic under study (Cohen *et al.* 2011; Robson 2011; Silverman 2013). Thus, the researcher used purposive sampling to sample institutions that met the purpose of the study, as well as students with in-depth knowledge and experience on educational barriers and coping strategies (Cohen *et al.* 2011).

3.4.1 Institutions

Purposive sampling (Bryman 2012; 2016) was used to select two universities, Institution 1 and 2, due to their unique features explained in the following text. Institution 1 was selected because it is the oldest university in the country (it was established in 1961), and was the first institution to admit disabled students, especially those with VI in 1978 (Tungaraza 2012a). Being the oldest and the first university to enrol disabled students, the researcher believed that it had gained ample experience over the years and set up support services mechanisms for these students compared to other nascent universities in the country. In this regard, students from this university had useful information in response to the research questions.

Institution 2 was involved because it is a relatively new and privately-owned institution (established only in 2007) which offers more programmes in SEN at degree level than any other HEI in the country (Kapinga 2012). Being new the researcher believed that it adhered to the principles of the Universal Design in Education, which requires educational products and environments to fit all users regardless of their characteristics (The Centre for Universal Design 1997; Burgstahler 2012). Involving both an old and new HEI in this study allowed the researcher to compare and contrast the two institutions in terms of how they treated students with SI's educational barriers and the coping strategies at their disposal in the two institutions.

3.4.2 Students

Purposive sampling (Bryman 2012; Bryman 2016) was used to select all students with sensory impairment found in the two HEIs under review. The study involved students with SI from HEIs and not lower levels of education, such as primary and secondary schools because they are at the high level of the academic ladder, meaning they had accumulated adequate and useful information on how they managed to reach this level of academic achievement. The educational barriers they encountered notwithstanding, they have managed to excel and scale up to tertiary education. Thus, involving students with SI in HEIs allowed the researcher to collect in-depth knowledge on academic and social barriers these students have experienced over the years.

How participants were sampled

The researcher collected the lists of disabled students from each institution involved in the study before data collection. The lists were then used to identify students with SI and obtained 51 students of whom 28 were from Institution1 and 23 from Institution 2. The

researcher invited all the students with SI for the following reasons. First, all the students with SI in HEI qualified for this study, because they had relevant information required by the research questions (Bryman 2016). In other words, these students were perceived by the researcher as experts, knowledgeable enough in the area under review due to their accumulated knowledge and experiences pertaining to educational barriers and coping strategies (Cohen *et al.* 2011; Denscombe 2014). Second, the total number of students with SI in each institution was not too numerous to be accommodated in qualitative research. Third, to ensure both students with VI and HI, as well as those with blindness and low vision, hard-of-hearing and deaf were represented in the study. In this regard, the researcher ensured that a wide cross-section of students with SI were involved in the study (*ibid.*). Finally, this approach was aimed to avoid a low response rate from students, for example, 27 students with SI agreed to participate out of 51 students which represents a 52.9 percent of all students with SI.

Moreover, another criterion used to sample students was their readiness to share their experiences with the researcher on the topic explored both through the interview and/or FGD. Therefore, the purpose of the study was explained to all the students qualified to participate in the study, in addition to describing what the researcher expected from the participants. Those who agreed to participate were recruited to take part in the study.

However, some students were not ready to participate in this study because they perceived their participation as a waste of time. From their previous experience, there has been no impact of previous research in their education. In other words, they have been involved in several researches from their primary education to HE; however, they cannot recall any remarkable change in their education in terms of resources, teachers' pedagogical skills as

well as general societal attitudes towards them as a result of the research. This attitude brings to mind the relevance of the emancipatory research approach to disability study so that researchers could go further than merely involving them in the study by also making use of their voices in decision-making, that is, their voices in research projects should be directed towards improving their academic, as well as social, well-being as the next subsection expounds. Some students who participated in this study shared similar views with those who declined to participate in the study, but they nevertheless participated because they acknowledged that the findings (coping strategies) would be useful to their fellow students with SI in lower level classes.

The researcher employed only students with SI because she believed that actual data on the phenomenon under investigation could be obtained from the voices of the learners themselves rather than from their teachers, parents or colleagues as the next section further elaborates.

The use of learner's voice strategy

This study explored education barriers of students with SI and their coping strategies from the perspective of the learners. The study used the voice of students with SI to analyse the educational barriers they encountered and the coping strategies they employed. In this regard, the researcher investigated the practical experiences of these students' context (their learning environment) where students with SI narrated their academic and social experiences through in-depth interviews, open-ended questionnaires and FGDs.

The use of the learners' voice in disability research is in line with participatory and emancipatory research aimed at reflecting, exploring and disseminating the views, concerns,

feelings and experience of research participants from their own perspectives (Swain and French 1998). They further claim that, emancipatory research originated from the movement of disabled people and the Social Model of Disability. This is because research on disability has failed to capture and reflect accurately the experience of disability from the perspective of disabled people themselves (Oliver 2002). Whereas participatory research aims at transforming social relations of research processes, emancipatory research attempts to transform society to ensure full participation of disabled people (Swain and French 1998).

The researcher believed that data generated from the voice of students with SI will better represent the actual experience of these students, than the data generated from the voice of professionals such as teachers and care-givers. Corbett (1998) claims that when professionals speak on matters concerning their students, they represent their own perception of what is appropriate, which can be contrary to the expectations of the targeted group. Disabled people have been struggling to have a voice in relation to their own circumstances, in reacting to services they receive, let alone take part in the design or management of service (Connelly 1990). Thus, voice of students with SI is crucial, especially on matters which affect their lives such as education (Barton 1998).

Using the voice of learners in educational matters seems to be vital in understanding differences between what learners experienced and the intended services for them (Richards 2016c). Similarly, coping strategies stemming from the study reflect the students' practical experience, thus widening the opportunities for application by other students with similar characteristics.

3.5 Sample size

Literature consistently shows that sample size in qualitative research is relatively smaller than in quantitative research because qualitative research focuses on the construction of meaning rather than generalising findings to a wider population (Crouch and McKenzie 2006; Mason 2010). It is also documented that, sample size in qualitative studies is determined by data saturation (Creswell 2009; Bryman 2012; Creswell 2014; Bryman 2016). Data saturation has been described as the point at which no new information or themes are observed in the data (Guest *et al.* 2006; Creswell 2014).

This study involved 27 respondents purposively selected from the two HEIs (see section 4.1 Table 4.1: population vs. number of participants involved). Out of 27 respondents 16 were students with VI and 11 were students with HI (see section 4.1 Table 4.2 on number of participants involved in the study in each institution and their characteristics). Twenty-seven respondents was deemed an appropriate number for the study because it allowed the researcher to achieve data saturation in both educational barriers and coping strategies; moreover, the sample size concurred with other literatures on the sample size in qualitative research (Bertaux 1981; Guest *et al.* 2006; Mason 2010; Warren 2002; Onwuegbuzie and Collins 2007; Bryman 2016). In this regard, the sample size used was responsive to the nature and/or purpose of the study (Bryman 2012; Silverman 2013). Moreover, qualitative research neither requires a large sample size that would make it difficult in undertaking a deep and intensive analysis, nor a small sample size that it will make it difficult to achieve data saturation (Onwuegbuzie and Collins, 2007). Thus, the sample size used concurred with other literature. Warren (2002) suggests a sample size of between 20 and 30 as a minimum number of participants to be involved in a qualitative study. Mason (2010), who analysed

the sample size of 560 interview-based qualitative research doctoral theses, found that 20 - 30 was the most commonly used sample size.

In addition, Bertaux (1981) claimed that 15 and 30 are minimum and maximum sample sizes, respectively, for a qualitative study. By the fifteenth interview, the researcher can understand the patterns of the phenomenon under review and by the twenty-fifth interview the researcher can only add knowledge and confirm what is already known and by the thirtieth the interviewer no longer collects any new knowledge (ibid.). Data saturation in qualitative research can be achieved in a sample size of between 15 and 30; however, this depends on the nature and purpose of the study because other qualitative study may involve a detailed account of one person at different points in time (Yin 2014; Robson and McCartan 2016).

The use of 16 students with VI and 11 students with HI in this study did not only assist the researcher to achieve data saturation on the topic under review but the sample also supported Mckenzie's (see Mason 2010) contention that, few participants can be used in qualitative research when a given study uses more than one method of data collection with the same respondents or when using in-depth interviews. Considering the nature of the present study, which used students with sensory impairment who went their education in similar environments with the use of three different methods of data collection, the sample size used was adequate to answer the study's research questions primarily because the "more similar participants in a sample are in their experience with respect to research domain, the sooner the saturation" (Guest *et al.* 2006, p. 76).

3.6 Data collection methods

This study employed data collection methods that allowed the researcher to have an in-depth understanding of the phenomenon. The methods consist of semi-structured interviews, an open-ended questionnaire and FGDs (Robson 2011; Bryman 2012; Yin 2014). The study used more than one method of data collection because the multiple sources of evidence provided credibility of the research findings which other researchers have termed as convergent and concurrent validity of findings (Creswell 2009; Descombe 2010). Multiple cases do not only provide validity but also credibility and reliability of findings (Cohen *et al.* 2011; Yin 2014).

Furthermore, multiple sources allowed the researcher to have a comprehensive understanding of educational barriers and coping strategies of students with SI which, in turn, enhanced accuracy, strength and quality of findings on the case under review (Yin 2014). Despite all the benefits of using more than one source in a case study, multiple sources are more expensive in terms of money and time involved in data collection than a single source of data collection (*ibid.*). The researcher addressed this time and cost-constraints by allocating six months for data collection and discussing the budget proposal with the funder prior to data collection. Prior data collection entailed a pilot study that was conducted to test research instrument and whether they measure what was intended to measure.

3.6.1 Pilot study

As the previous section has illustrated, a pilot study was conducted before data collection. Prior to that, the researcher discussed the research instruments with her supervisors to check whether these measured what they intended to measure and the extent to which the research instruments provided answers to research questions posed. This was followed by a pilot

study conducted at one HEI with similar characteristics as the institutions involved in the study. A pilot study involved six interviews, four of which were for students with VI and two for students with HI; one FGD and two sets of questionnaires with open-ended questions.

The essence of the pilot study was to check for the accuracy of research instruments in a real environment to ensure that they measured what they were intended to measure. For example, the findings of pilot study assisted the researcher to modify some of the interview questions, open-ended questions in the questionnaire as well as the FGD, which after the pilot study, focused more on coping strategies than in the previously designed. Also, the purpose of the study was made clearer in the questionnaire to facilitate the respondents' understanding and consistence of data. The pilot study also assisted the researcher to ensure trustworthiness of the findings in terms of dependability of the research (see section 3.6.1).

3.6.2 Semi-structured interview

A semi-structured interview guide was used as a main research instrument to extract information from students with SI on the academic and social barriers they faced and the coping strategies they employed. The researcher used an interview guide with key questions that was employed as a checklist for the areas covered during each interview session (Robson 2011; Bryman 2012; Denscombe 2014). However, the questions were not asked according to the order of the interview guide and the respondents had freedom in providing their responses to the questions (Cohen *et al.* 2011; Bryman 2012; Bryman 2016). This method was considered appropriate in this study because of its flexibility in sequencing the discussion; it also provided an opportunity for the respondents to provide detailed

information on the phenomenon under study (Cohen *et al.* 2011; Robson 2011; Silverman 2011; Bryman 2012; Denscombe 2014).

Moreover, the researcher had an opportunity for further probing by not only asking planned questions but also unplanned questions triggered by the information the interviewees provided to generate a deeper understanding of the phenomenon. In addition, follow-up questions also enabled the interviewer to guide and help those who were unfocused, back to the topic in question and they were also deployed when more clarification and exploration of the phenomenon was necessary (Kumar 2011; Robson 2011; Bryman 2012; Bryman 2016). Similarly, this method allowed the researcher to collect non-verbal information delivered using gestures and facial expressions, which enhanced the understanding and interpretation of the verbal information during data analysis (Cohen *et al.* 2011; Robson 2011).

One major limitation of semi-structured interview has to do with the reliability of data, which lies on the responses of the interviewees. However, the researcher used two ways to minimise this limitation (see section 1.9 limitation of the study).

Administration of semi-structured interview

Semi-structured interviews were conducted with all the respondents involved in this study to explore the academic barriers they encountered and coping strategies they employed. They were conducted within the selected institutions. To avoid delays and disappointments, a prior arrangement was made with each respondent through mobile phones whereby those with VI received a call and those with HI received a text message for scheduling of an appropriate time and date for an interview. Similarly, physical contact was also made with some

respondents, especially those with HI who did not respond to the text message. All the respondents were reminded of the appointment a day before the agreed date.

According to the preference of participants at Institution 1, all the interviews were conducted in the examinations room of a Special Education Unit. Permission to use the room was granted by the head of a special unit. At Institution 2, all the interviews were conducted in an office provided to the researcher by the Department of Special Education. Each interview was conducted considering a convenient time for the interviewees. The researcher conducted a maximum of two interviews per day spaced between three and four hours to have ample time to reflect on the previous interview before conducting a fresh one. Generally, interviews took a minimum of 60 minutes and a maximum of one-and-half hours. The time used concurred with Denscombe (2014) and Yin (2014). Whereas the former recommends a maximum of 60 minutes the latter asserts that some case study interview may take a maximum of two or more hours.

All the interviews were conducted by the researcher with assistance of a note-taker. The researcher assumed responsibility for the interviews, whereas the note-taker took down the resulting notes. Similarly, each interview session was audio-recorded with the respondents' consent. For consistency purposes, the researcher compared interview notes with those taken by a note-taker after each interview session.

Regarding students with HI who use sign language as a method of communication, the researcher asked for their consent to use a sign language interpreter during the interview. However, using sign language interpreters in interviews tends to introduce two more relationships to an interview, which are the interpreter-client and interpreter-interviewer (see

section 1.9). On the other hand, for those students with HI who use speech reading for communication, the researcher had to adjust the interview session to accommodate these students, that is, talking while looking a student straight in the face, talking with slow pace as well as repeating, or rephrasing a question after noting any misunderstanding in the interviewee's response.

3.6.3. Focus group discussion (FGD)

The study employed the FGD with students with VI who participated in the interview for three main reasons: to gather in-depth data from the respondents, verify data collected using a semi-structured interview and for triangulation purposes (Cohen *et al.* 2011). FGD involved small groups of eight students to discuss educational barriers that have been encountered from elementary education level and the coping strategies employed. A group of eight students with SI was found appropriate as it allowed the researcher to facilitate interactions among the participants during the discussion and to collect diverse views and ideas from the respondents (Silverman 2013; Denscombe 2014).

In addition, the FGDs conducted allowed the researcher to capture shared views and opinions among the respondents on the barriers they encountered and the coping strategies they employed (Robson 2011; Denscombe 2014). Based on the purpose of this study, the FGD was used not only as a method of data collection but also as a learning tool whereby the students with SI were equipped with different knowledge and skills on how to cope with academic and social barriers by learning from each other during the deliberations. Students with HI were not involved in the FGD due to their nature of impairment and most importantly, the communication barrier they faced which hindered their participation in FGD.

The FGD, as a data collection method, has some limitations. First, it may involve a power struggle among the participants, which includes domination of discussion by one or two participants (Stewart and Shamdasani 2015). Second, it can comprise a confidentiality problem, which may occur among participants when interacting in a group situation (Robson 2011). In addressing the power struggle among the participants, the researcher arranged the group members during the recruitment stage by avoiding a group having more than two talkative or shy persons to facilitate freedom of expression (Stewart and Shamdasani 2015). This arrangement was made during the interview whereby the researcher identified talkative students and those shy ones, and thus made appropriate arrangements accordingly.

Similarly, assistance from Special Education Needs Unit staff was sought in this task because they are very familiar with all the students involved in the study. Just as in the interview session, a note-taker was used to take notes while the researcher was leading the FGD and facilitating the interaction during the discussion by generating interest among members on the subject matter, hence giving an opportunity for each participant to share his/her idea on a certain topic before moving on to the new topic, and taking notes on who is, or not speaking (Robson 2011; Silverman 2013; Denscombe 2014). In addressing the issue of confidentiality among participants, the researcher informed participants that data collected during the discussion would only be used for the purpose of the study and not otherwise. Similarly, all the participants were informed about the importance of respecting every response from their fellow students because there was no right or wrong response in the study. Thus, every response that emerged during the FGD was appropriate.

Administration of Focus Group Discussion

The FGD was conducted after completing the interviews held with all the students with VI. Just like in the interview, prior contacts were made for appointment; however, it took a long time to reach a consensus among participants on the scheduled date and time for the FGD because the arrangement needed to suit each participant. The FGD was conducted in the same venue as the interview. In all two groups of eight students each took part in the FGD. The group size used in this study was in line with Denscombe (2014), Stewart and Shamdasani (2015), and Morgan (see Robson and McCartan 2016). Whereas Denscombe (2014) proposed a group size of between six and nine, Stewart and Shamdasani (2015) suggested a group size of between eight and twelve whereas Morgan (see Robson and McCartan 2016) opted for an FGD group size of between six and ten. Stewart and Shamdasani (2015) further claim that, a group composed of less than eight members produces a dull discussion whereas one with more than 12 participants becomes too difficult to manage during the ensuing discussion.

Contrary to an interview, the FGD lasted longer as it took between one-and-half and two hours (Denscombe 2014; Stewart and Shamdasani 2015) for each participant to share his/her experiences, the researcher to explain the subject matter to the participants and to provide an opportunity for any late comers to join in the group discussions. Similar to the interview method, each FGD session was audio-recorded with permission from the participants and notes were taken for comparison with what the participants discussed at the end of each session.

3.6.4. Open-ended Questionnaire

The questionnaire with open-ended questions was a research instrument that allowed the researcher to gather rich and complex information from the respondents as it provided them with freedom to answer questions in terms of wording, length of the answers and kind of matters raised (Kumar 2011; Denscombe 2014). This open-ended questionnaire also assisted the researcher to verify and enrich information extracted from interview, especially for those interviews which used a sign language interpreter.

Questionnaires in general have some limitations, such as low response rate and the risk that participants can provide false information on educational barriers and their coping strategies (Cohen *et al.* 2011; Robson 2011; Denscombe 2014). Similarly, an open-ended questionnaire demands more explanations on the part of the respondent, which can reduce the respondents' willingness to take part in the study (Robson 2011; Denscombe 2014).

However, the limitations of using the open-ended questionnaire was minimised through triangulation—use of two or more data collection methods, which facilitated the verification and cross-checking of information gathered through open-ended questionnaire with data emanating from semi-structured interviews. Regarding the low response rate, the researcher personally administered the questionnaire to the respondents. The filled-out questionnaires were then collected on the agreed date, time and venue: eight (73%) questionnaires were collected out of the 11 distributed. In addition, to boost the respondents' involvement and willingness in the study, the researcher clarified the purpose and relevance of the study in writing; moreover, the questions were kept as brief and as straightforward as possible (refer appendix III) to enhance understanding, as well as save time to respond to the questions (Denscombe 2014). To ensure accuracy of information from the open-ended questionnaire,

the researcher avoided asking ambiguous and vague questions, as well as the use of technical jargon (ibid.).

Administration of open-ended questionnaires

The open-ended questionnaire was administered to the students with HI who use either sign language, as their first language of communication, or lip reading to process linguistic information due to the communication barrier they faced could not be involved in FGD. It was administered immediately after the interview session; however, the participants submitted it later depending on a date and time convenient to them. Most of the questionnaires were collected on the day following the interview. It took about 45 minutes for the respondents to complete filling the questionnaire, which was a relatively shorter time than the time used in each interview session, where there was a delay occasioned by the sign language interpreter when explaining a question to the interviewee and/or to providing answers to the interviewer. Similarly, for those who use lip reading it took much longer time during an interview session than in filling out questionnaire because the interviewer had to talk at a deliberately slow and measured pace, with repetitions to facilitate the interviewees' processing and understanding of the information.

3.7 Ethical considerations

This research followed all the principles of conducting social science research (Kumar 2011). These include adherence to all ethical issues such as obtaining informed consent, ensuring anonymity and confidentiality in the (non) use of personal data (Data Protection Act DPA 1998; BERA 2011; Kumar 2011; Cohen *et al.* 2011). All the necessary arrangements were made prior to data collection, which included requesting an ethical research clearance and research permit from the Nottingham Trent University (refer

appendix VIII). The researcher used the authorisation from Nottingham Trent University to obtain permission to conduct both the pilot study and main study in the selected institutions.

The purpose and objectives of the study were clarified to the students with SI involved, in addition to explaining the relevance of the research to them and to their fellow students with SI, including others with SEN before embarking on the data collection whole process (Cohen *et al.* 2011; Kumar 2011). This familiarisation and briefing process raised awareness among participants on the types of information needed, the rationale of asking the information and its purpose, how they were going to be involved in the study and the benefit of the study to them (BERA 2011; Kumar 2011). Such information facilitated the obtaining of informed consent as participation in the study was voluntary. In this regard, the participants were informed about their right to participate in the study and the right to withdraw from the study at any point if they so wished without giving any explanation to the researcher (BERA 2011).

In addition, a consent form was given to all the participants indicating their willingness and their informed consent to participate in the study (refer appendix IV). All the participating students signed the consent form whereas those with VI affixed their right-hand thumb indicating their agreement. During interviews and FGDs, the participants were asked for their consent to be audio-recorded and to have the presence of a note-taker during each session. Similarly, the researcher sought the consent of students with HI to use sign language interpreter during each interview (refer appendix IV).

Regarding confidentiality, the researcher processed personal data in accordance with the purpose for which they were obtained, that is, according to the purpose of the study (DPA 1998). Thus, all the participants were informed about how the researcher would make use of

their personal data collected during semi-structured interviews, FGDs and open-ended questionnaire (DPA 1998; Kumar 2011; BERA 2011; Cohen *et al.* 2011). Similarly, to enhance participation of each member during the FGD, participants were informed that every response had an equal weight as the study does not have right or wrong answers.

In addition, to ensure confidentiality pseudo-names were provided during data analysis and interpretations for both institutions and the participants involved in the study to keep the provider of the information anonymous (DPA 1998 p. 30; Kumar 2011; Cohen *et al.* 2011). Whereas institutions are referred to as Institution 1 and 2, participants involved were categorised as P1 to P27. The essence of processing data according to research purpose and the issue of anonymity of respondents was to avoid causing substantial damage and distress to participants (DPA 1998). More importantly, during data collection the researcher treated all the respondents fairly, sensitively and with dignity without prejudice regardless of their differences (BERA 2011).

Furthermore, the researcher also adhered to ethical issues regarding data storage as per Data Protection Act (DPA 1998). In this regard, participants were informed about the reasons and the way their personal data was stored and its uses. They were informed that, the interview and FGD were audio-recorded and stored in a computer to assist the researcher during the transcription of data and not otherwise. In addition, the researcher also explained the purpose of the study and confirmed all issues of confidentiality with a note-taker, that is, everything observed or heard during data collection is for the purpose of the present study and no other purposes.

Data collection process did not interfere with the institution's almanac and students' timetable. In other words, data collection did not take place during the examination period and/or lecture hours. This scheduling was to avoid interruptions from participants during data collection that they would like to rush either to the lecture or examination room which could affect their concentration during data collection. In fact, the researcher made a prior arrangement with each participant concerning their convenient date, time and venue for the interview, FGD and open-ended questionnaire (see 3.6.1, 2,3on relevant section for administration of research instruments).

3.8 Data analysis procedure

All the data from semi-structured interview, FGD and open-ended questionnaire were subjected to thematic analysis because of its flexibility when examining data for emerging topics or ideas relevant to the research questions (Bryman 2012; Bryman 2016). Thematic analysis assisted the researcher to identify, analyse and record themes extracted from the respondents' data. It involved summarising responses from the research instruments through data coding, categorising and comparing to establish themes that emerged from the responses (ibid.). The essence of comparing one interview transcript with another was to check for consistency in the data generated because the recurring themes in interviews, FGDs and open-ended questionnaires indicate that the concept narrated/documentated is shared by different participants, which enhances the reliability of the data (Denscombe 2014). This process was preceded by a transcription of data from interviews and FGDs.

3.8.1 Data transcriptions

Data from semi-structured interviews and FGDs, recorded using a digital sound recorder during data collections, was all transcribed using NVivo version 11. This transcription was

considered as the first step in organising data for analysis (Creswell 2014). Pseudo-names were given to all participants during this process (see section 3.7). The process was involving at the beginning because the researcher had no previous experience in transcription; thus, it took the researcher about 15 hours to transcribe one interview. However, after a short experience the researcher could transcribe one interview in less than 10 hours. Similarly, the time spent on transcription also depended on the amount of data collected from interviewee. Whereas some interviews took about ten hours to transcribe, other interviews took about five hours. The process of transcription familiarised the researcher with the data generated (Denscombe 2014; Bryman 2016), thus simplifying the process of thematic analysis especially identifying recurring concepts for developing themes and subthemes. Regarding time required in transcription, it is documented that a one-hour interview can take between five to six hours to be transcribed (Bryman, 2016). However, other authors claim that a researcher may take a minimum of ten hours to transcribe an hour interview (Robson 2011; Robson and McCartan 2016).

3.8.2 Identification of themes and subthemes

After data transcription, the researcher read all the transcripts to gain a holistic understanding of the barriers emerging in the findings and the strategies the participants employed (Creswell 2014). To be more familiar with the research data, identifying patterns of responses and recurring concepts among participants in the topic under study, the researcher read the responses of one interview question after another across all the transcripts and open-ended questionnaires (Creswell 2014; Yin 2014; Ryan and Bernard see Bryman 2016). After familiarising myself with the research data, different concepts were developed (coding) manually by coding each part of the transcription that was related to a research question. To arrive at a theme, the researcher reduced the number of codes by identifying data with

common elements (Creswell 2014; Ryan and Bernard, see Bryman 2016). For example, codes which were talking, for example, of the absence/shortage of Perkins Braille, Braille books, typewriters, computers, magnifiers, and hearing aids formed a new theme called *scarcity of learning and teaching resources*.

Similarly, subthemes were derived by combining codes with common elements, as well as by looking at the dimension among the codes. When interviewees were describing barriers related to the accessibility of their environment, others were describing it regarding the structure of buildings and environment. In addition, other respondents referred to orientation and mobility training as how to master their environment. Some were even concerned about how other users of the environment considered their presence. Those descriptions formed three dimensions of exploring the issue of the accessibility of the environment which derived one theme with three subthemes (see subsection 4.1.5). The names given to the themes and subthemes that emerged in the analysis also considered the overall literature on educational barriers of students with SI, coping strategies and, particularly, the research questions that guided the study (Yin 2014; Braun and Clarke, see Bryman 2016).

In addition, the process of developing themes and subthemes also considered three important ideas proposed by Ryan and Bernard (see Bryman 2012, 2016). Firstly, it considered how often the concept was repeated among the respondents and how it was related to the research questions (Yin 2014). Secondly, the researcher also looked at different ways in which the respondents described their situation, that is, the figure of speech used, for example, the environment in this university is “horrible,” lecturers are “not concerned” with *our* existence in the lecture halls. Thirdly, the analysis also explored the similarities and differences in the

ways respondents have discussed barriers they encountered and strategies they employed and how they concurred or varied in their argument.

After developing themes and subthemes from data collected, a framework of thematic analysis was used to organise and summarise data in the form of matrix that resemble a spreadsheet (Ritchie *et al.* see Bryman 2012, 2016, refer appendix V, VI, VII). The process involved identifying cases of interviewees that supported themes and subthemes emerging from the data. The cases were then presented across themes and subthemes accordingly as the appendix attached illustrates. This is similar to what Miles and Huberman (see Yin 2014) document as a matrix of categories, which contain evidence within categories that can be used in analysing case study data.

Notwithstanding its wide use, thematic analysis has been criticised by other authors for what they claim as its lacking clear specified procedures. This problem was minimised in this study by following a guiding set of principles of thematic analysis during the theme and subtheme identification, coding, and data synthesis as documented by Braun and Clarke (2006); Clarke and Brown (2013, see Bryman 2016).

3.9 Establishing trustworthiness of research data

Trustworthiness of qualitative data can be evaluated based on four criteria: credibility, transferability, dependability and confirmability (Lincoln and Guba, see Denscombe 2014; Robson and McCartan 2016; Bryman 2016). Whereas credibility refers to the extent to which qualitative data are accurate and appropriate (Denscombe 2014), dependability entails the degree to which proper procedures and reasonable decisions have been followed throughout the study to ensure consistency and replicability of the research (Lincoln and Guba, see

Denscombe 2014; Bryman 2016). On the one hand, transferability is related to the extent to which the findings can be transferable to other similar situations. On the other hand, confirmability involves the degree to which research findings are supported by data collected (Cohen *et al.* 2011).

3.9.1 Credibility

To enhance credibility of data collected, the researcher employed four strategies: triangulation, respondents' validation, transcription and peer debriefing, that is, having data interpretation beyond that of the researcher (Cohen *et al.* 2011; Creswell 2014; Lincoln and Guba see Denscombe 2014; Bryman 2016).

Triangulation: The researcher employed three different data collection methods: semi-structured interview, FGD and an open-ended questionnaire for triangulation purposes. All the interview data from students with VI was cross-checked from data collected from the same set of respondents using FGD (see section 3.6.2). Similarly, interview data from students with HI was triangulated with the open-ended questionnaire (see section 3.6.3). In this regard, themes emerging during the analyses entailed converging data from three sources of data collection methods to ensure accuracy. Triangulation is appropriate in managing all threats to validity (Robson 2011; Robson and McCartan 2016).

Respondents' validation

Participants were given a copy of their transcript to verify what was transcribed by the researcher to determine whether it represented their views and opinions collected during the interview. In this regard, the vetting entailed their agreeing with the content of the transcribed data. Some authors call this procedure the "use of member check" (Robson 2011; Creswell

2014; Robson and McCartan 2016). Other authors refer to it as respondent validation (Denscombe2014; Bryman2016). This process allowed the researcher to confirm that, the study findings and interpretations represented the views of the group studied (Bryman 2016).

Thorough transcription

During semi-structured interviews and FGD data was recorded using a digital sound recorder, and field notes were taken for comparison during analysis and to supplement information from the audio record. This strategic dual recording helped the researcher to avoid having incomplete or inaccurate data which could affect the validity of data from semi-structured interviews and FGDs (Robson 2011; Robson and McCartan 2016). Moreover, the researcher conducted a thorough transcription process to ensure that all the interviews and FGD data from the sound recorder was fully transcribed. Also, other non-verbal expressions recorded as field notes during interviews and FGDs such as crying, frowning, expressing a fit of anger, and tonal voice of the respondents were documented during transcription (Denscombe 2014). Furthermore, during analysis the researcher used the transcript, field notes and sound records to verify what had been transcribed and written.

Peer-debriefing

The researcher also discussed the data analysis chapter and its attendant discussion with other colleagues and supervisors to reduce bias on the part of the researcher. Questions asked as well as comments obtained provided different interpretations beyond the researcher which, in turn, increased the credibility of the findings (Creswell 2014). Involving other colleagues in reviewing qualitative research constitutes “peer debriefing” (Robson 2011; Cohen *et al.* 2011; Creswell 2014; Robson and McCartan 2016).

3.9.2 Dependability

To ensure consistency and replicability of this research in terms of its adherence to all sound procedures of undertaking qualitative research, the researcher keenly followed the necessary procedures and steps before, during and after data collection. Dependability involves keeping “an audit trail” of all important phases of research process (Bryman 2016; Robson and McCartan 2016). To ensure dependability, the researcher documented all the necessary procedures and decisions undertaken in different stages. This involves the rationale of the study (section 2.6), theoretical grounding and conceptual model (section 2.3, 2.4), sampling procedures (section 3.4), data collection procedures (section 3.6), ethical considerations (section 3.7) as well as procedures for analysing data (section 3.8).

All these procedures provide other researchers with the insights of all important stages of the research process, decisions made and their justification in relation to purpose of the study, research questions and objectives which can be replicated in other situations. In addition, the researcher kept all the transcriptions, field notes, as well as digital recordings to assist other researchers who would be interested in confirming the findings and determine how well the researcher adhered to proper procedures (Bryman 2016). In addition, a pilot study was conducted before data collection to check for consistency of research instrument (see section 3.6.1).

Another issue which ensured dependability of this research was making comparisons between data generated using Swahili language to those obtained using English language. This was conducted during a pilot study to ensure accuracy of the translated version, and maintaining consistency between the two versions. Translation of the research instrument was undertaken to accommodate both sets of participants who were either fluent in English

and those comfortable in Kiswahili. In this regard, both languages were used depending on the comfortability of the participant because English is the second and for some of the participants a third language.

3.9.3 Transferability

To enhance transferability of this study to other contexts, the researcher involved multiple cases, that is, two HEIs and two different categories of students with learning difficulties that is students with HI and VI. One of the benefits of using multiple cases in a qualitative study is to increase the likelihood of generalising findings to similar situations, as well as increasing credibility and dependability of the study (Cohen *et al.* 2011; Yin 2014). Moreover, the researcher involved students with SI from two different HEIs and had a good representation of students drawn from different inclusive schools in different regions (provinces) of the country. As such, the data generated could be applicable to other similar situations.

3.9.4 Confirmability

Although it is unlikely to have qualitative data free from the influence of the researcher, some strategies were considered to reduce such bias and to ensure that the research findings of the present study are supported by the data collected. First, the researcher supported her findings with verbatim quotations from the participants to provide access to the original data and to have evidence that substantiate her argument (see section 4 and 5 for data analysis and interpretations). Also, the framework of thematic analysis (refer appendix V, VI, and VII) helped to demonstrate the themes and subthemes that emerged from the data and verbatim quotations to support themes and subthemes generated from the study. Second, the researcher approached data analysis with an open mind, that is, by making sense of every

information collected as much as possible including non-verbal information (see section 3.9.1 subtitled thorough transcription) to increase the participants' perspectives in the findings (Denscombe 2014). Finally, the researcher ensured that the findings had interpretations beyond hers by incorporating comments from other colleagues and that of her supervisors (see section 3.9.1 peer-debriefing).

Summary

This chapter has presented the methodology employed in this study. Due to the nature of the research questions, the study opted for a case study design under the social constructivist paradigm. This paradigm allowed the researcher to explore barriers students with SI encounter throughout their studies and strategies they employ to overcome the barriers from the perspective of the students with SI using semi-structured interviews, FGDs and an open-ended questionnaire. Purposive sampling was used to select both the two institutions to be involved in the study and the twenty-seven students with SI. All ethical issues such as anonymity, confidentiality, informed consent and the use of personal data were adhered to prior to and during data collection. In addition, the researcher ensured that trustworthiness (validity and reliability) of research data prevailed during various procedures which include triangulation of research data using multiple sources of data collection, respondent validation, thorough transcription, peer-debriefing, pilot study, deployment of multiple case studies for transferability purposes, and the use of a framework of thematic analysis for confirmability of research data.

CHAPTER FOUR

FINDINGS AND ANALYSIS:

EDUCATIONAL BARRIERS OF STUDENTS WITH SENSORY IMPAIRMENT

4.0 Introduction

This chapter presents the findings of the study which explored the educational barriers and coping strategies of students with Sensory Impairment (SI) in two selected HEIs of Tanzania. The findings are presented in accordance with the specific objectives and attendant research questions outlined in chapter one subsection 1.5 and 1.6, respectively. This chapter covers the findings and analysis of academic and social barriers of students with (SI) and chapter five covers findings and analysis of coping strategies of these students. The chapter is organised into four subsections with the first section covering the background characteristics of participants and the remaining three subsections focusing on the results related to the research questions of the study:

4.1 Background characteristics of participants

Table 4.1: Population vs. number of participants involved in the study

Population Versus Number of Participants Involved in the Study by type of Impairment																							
Institution	Actual												Participated										
	Visual Impairment (VI)				Hearing Impairment (HI)				Multi-sensory Impairment (Deaf-Blind)				Visual Impairment (VI)			Hearing Impairment (HI)			Multi-sensory Impairment (Deaf-Blind)				
	UG		PG		UG		PG		UG		PG		UG		PG		UG		PG				
	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	
Institution 1	5	12	0	3	2	4	1	0	0	1	0	0	3	7	0	2	2	2	1	0	0	0	0
Institution 2	0	12	1	0	6	3	0	1	0	0	0	0	0	4	0	0	4	2	0	0	0	0	0
Total	5	24	1	3	8	7	1	1	0	1	0	0	3	11	0	2	6	4	1	0	0	0	0
	33				17				1				16			11			0				
	51												27										

NB: UG-Undergraduate; PG-Postgraduate; F-Female; M-Male

Table 4.1 shows that; the two institutions have more students with VI (33) than those with HI (17). One major factor, which can explain the difference, is the population of disabled people in Tanzania. The Tanzania National population census of 2012 reports that, there are many people with VI in the country compared to those belonging to other categories of conditions/impairments (URT 2014b). Regarding gender, male students with SI (36) outnumbered female students (15). This difference reflects the enrolment trends of all students from primary school to tertiary education in Tanzania, where the number of male students surpassed that of female students for various reasons including; long distance to school, early pregnancy, early marriage, truancy, poverty, as well as some Tanzanians' customs and traditions that do not support education for female children (URT 2010; URT 2014c). Twenty-seven students with SI participated in the study.

Table 4.2 presents the characteristics of the actual number of participants involved in the study.

Table 4.2: Number of participants involved in the study

Actual Number of Participants Involved in the Study by type of Impairment, Education level and Gender																				
Institution	Sensory Impairment																			
	Visual Impairment (VI)								Hearing Impairment (HI)								Multi-sensory Impairment (Deaf-Blind)			
	Low Vision				Blind				Hard of Hearing				Deaf				UG		PG	
	UG		PG		UG		PG		UG		PG		UG		PG		UG		PG	
	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M
Institution 1	0	6	0	0	3	1	0	2	2	2	1	0	0	0	0	0	0	0	0	0
Institution 2	0	1	0	0	0	3	0	0	4	2	0	0	0	0	0	0	0	0	0	0
Total	0	7	0	0	3	4	0	2	6	4	1	0	0	0	0	0	0	0	0	0
	7				9				11				0				0			
	16								11								0			
	27																			

NB: UG-Undergraduate; PG-Postgraduate; F-Female; M-Male

Table 4.2 shows that 27 students participated in the study comprising 24 undergraduate and three postgraduate students. In terms of gender, 17 students were male and 10 were female. Sixteen of the students were in the VI group (7 low vision and 9 blind) and 11 students with HI were hard-of-hearing. There were neither totally deaf nor students with multi-sensory impairment who participated in the study.

The proportion of cases from this study in terms of VI (16) and HI (11) was compared to the 2012 country's National population of people with VI and HI (see Table 1.1). The Fisher's exact Two-tailed test shows that there is a significant difference between sample of students with VI and HI ($p < 0.05$) involved in the study. This implies that the sample for this study by type of impairments highly reflected the entire population. Background characteristics also involved the onset of SI among participants. This information was useful in the analysis of coping strategies. Table 4.3 summarises this information:

Table 4.3: Participants involved in the study by type and onset of impairment

Actual Number of Participants Involved in the Study by type of Impairment at Birth or Acquired																				
Institution	Sensory Impairment																			
	Visual Impairment (VI)									Hearing Impairment (HI)						Multi-sensory Impairment (Deaf-Blind)				
	Low Vision				Blind					Hard of Hearing			Deaf							
	Birth	Acquired (Age Grp)			Birth	Acquired (Age Grp)			Birth	Acquired (Age Grp)			Birth	Acquired (Age Grp)			Birth	Acquired (Age Grp)		
		0-10	11-20	20+		0-10	11-20	20+		0-10	11-20	20+		0-10	11-20	20+		0-10	11-20	20+
Institution 1	0	0	3	3	1	5	0	0	0	1	4	0	0	0	0	0	0	0	0	
Institution 2	0	0	0	1	0	3	0	0	0	2	2	2	0	0	0	0	0	0	0	
Sub-Total	0	0	3	4	1	8	0	0	0	3	6	2	0	0	0	0	0	0	0	
	7				1	8			0	11			0	0			0	0		
Total (At Birth)	1									0						0				
Total (Acquired)	15									11						0				
Total	27																			

Table 4.3 indicates that only one student with VI out of 27 students with SI was born with the impairment; the rest acquired the impairment after birth. Figure 4.1 summarises the information in percentages:

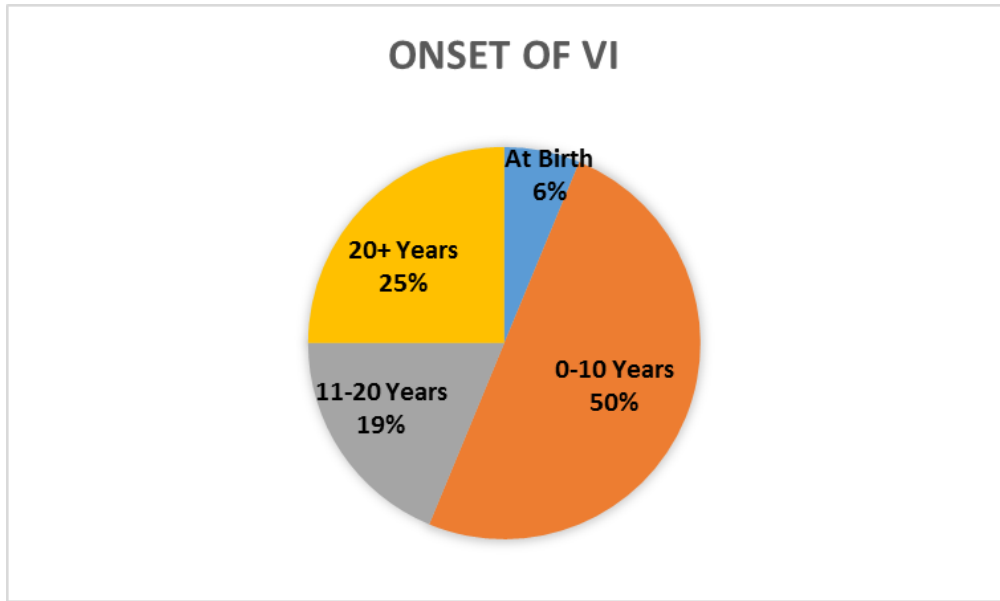


Figure 4.1: Onset of VI among Participants

Figure 4.1 indicates that, 50 percent of the students with VI, involved in the study acquired it between ages 0-10, and in this group, they are total blind. The remaining 50 percent are low vision students who acquired it later in life; between ages 11-20+ and the majority (25%) started experiencing the problem after their secondary school, that is, when aged above 20.

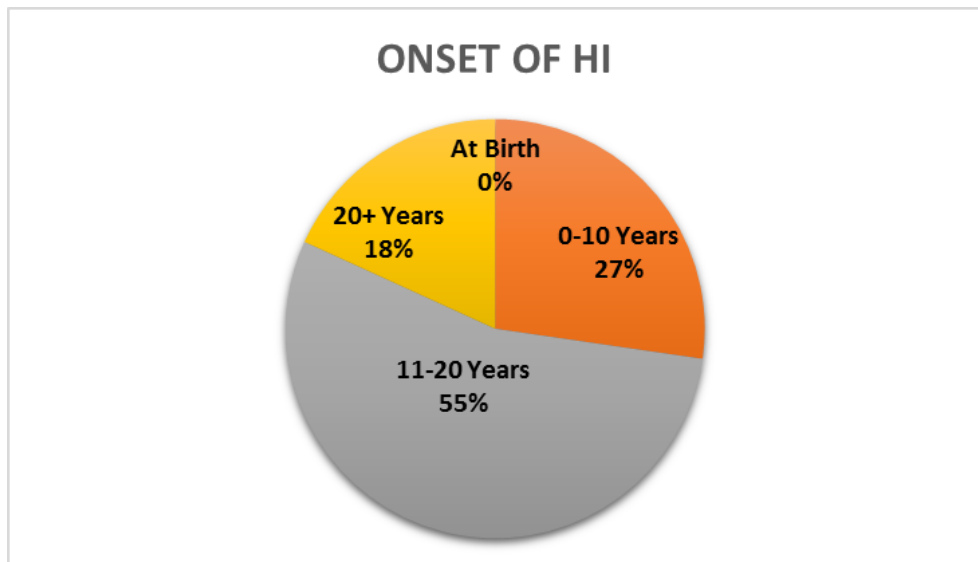


Figure 4.2: Onset of HI among respondents

Figure 4.2 shows that, most of the hard-of-hearing students involved in the study acquired the problem between ages 11 and 20. Characteristics of the respondents, revealed in this study, concurred with NBS (2010 p.71) which indicate that about 62.8 percent of the disabled people in Tanzania acquired it in adulthood after age 15. Data presented by the two figures above invite further investigation that can establish reasons behind such a pattern.

4.2 Academic barriers of students with Sensory Impairment (SI)

The first research question explored academic barriers of students with SI. To obtain the required data, 27 students with SI were interviewed, two Focus Group Discussions (FGDs) were conducted and eight students with HI responded to open-ended questionnaires. The exploration of this research question involved six themes and their sub-themes, which emerged from the analysis. The themes and their subthemes/ideas are presented in the mind map below:

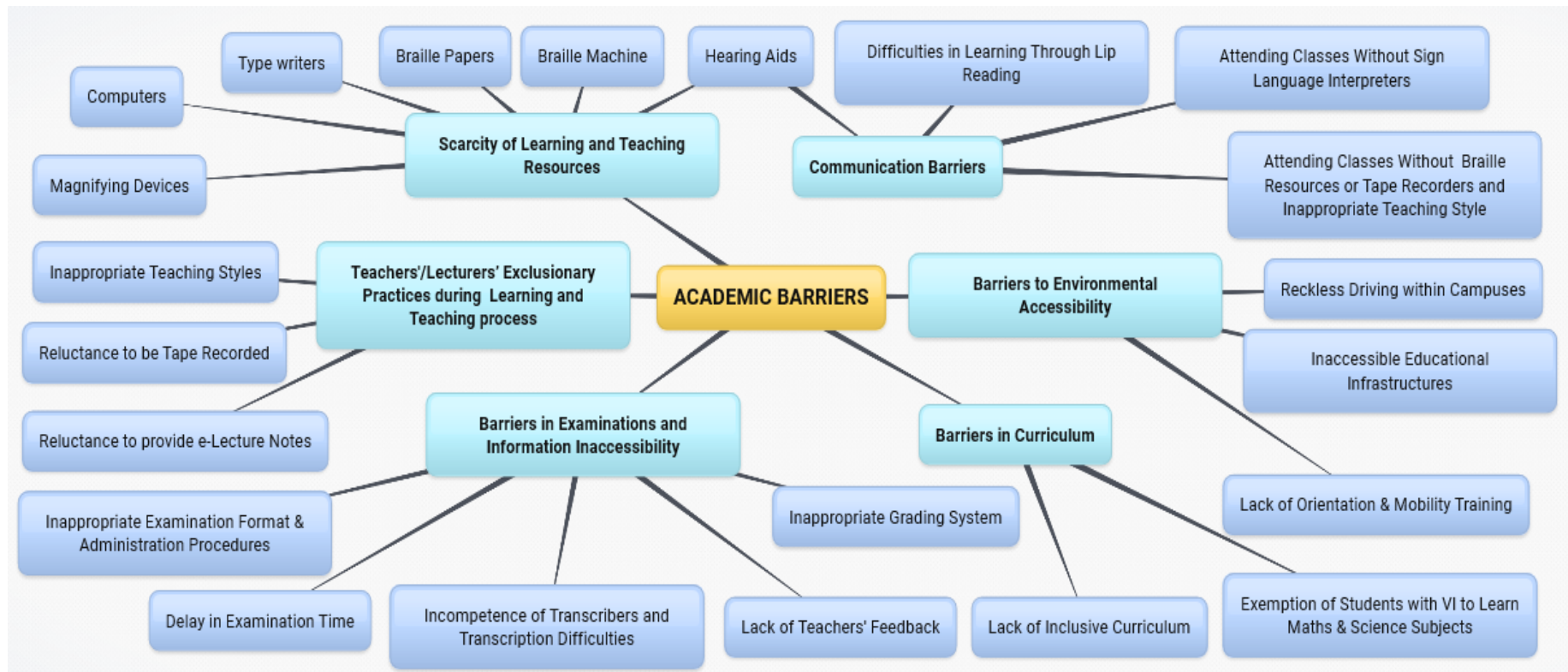


Figure 4.3: Summary of themes and subthemes on academic barriers.

Six themes in Figure 4.3 emerged from the analysis as follows:

- i. Scarcity of learning and teaching resources,
- ii. Teachers'/Lecturers' exclusionary practices during L&T process
- iii. Communication barriers
- iv. Barriers in examinations and information accessibility
- v. Barriers in curriculum
- vi. Barriers in environment accessibility

4.2.1 Scarcity of Learning and Teaching (L&T) resources

Primary and secondary schools

Analysis of data revealed that scarcity of L&T resources is one of major academic barriers for both students with VI and HI. This barrier cuts across all educational levels, that is, from primary schools to HE. Students with SI in the present study had experienced this barrier for not less than 15 years of their education under the education structure of Tanzania (see section 1.1.1). However, participants differed in their experience from those who studied in special schools and those in inclusive primary schools. This was claimed by a student with VI:

Every student in the primary school that I attended had his own Perkins Braille, enough papers, and his/her own books in Braille and these books in Braille were in all subjects” (P9, male, PG).

The above narration from P9 suggests that students with VI in special schools were supplied with sufficient L&T resources, compared to inclusive primary and secondary schools as revealed by those who had undergone their primary and secondary education in inclusive schools. The findings revealed that, some schools lacked even a single Braille machine. As a

result, students used to write using Braille interlining frame, which was time consuming in typing.

Scarcity of L&T resources differed from one school to another. Some schools lacked both Perkins Braille machines and Braille papers while other inclusive schools had some equipment like Braille machines and type writers, but they lacked Braille papers. It was established that Braille papers were so scarce that the students were provided only with one ream of paper to share for the whole term and, sometimes, they experienced a whole term without a single sheet of braille paper. The findings further reveal that, most of the available equipment such as typewriters and Braille machines were not working. This concept is exemplified by P12's comment:

In my secondary school, out of 26 typewriters available only three were working and we had a shortage of Braille papers. It reached a time when we would stay without Braille papers for the whole term (P12, male, UG).

This was also supported by another participant who said:

My secondary school had only one working Perkins Braille machine. The rest were broken and we were 23 students with VI altogether (P25, male, UG).

These statements imply either an absence of culture of maintenance and repair to schools' resources in Tanzanian inclusive schools or lack of financial support to repair school resources. As it is relatively cheaper to repair than to buy a brand-new Braille machine, typewriter, or a hearing aid, school authorities at different education levels need a culture of maintenance and repair to their resources to ease the gravity of this barrier.

With regards to Braille books, the study findings confirm that, inclusive primary schools seemed to be much better than secondary schools. Although they both face scarcity of Braille

books the level of intensity differed. Whereas most of the inclusive primary schools had few Braille books in some subjects, most of the secondary schools have Braille books in literature subjects and novels, but most did not even have a single Braille book in any subject. This was claimed by P15 who said:

In primary school, we had some books in Braille, for example, in Science and English. But in secondary schools we had no single book in Braille. In Form 3, we faced a big problem in literature subject (P15, female, UG).

This statement suggests that Tanzanian Braille press focused more on producing Braille books for primary schools than for secondary schools. In consequence, there was a large gap in L&T resources between primary and secondary schools which, in turn, affected the academic performance of these students in secondary schools and their enrolment in advanced secondary school as reflected in the literature.

Regarding students with Hearing Impairment (HI), the study findings document barriers related to hearing aids in terms of availability and quality. The participants revealed during both the interview and open-ended questionnaire that, none of the students with HI involved in the study used hearing aids to assist them in processing linguistic information due to previous negative experiences they had had with hearing aids. As P20 explained:

There were no tools to assist me in learning during my primary and secondary education. For example, there was not even a single piece of hearing aid in those schools; I had to buy one for myself (P20, male, UG).

Talking about hearing aids another participant said:

I could not write notes during teaching because of my hearing problem. I informed the headmaster but he told me the school was unable to support me (P16, female, UG).

Statements by P20 and P16 suggest the limited role of school authorities in assisting students with Special Education Needs (SEN) in inclusive settings that merely focus on enrolling students with HI in regular classrooms, rather than focusing on the strategies necessary to support these students to achieve and benefit from the education provided. In other words, L&T resources appear to be a responsibility of an individual student and his/her parents and not the responsibility of the school.

Moreover, there were some negative comments about hearing aids as the students lamented that they received poor quality equipment. Other students reported to receiving hearing aids without a thorough diagnosis of their problem. As P1 commented:

I don't like hearing aids because the one provided to me picked every sound surrounded me also it over increased the sound of the speaker unnecessarily resulting to poor perception (P1, female, UG).

This comment highlights the importance of thorough diagnosis to students with HI before prescribing a hearing aid to them. This suggests that, acquiring an appropriate hearing aid in a country with low technological advancement poses a challenge. Moreover, some participants associated their reluctance in using hearing aids with health-related issues namely that the device could trigger health problems such as headache and dizziness. Similarly, some participants felt that over-dependence on hearing aids could reduce their residual hearing. This was alluded to by P2 who said:

I had to stop using hearing aids because, apart from other problems I was told that depending too much on those devices would not help the problem but rather further erode the remaining hearing ability (P2, male, UG).

This quotation denotes a lack of appropriate knowledge among students with HI on their SEN and support services aimed to assist them in their education. This problem also reflects an understanding of other people in society on hearing aids and other assistive devices.

A common view amongst the participants was that, the hearing aids they received in school were not specifically related to the nature of their problem. In this regard, the participants pointed out that, students who had problems in detecting speech received hearing devices which could not detect speech. As P17 put it:

My problem is speech recognition; however, the device given to me was for those who have problems with sound detection as it was detecting sound but not speech (P17, female, PG).

This was also commented by P16 that:

I do not use hearing aids anymore because they don't help me at all. The first device given to me created discomfort as it created a lot of noise. The second device given to me... was also useless... The third device was much better; however, it did not solve my problem because it assisted me to hear the sound but could not detect speech (P16, female, UG).

From the two narrations on the challenges associated with hearing aids in Tanzania, it is apparent that the problems with hearing aids the students faced were either a result of the poor quality of devices used to diagnose individuals with HI, which provided incorrect results and hence inaccurate prescription, or the accurate diagnosis but poor-quality hearing aids on offer or both, that is, inaccurate diagnosis and poor-quality hearing aids together.

Higher education Institutions

I. Institution 1

The experience of students with visual impairment in HE in terms of L&T resources differs remarkably in the two institutions under review. Regarding Braille machines, the findings indicate that, Institution1 had adequate Braille machines to cater for the needs of all students with VI and had the freedom to use them in their respective rooms even after working hours when the resource room closes. Similarly, Braille papers in this institution were abundant as

no single student reported having experienced a shortage of such papers. However, participants complained about the shortage of typewriters compared to the number of students with VI available. In fact, most of the available equipment was not working. This was confirmed by P15:

For equipment, such as Braille machine, papers and typewriters, this University is far better off compared to secondary schools. However, many typewriters are not working (P15, female, UG).

This was also supported by P7:

Here at this university there is no such a problem of special resources and equipment like in secondary school. Every student has his/her own Braille machines and with enough Braille papers. The only problem we experience here is the shortage of typewriters. Some typewriters are not working and most of them are very old (P7, male, UG).

In other words, the status of L&T resources for students with VI in HE is much better than in secondary schools. However, a shortage of typewriters poses a challenge to these students during examinations as most of them reported experiencing typewriters breaking down.

Institution1 also reported having some magnifiers, hand lens, tape recorders and computers with assistive technology. Participants pointed out the availability of 14 laptops, four desktops, and two magnifiers for students with low vision. However, one magnifier was in such a poor condition that about ten students with low vision shared the single piece available. Although students with VI at Institution 1 reported adequate hand lenses for students with low vision, most of these students do not prefer to use them because of their small sizes. In addition, they reported that, using a hand lens to read a normal print book was too time consuming and too tiresome.

Regarding the uses of laptops, students reported that they borrowed them from the Special Education Unit (resource room). Normally, they borrowed them for word processing their assignments and searching for materials from the Internet. Although computers were not adequate to cater for the needs of the huge number of students with VI available, the shortage was not notable because some students with VI were computer-illiterate, hence making the available computers enough for the few with knowledge and skills of using them.

The remarkable academic barrier reported at Institution1 in L&T resources was lack of Braille and large print books as well as shortage of typewriters and assistive technology. The study established that, the absence of Braille and large print books had been in existence since the university started in 1961. Explaining P9 said:

In terms of books, at this university, there are no books, even journals, in accessible format [This has been the problem] ever since the university began until now... (P9, male, PG).

This statement suggests that the needs of these students are not budgeted in the National budget statements or the needs of these students are not on government priority list. P9's narration also indicates that postgraduate students with VI in Tanzania's HEI are at a greater disadvantage than undergraduate students because the nature of their studies depends exclusively on books, journals, theses and articles which none of them were available in the library, in accessible format. Thus, both postgraduate and undergraduate students rely on human readers to access books in standard format in the library (see section 5.1.1 subtitled *Support from readers and note-takers*). However, procedures of allocating readers to students with VI are not uniform across schools as the next subsection illustrates. Similarly, most of the librarians did not allow students with VI to be accompanied by their readers in the library because readers would disturb other students when they read a book to the students with VI. Moreover, it was difficult to take a book outside the library for reading because the library at

Institution 1 did not permit it, particularly books from the Special Reserve, which were strictly non-circulation items. This limitation was clarified by the following participant who said:

... Those people do not allow us to go out with their books, especially those from the Special Reserve. They would like us to read those books in the library; however, when the reader wants to read for me, they would stop us by telling us that 'we are making noise' (P13, male, PG).

This narration from P13 suggests that the library at Institution 1 was designed to serve only students without SEN as it lacks support mechanisms, such as assistive devices, to help students with VI to access books in standard format let alone provide opportunities for these students to access books using their readers. This shortcoming can also imply that the needs of these students are not on the priority list of the top authorities in this institution.

II. Institution 2

Findings of the study produced contradictory results between the two institutions under review in relation to L&T resources. It was reported that, students with VI at Institution 2 have an acute shortage of special L&T materials with Braille papers being the foremost barrier in their institution. Scarcity of Braille papers in this institution was so critical that it allocated only three reams of Braille papers to all students available for one semester, whereby one ream was shared by all the students in each academic year of study. Thus, the more the students in one academic year of study the fewer the papers at their disposal. This was claimed by P25 who said:

The biggest problem in this institution is Braille papers. For example, in first year we are five students with visual impairment and we have been provided with only one ream to be shared among the five of us for the whole semester (P25, male, UG).

In specific terms, one student will receive about 100 Braille papers for the whole semester which is only 2.5 percent of the student's actual needs. It was revealed during an interview that one student needs a minimum of 50 Braille papers a week in one subject. Thus, a student with five courses will need 1,000 papers per month, or 4,000 papers per semester or eight reams of papers per student per semester. This indicates that students were woefully under-resourced compared to their actual need.

Students at this institution did not only share Braille papers, but also Braille machines because Perkins Braille machines were so scarce and some of the few available were not in working order. This was claimed by P26 who said:

Braille machines are very few. Despite this shortcoming, we also experience frequent breakdowns of Braille machines and it takes so long to have them repaired (P26, male, UG).

The accounts of P25 and P26 indicate that, with such shortage of Perkins Braille machines and Braille papers, students face difficulties in the preparation of their notes due to delays caused by waiting for their turn to use a Perkins Braille machine. Thus, some students shifted their interest from reading their own notes to group discussion with sighted students.

In the case of Braille books, the situation at Institution 2 is similar to Institution 1 as interviewees in both institutions confirmed the absence of such Braille books. Moreover, they have reported limited opportunities for accessing books from the Internet because the institution has only two computers with assistive technology as P21 reported:

We have only two old computers with assistive technology in our resource room with two Internet cables to cater for about twelve students with VI (P21, male, UG).

P21 shows that Institution 2 faces an acute shortage of not only Braille machines and papers, but also assistive devices because the two computers available were insufficient to meet the needs of 12 students with VI. To make matters worse, those few available were not in a good condition. With regard to tape recorders, all students with VI are provided with tape recorders at Institution 1; at Institution 2, the opposite was true as no such device was extended to students to assist them during note taking.

Barriers to accessing the reader

The exploration of this research question revealed that students with VI relied on readers to access books in printed format. However, procedures for allocating readers to students with VI differ from lower education level to HE. The findings show that HEIs have a definite procedure of appointing readers for these students, contrary to primary and secondary school which lack a clear method. Some schools were reported to allocate readers by providing freedom to sighted students to volunteer themselves in this task with the motivation of exempting them from extra-curricular activities. Participants reported that, some readers who volunteered for this task were ineffective because their motive was not to help these students but to obtain relief from extra-curricular activities. This was claimed by P13 who said:

In both primary and secondary school, there was no clear programme like hiring a reader who will be responsible for reading to us. Instead our fellow sighted students volunteered to be exempted from extra-curricular activities. However, whenever those people got their own activities, they could not turn up... (P13, male, PG).

This statement indicates that readers who volunteered failed to perform their duties effectively and accordingly because their motives were not towards supporting these students but to be relieved of extra-curricular activities, which some students perceived as time consuming as they demanded manual labour. This experience is different for those

students who could select readers among their friends. It was reported that, readers selected by students with VI were more supportive than self-volunteers. This was claimed by P10 who said:

I cannot forget my readers. They were very supportive because we could select one by ourselves. In case we could not go along we could select another one (P10, female, UG).

This statement implies that, readers who are selected by students with VI themselves seem to be more committed, trustworthy and sympathetic. The study findings further indicate that, most of the primary and secondary schools attended by these students did not have any mechanisms for appointing readers to students with VI. It was the students' efforts to find someone who could read out to them (either books written in normal print or teaching notes), so that they could write in Braille format. This was revealed by P15 who said:

Our school authorities were not concerned at all about looking for a person who will assist us in reading. It was our own efforts, the more friends you have the easy academic life becomes for you (P15, female, UG).

Description from P15 can imply that obtaining a reader depended on the students' ability to make and keep friendship. This suggests that those with many friends were better placed than those who were lonely and isolated. It was further established that not all the sighted students volunteered to assist students with VI in reading activities unconditionally. In fact, some demanded something in return as P21 describe:

Sometimes we had to use money to get someone to read for us. These students would always ask us *how much do you have...* I thank God that most of my friends who assisted me in reading were female students. Because most of female students had compassion with us; they assisted me free-of-charge as opposed to male students who would always ask for money (P21, male, UG).

This quotation indicates that, female students were more considerate to students with VI than their male counterparts, primarily because most of the time they assisted students with VI voluntarily whereas the male students would always ask for payment.

Although the two HE institutions under review have clear procedures of allocating readers to students with VI, their procedures are not similar. At Institution 1, all the readers were hired by the university and paid some allowances at the end of the month. Whereas each blind student is provided with two readers, students with low vision are provided with one reader. Moreover, students with VI are involved in this process; they are given an opportunity to select a reader among their fellow individuals. This approach is different for postgraduate students whose reader is a person hired from outside the university with a minimum qualification of ordinary secondary education, computer literacy and fluency in spoken and written English.

By contrast, at Institution 2 participants explained a different procedure as voiced by P21:

There is also a very big problem of readers. When I started my degree in 2014, there was only one reader hired for all blind students... We raised our voice on this and now at least they allocated one reader in every subject and the pay a quarter of tuition fee in every semester as a motivation to them... (P21, male, UG).

This testimony shows that, readers are in short supply at Institution 2, even with a new arrangement of allocating one reader in every course, because most students depend on a shared copy of Braille notes. This limited number of readers can create a lot of pressure on both the reader and students because the reader had a greater number of students to attend to than his/her capacity can accommodate. Moreover, students have to wait for their turn, which can be vexing when the deadlines are tight. Similarly, the allocated readers seem to be

unreliable as students with VI reported depending more on the reading support received from their fellow sighted students than their appointed readers.

4.2.2 Teachers/Lecturers' exclusionary practices during L&T process

Findings from this study show that, teachers in primary schools and particularly special schools were more considerate and supportive than those in secondary schools and HEIs. For example, students with VI reported that due to the nature of their impairment, in special schools all the teachers were not using the chalk board during L&T process and, instead, explained the subject matter orally, while moving around to check whether the students had understood the lesson. In this regard, these students benefited more from the teaching instruction that was oral-dominated than one based on the chalkboard.

This was different from inclusive primary and secondary schools where many teachers were reported to rely much on the chalkboard. As such, they talked less and wrote more. The use of chalkboard, thus, became a barrier to students with VI because most of these teachers were reported to write on the board without reading what they had written as P10 remarked:

... The problem starts when the teacher is using a blackboard or showing a point on a map or a drawing. They describe things as if all the students could see what was being demonstrated... (P10, female, UG).

The description from P10 indicates that, teachers' preparations and delivery of instruction fail to consider diverse needs of the learners. This anomaly suggests that the needs of these students are not the primary concern of a regular school teacher who largely prepared to teach only students without SEN.

By contrast, the analysis of the findings revealed that, students with HI benefited more from a lecturer who used multimedia projectors or the teacher who taught while writing notes on the black/white board, compared to the one who talked without writing or displaying what he or she was talking about. However, the study findings show that, some of the lecturers/teachers have exclusionary practices that affect students with HI during the learning and teaching process. Students with HI reported experiencing teachers/lecturers teaching without writing on the board or using multimedia projectors, this style of teaching hindered most of the students with HI who failed to follow and effectively understand different lessons. This was claimed by P24 who said:

Despite our presence in the classroom, most of our teachers in secondary school used to teach without writing on the black board and we did not have an interpreter (P24, female, UG).

This view was also reported by P2 in open-ended questionnaire:

In this university, we face difficulties when attending lectures dominated by oral explanation without projection of what the lecturer is saying. At the end of the day, we fail to make follow up of the lecture and take notes... (P2, male, UG).

These two comments suggest that the teaching style which works for students with HI does not necessarily work for those with VI, as what benefited students with VI is a barrier to students with HI. This highlights the necessity to prepare teachers with strategies to meet diverse needs of the learners in inclusive settings. Similarly, students with HI, who communicate through speech reading, encounter difficulties in understanding various courses in primary, secondary schools and HEIs due to inappropriate teaching styles. This was narrated by P1 who said:

I could follow lessons though lip reading but most of my secondary school teachers rarely look at me when talking even when I am seated in front (P1, female, UG).

A similar view was documented in the questionnaire by P3 who said:

It is very difficult to follow lectures through lip reading because most of the lecturers move from one place to another when lecturing making it difficult to read their lips (P3, male, UG).

These two comments on barriers of using lip reading indicate that, for a student to process linguistic information through lip reading, the teacher/lecturer needs to talk while looking in the direction of the student with HI. Nevertheless, many of the teachers/lecturers were reported to teach while moving from one place to another and/or looking in different directions of the class/lecture room possibly because of teachers'/lecturers' unawareness of the presence of these students or negligence.

Other exclusionary practices were in the form of the language used, especially with VI students. Teachers were reported to use language that excluded students with VI in the classrooms. Exclusionary practices were common for subjects that demanded drawings and/or computation such as Biology, Geography and Mathematics. These subjects were delivered irrespective of the needs of students with VI. This was confirmed by P9:

...In Biology, our teacher used to describe a diagram by saying, for example, you see here (while pointing at the diagram drawn on the chalkboard), this is a head, and when you go down here is ... (P9, male, PG).

Responding to interview question P13 also said:

...It was a common thing to hear a Mathematics teacher asking students: what do you get when you multiply 'this' by 'this'? (P13, male, PG).

The two narrations suggest that students with VI find it difficult to have a mental picture of what has been described on the board. Thus, feeling excluded from the class. Some teachers seem to exclude these students unintentionally, because when these teachers were consulted

by students on this kind of behaviour some, especially those in primary schools, were reported to be ready to adjust and support these students. Other teachers especially those in secondary schools did not seem to care about the presence of these students in the class.

The implication is that, the inclusion of students with VI in secondary school is not the responsibility of subject teachers but the responsibility of school authorities who accepted to enrol them in regular schools. This suggests that there is poor collaboration between the school authority and the subject teachers in the implementation of inclusive education.

In addition to teachers' exclusionary practices, students with SI also reported not being involved during the L&T process in their secondary schools. These students found themselves not to be part of the class, as it was very rare for their teachers to give them an opportunity to ask or respond to questions. Responding to this, P15 said:

In secondary school, there was poor involvement of students with VI in the classroom. Involvement depended on teachers' attitude toward us and most of secondary school teachers had negative attitude towards us (P15, female, UG).

The narration from P15 implies that attitudes can influence an individual's behaviour, that is, teachers with positive attitudes towards students with VI are expected by these students to be more positive in their behaviour during the L&T process, in addition to being more supportive and considerate than those who hold negative attitudes. Regarding students with VI involvement during the L&T process P4 also claimed:

In my secondary school, teachers did not involve us during the teaching and learning process. However, later after realising that we were answering questions and sometimes more than ordinary [non-disabled] students, then it is when they decided to involve us. Otherwise, other VI students who

were not active in class would remain uninvolved for the whole term (P4, male, UG).

The implication of this statement is that teachers' involvement of students with VI during the L&T process depended on the students' ability in academic achievement and how active they were in the classroom. This suggests that active students had more opportunities to be involved than passive students. Experience of the students with HI is almost similar to that of VI students. It was reported that most of their teachers avoided involving them during the L&T process because of their communication barrier.

Comparatively, teachers in lower levels of education were reported to be more supportive, considerate and understanding than those in higher levels and lecturers in HEIs. Students with VI reported teachers from special primary schools to be more supportive compared to others, students with HI acknowledge benefiting from teaching instructions from their teachers in primary and secondary schools compared to HEIs:

A lot of personal efforts are needed for students with VI to pass ordinary secondary school national examination because teachers do not care about us at all; they perceive us as failures. So, lack of support from teachers coupled with other barriers makes our life miserable in secondary schools... (P21, male, UG).

Statement from P21 indicate that some teachers in secondary schools have low expectations from students with VI. Low expectations can be reflected in the teachers' behaviour towards these students in and outside classrooms. It is unlikely for a teacher who expects little from a student to use his/her efforts engaging such a student in the L&T process. A similar view was reported by students with HI: that, lack of support from teachers resulted into their academic under-achievement. For example, one participant said:

... In primary school, we were 30 students with HI, but after the final Standard VII exams only I passed. Similarly, in Form 4 national exams we were 13 students with HI, only I passed and one student got Division 4. The rest got Division zero (P23, male, UG).

The narration by P23 denotes how critical academic under-achievement for students with HI is in inclusive schools both in primary and secondary sectors. P23's narration also suggests that the Tanzanian government have focused more on education access for disabled students than on the quality of education it provides. From the experience of P23 it seems that, the majority of the students with SI have access to education buildings but not necessarily learning. This means that access to education does not necessarily mean access to learning if learning and teaching resources, as well as other support services, are not given the priority they deserve.

Lecturers in HEIs were also reported to exclude students with VI during lecturing. Students with VI pointed out that, the use of multimedia projectors with very minimal oral description excluded them from the L&T process. This is because most of the lecturers who use these technologies have been found to rely much on the slides with very little accompanying explanations to what was being projected. Similarly, other students with VI have reported not to benefit from lecture method because of exclusionary practices:

... Most of the lecturers when they write on a black/white board they do not talk. Thus, we are left behind (P25, male, UG).

Also, P13 narrated in similar vein:

... We experience little co-operation from lecturers when they are in the lecture rooms. Some of the lecturers could not talk; they just write on the board... ' (P13, male, PG).

These two accounts from P25, and P13 testify to the inappropriate teaching styles that failed to meet the needs of students with VI. This could be attributed to either lecturers' unawareness of the existence of students with VI in their lecture rooms or their negative attitudes as revealed in social barriers. Findings from the study show that some lecturers in HE were not aware of whether they had disabled students in their courses (see section 4.2.4 subtitled *delays in examination time* comment by P8.).

Additionally, some of the lecturers, without any clear reasons seemed to decline to be audio-tape recorded during their lectures. Thus, the students with VI would depend only on listening to the lecturer and later wait for a favour of lecture notes either from their reader or a friend. In addition, very few lecturers provided their lecture notes or supplementary materials to the students, and when they did so it was in hard copies, which were not accessible to the students with VI:

...Other lecturers refuse even to be tape-recorded when we asked they would respond *you have no right to record ...* (P9, male, PG).

The quotation can imply that, lecturers declined to be tape-recorded because there are no clear guidelines from the university authority to instruct lecturers on being recorded during lectures. This suggests that, those who accept to be recorded do it out of their goodwill and understanding of the needs of these students.

Regarding lecture notes P10 said:

Some time ago we talked to our lecturers to give us lecture notes in electronic format so that it saves us typing time. Some of them agreed but most of them did not (P10, female, UG).

Narration from P10 implies that, electronic lecture notes did not only save typing time but also reduced over-dependence of students with VI on sighted students in requesting for reading assistance. Since the reader is also a student, electronic lecture notes could also reduce responsibilities of a reader to students with VI. Similarly, the idea of providing lecture notes ahead of a lecture seem to benefit all students whether they have SEN or not. Lecturers were reported to be reluctant to provide lecture notes possibly to motivate students with VI not to skip any lecture because when they have assurance of lecture notes they might not attend some of the lectures.

Similar experience was also reported by students with HI. It was documented that lecturers, especially at Institution 1, were not ready to provide their lecture notes either in hard or soft copies to these students. Indeed, very few lecturers were reported to be supportive in the academic matters related to these students. Most of them seemed to be inconsiderate and insensitive to their needs. It was reported that, some of the lecturers were not only reluctant to provide lecture notes but also did not write anything on the board during lecturing. As P2 narrated during interview:

In this university, I have many academic problems compared to my advanced secondary school. Because in high school I used to benefit from the summary written by the teacher on the board during teaching but here some lecturers don't write anything on the board during teaching and they don't provide their notes to us (P2, male, UG).

This statement implies that, students with HI in HEIs seem to face numerous academic difficulties compared to their lower levels of education due to variation of teaching styles. From the experience of P2, it seems that teaching styles in lower levels of education favour students with HI compared to teaching styles in HE. Notwithstanding the presence of inconsiderate lecturers, students with VI acknowledge the existence of some lecturers who

were considerate and supportive to their SEN and wellbeing. It was reported that, at the beginning of the semester these lecturers registered names and contacts of all disabled students in their classes. During lectures, they would make sure that all the disabled students sat at the front and those with VI have a tape-recorder. In case a student failed to attend a class, the lecturer would arrange a special class in his/her office. In addition, they were reported to provide electronic notes on time (see chapter five extra support from teachers/lecturers).

The results from this study demonstrate some empirical examples of teachers with neither knowledge nor skills crucial in supporting students with SI were, nevertheless found to be receptive and responsive to the particular needs of these students (see comments from P1, P7, P11, and P15 section 5.1.1 *extra support from teachers/lecturers*).

Lecturers who were found to be very supportive to these students during the L&T process and other academic matters were not trained to teach disabled students but their positive attitude towards these students influenced their positive behaviour towards them as well. Findings from the study also suggest that, teachers'/lecturers' exclusionary practices can be associated with lack of support from the head of school as explained by P12 said:

I experienced the problem of VI when I was in Form Two in a private secondary school. The school authorities forced me to look for another school...elsewhere. Unfortunately, all the secondary schools with a special unit belong to the government... Thus, every private school that I approached rejected me because of my VI. They asked, 'How are we going to teach you here?' (P12 male UG).

In other words, the school authorities do have a significant role to play in the inclusion of disabled students. The school authorities have the power to accept or reject a disabled

student. P12 above was rejected because the school authorities were not ready to provide the necessary support. This is reflected in the statement, *how are we going to teach you here?* This statement implies that the school authorities were aware of the needs of this student but were unwilling to do something extra, as they perceived such students as a burden. In addition, P12's narration highlights limitations in the placement of students with learning difficulties in Tanzania, that, most private schools seem ill-prepared and unwilling to accommodate learners with diverse needs. P12 further continued:

... One headmaster (who had experience with students with VI) in one of the private secondary schools agreed to admit me to his school... he held a meeting with all teachers and informed them about my presence [in the school] and requested teachers to provide me with the support I needed. He also gave me two sighted students to assist me with academic issues. Later, he assisted me to get a funder who bought a Braille machine and a typewriter... (P12 male UG).

P12's account denotes that success of students with SI and others with SEN also largely depends on the support from school authorities. When the school authorities are ready to provide the support students with SEN require, then most of the teachers are likely to follow suit and, consequently, are able to extend the support to the student. Similarly, a head of school, who is ready to support these students, becomes an exemplary model to the rest of the teachers and the society as well. Indeed, effective inclusive education also depends on collaboration between the school authority, teachers, students and external agencies, as the statement above illustrates.

4.2.3 Communication barriers

In exploring the first research question on academic barriers of students with SI, it was also established that the foremost academic barrier to students with HI is the communication barrier. The findings on this theme are based on the data generated from interviews held with

11 students with HI and the open-ended questionnaire. In this regard, the participants pointed out that they faced obstacles in processing any linguistic information directed to them because of attending lectures without sign language interpreters, or hearing aids, difficulties in reading lips of an English speaker and teaching styles, which hinder lip reading. This section is organised into two parts: scarcity of sign language interpreters and difficulties in reading lips of an English speaker.

Scarcity of sign language interpreters

The analysis of the data collected revealed that, most of the inclusive schools which accommodate students with HI lack sign language interpreters, who could otherwise assist them in the L&T process. Whereas some schools had very few interpreters compared to the number of students available, others did not even have one. Lack of sign language interpreters during the learning and teaching process created a communication barrier between instructor and a student, which negatively affected the students with HI. This was remarked by P23 who said:

Without a sign language interpreter attending classes we are just wasting time because I hear nothing even when I am seated in the front row and worse enough teachers could not use sign language (P23, male, UG).

In other words, the education of students with HI who use sign language for communication depends more on the availability of sign-language interpreters or teachers' ability to use sign-language. Such lack of sign language interpreters was reported particularly to affect students in advanced secondary schools more than those in ordinary secondary schools. This is because most of the ordinary secondary school teachers were reported to provide notes after the teaching had ended. However, those in advanced secondary schools were supposed to prepare their own notes because teachers do not provide teaching notes for copying. With scarcity of sign language interpreters, the situation became difficult for students with HI who

depend on the sign language to process linguistic information. Since these students gain very little without an interpreter, teaching notes could compensate for what they miss during teaching. Similarly, even those who attend classes with an interpreter need teaching notes because it is difficult to write notes while paying attention to an interpreter. Thus, teaching notes supplement information from an interpreter.

HEIs are not exempted in this matter. When responding to the question related to barriers in HE, participants documented scarcity of sign language interpreters. This problem was particularly reported at Institution 2 where all the students with HI registered depend more on sign language for communication than on speech reading. It was revealed that the number of sign language interpreters available was insufficient to cater for the needs of the number of students with HI in that institution. The institution has two sign language interpreters to support about 10 students with HI. This scarcity of sign language interpreters forced students with HI to attend some lectures without an interpreter. Similarly, students with HI faced considerable difficulties in communicating with their fellow students after class hours, especially during group discussions because sign language interpreters assisted these students only during lecture hours.

This practice was confirmed by P22:

...Interpreters are so few that most of the lectures in my teaching subjects I attend without an interpreter. Also, interpreters are not available after class hours and most of our fellow students without HI do not understand the sign language (P22, female, UG).

This statement details how challenging it is to overcome the communication barrier students with HI who use sign-language face, as even with an adequate number of interpreters at school level, the student was unlikely to have recourse to interpreter after-school hours or

outside the school compound. This suggests a need to either teach students with HI more than one method of communication or to make sign language compulsory in every inclusive school and beyond the confines of the classroom.

Difficulties in reading lips of an English language speaker

Some students with HI who communicate through lip reading reported a communication barrier related to transition from Kiswahili to the English language. It was documented that the two languages vary in their pronunciation and spelling of its characters. Students, who used to process linguistic information through reading lips of a Kiswahili language speaker in their primary schools, faced difficulties to understand teachers during the L&T process in secondary schools where medium of instruction is English. Whereas Kiswahili language words are written just as they are pronounced, English language is different as there was often no association between the sound and the letter provided. This was confirmed by P24 who said:

It was so difficult for me to understand my teachers in secondary school through lip reading because my eyes were used to reading the lips of Kiswahili speaker whose pronunciation differs remarkably with that of the English language (P24, female, UG).

This view was also supported by P1 during an interview who said:

It was so difficult for me to understand how to pronounce different English words through lip reading (P1, female, UG).

The two statements suggest that an abrupt shift from Kiswahili to English medium of instruction had an adverse effect on the students with HI. This situation implies that lack of students' preparation when they were still in primary schools for the English language teaching in secondary school made the drastic transition to not only affect those with HI who use lip reading but also those with hearing problems.

4.2.4 Barriers in examinations and information inaccessibility

Most of subthemes under barriers in examinations were reported by students with VI compared to students with HI due to the nature of their impairment. Out of four subthemes of examination barriers, students with HI only reported one theme, which was delays in examination time (examinations started late). Regarding information accessibility both students with VI and HI reported difficulties in accessing information. This section starts by presenting barriers in examination followed by barriers to information access.

Barriers in tests and examinations

Analysis of data on tests and examinations revealed five subthemes which are: barriers related to examination format and administration procedures, lack of feedback from teachers, delays in examination time, incompetence of transcribers during marking and inappropriate grading systems.

Examination format and administration procedures

Examination format and procedures in primary schools, both special and some inclusive schools, were reported to be accessible. Students were given tests and examinations in Braille and responded in Braille format. Differences were reported in the National Examination format and continuous assessment for students in most of the inclusive primary and secondary schools. Whereas in continuous assessment students reported responding using typewriters, in National Examinations they responded using Braille. In the HEIs, the examination format is the same for continuous assessment and final examinations. Students were given examination papers in Braille and responded using typewriters except for Institution 2 where students responded to examinations using Braille because of the scarcity

of typewriters. Generally, students reported to be comfortable with examination format and procedures in primary schools and not in secondary schools as well as HE.

In secondary schools, students reported various barriers related to tests and examinations. Due to lack of Braille specialists to prepare exams in Braille, some students were forced to type their examinations in Braille format themselves. During the examination, teachers used to organise examination papers in normal print, and on the examination day they read out the questions to students who typed out in Braille format. This task was perceived to be cumbersome and tiresome by most of the students with VI as they were involved in two different activities: typing and responding to exams. In other secondary schools with similar experiences, teachers modified the administration process of the examination: they administered the examinations in oral format and students responded using Braille. Under this format, teachers presented exams orally to relieve the students from the burden of typing out their exams and the students responded using Braille. However, responding to the examination through listening to the teachers was found by the students to be difficult and involving:

... During a test or exam, teachers would read for us one question after another. Then we responded using Braille. This was very involving especially with multiple choice questions with 4 to 5 distracters. By the time the fifth distracter has been read, you have forgotten the first one (P15, female, UG).

What P15 presents here is one of the adaptation strategies teachers deployed in presenting examination in inclusive schools with absence of Braille specialists. However, the nature of examination format created challenges on the part of the students with VI as the structure demands high memory capacity on the part of the student.

Other students had a different experience. For them, the examinations were administered in oral format and students responded orally. This method was adopted because some of the secondary schools neither had a specialist in Braille who could prepare students exams in accessible format nor special resources such as Perkins Braille and typewriters which students could use to respond to their examination questions. This was claimed by P12 who said:

... I did my exams orally for both two terms of my Form One. Teachers used to read out the test questions for me and I would respond my answers orally too (P12, male, UG).

The statement by P12 just as one by P15 reveals the difficulties students with VI, enrolled in schools, encounter in the absence of special resources and specialists. Although the examination format seems to be a suitable method, it does not provide students with ample time to think about correct answers.

Moreover, in many secondary schools, students with VI experienced a problem associated with the transition from using Braille to the typewriters in responding to their test and examination questions. This transition was not uniform for all the students. Indeed, some students, especially those from special primary schools, had a smooth transition because they were exposed to typewriters in their special schools. However, those who had no previous experience in using typewriters faced some difficulties in doing their tests and examinations.

In comparison, some students prefer Perkins Braille machines for completing tests and examinations to typewriters for various reasons. First, typewriters were reported to limit the students' opportunity to edit their work once a mistake has been made. Also, during some occasions the carbon paper could fall out of the machine without the students' knowledge

which could result into submission of incomplete examinations. This is exemplified by P8's remark:

The major challenge of using a typewriter is inability to read and edit your work during typing. If given a choice, I would prefer using Braille, but who would mark my paper? (P8, male, UG).

This preference of some students with VI of Braille over type-writers appears to be grounded in the practical benefits of the former over the latter. However, the shortage of Braille specialists and teachers' knowledge and skills in Braille forces students with VI to resort to using the typewriters. This suggests that, most of the examination formats and procedures used in Tanzania's inclusive schools do not consider the specific needs of the students with VI but rather the challenges that the school were experiencing in trying to educate them.

The use of type writers was also reported as a barrier to effective undertaking of the tests and examinations in HE. However, students in HE reported mixed feelings about the use of typewriters. Whereas some students with VI were not in favour of using typewriters in responding to their examinations, others were very positive about their usage for such purposes for various reasons. First, the typewriters were reported to provide a good connection between a lecturer and a student, that is, through typewriters a lecturer could follow-up on students' progress directly and with ease. Second, the typewriter was reported to increase the trustworthiness of the student's work as the examination reaches the lecturers in its original format. This reduces chances of doubting the credibility of the examination as the transcription of the examination from Braille to normal print would have to pass through a third party. For example, one participant at Institution1 commented:

We answer questions using typewriters, so that lecturers who have no knowledge of Braille can mark them. Using Braille could attract some complaints from the lecturers such as, *how*

far are we sure that what has been transcribed is what has been written by the student? (P13, male, PG).

These two comments from P11 and P13 appear to hint at the lecturers' lack of trust in the staff from Special Education Unit when it comes to university examination matters. This can be attributed to the fact that the university's Special Education Unit staff are closer to the students with VI than lecturers, as these students spend greater proportion of their time at the Special Education Unit with these staff than with lecturers in crowded lecture-rooms. This set-up could attract suspicion of favouritism among them even when unfounded. However, the apparent lack of collaboration between lecturers and Special Education Unit staff (see discussion chapter section 6.1.4 the end of section) seems to explain such a situation better.

Findings from the study also revealed the use of computer to students with VI as an alternative to typewriters in responding to the examination. The use of computers would allow lecturers to mark students' work thus creating a direct link between a lecturer and student work. It was further clarified that, a computer with assistive technology does not only provide solutions to the problems associated with using typewriters, such as inability to proofread the typed work, but also it solves the acute problem of Braille books in HE as subsection 4.2.1 illustrates. This is because these computers provide students with VI opportunity to search for material from the internet and read e-books independently, thus reducing their over-dependence to sighted students in academic matters. During examinations, however, the students would be required a non-internet connected computer with no access to information resources that would give the students answers.

Notwithstanding the importance of computers for students with VI, the two HEIs under review rely more on typewriters and Braille machines in examinations and other academic matters than on the use of computers. Various factors have contributed to this limitation. These include reluctance of the HE authorities to allow them to use computers, lack of knowledge of using computers among some of the students with VI, computer illiteracy among special education staff and shortage of computers. Regarding computer illiteracy among students with VI, P21 said:

The computer package available is not for us even the instructors have no skills of teaching us the computer application and most of the time they reject us in their classes by saying *how are you going to learn computer with your condition?*” (P21, male, UG).

The available computer programmes in the institutions under review appear to be designed to cater only for non-disabled students and not students with VI. Similarly, lecturers who teach those computer programmes seem to lack skills of adapting computer programmes to suit the needs of students with VI. This fact can be substantiated by a lecturer’s statement as narrated by P21: *‘How are you going to learn computer with your condition?’* This implies that the condition of VI limits an individual’s ability to learn how to use computer, when the opposite is supposed to be true as a computer can serve as a facilitating tool.

Lack of feedback from teachers

Findings from the study show that some students with VI did not have an opportunity to receive their examination results in their secondary schools. Most of the secondary schools had no transcribers who could assist regular teachers in grading the examination papers written in Braille format. This is substantiated by P11’s remark:

From Form One up to the end of Form Three I don’t remember to get any examination results from our

continuous assessment and annual examinations. The only examination result that we received was for the Form Two National examinations (P11, female, UG).

There appears to be limited criteria for promoting students with VI to the upper-class due to lack of examination feedback from the teachers, because those schools depend much on the Form Two National Examinations. By doing so it was so difficult for students to know their academic progress through continuous assessment. Sometimes students reported sacrificing their school vacation to assist teachers to mark their exams by reading what they had written to them. This enabled them to receive feedback at least for terminal and annual examinations but not continuous assessment. This was remarked by P15 who said:

... Whenever we needed our examination feedback we had to postpone our holidays so that we could read our answers to our teachers ... (P15, female, UG).

P15 highlights the fact that in some inclusive schools most of the solutions to the problems relating to examinations of students with VI were left for the students with VI themselves and not to teachers to solve. This inclusive practice just as in teachers/lecturers' exclusionary practices reflect the medical model approach (see section 1.1.3).

Delays in examination time

This barrier was only reported in HE, as the introduction section illustrated. All the students with SI who did their examination at the special education unit reported lecturers' delays in remitting the examinations to the unit. It was revealed during interviews and FGDs that the lecturers were required to send their examinations to the special education unit either in large font for low vision students or in normal print for processing from normal print to Braille and this is supposed to be done before the actual examination. However, the participants pointed out that they usually sat for their examination later than the allocated time in the

timetable because most of their lecturers either failed to send their examinations to the special unit in time or forgot to do so altogether as P14 reported:

...Most of the time lecturers tend to forget to bring our exam to that place (special education unit). Also, they forget to print my exams in large font. This has been happening frequently and in all these incidences I have complained about this awkward situation but things are not changing (P14, male, UG).

Another participant presented a similar view and offered a possible explanation behind such delays during examinations in HEIs:

Whenever, staff in special education unit reminded our lecturers to bring our examination paper they would always ask, *is there any student with visual impairment in my class?* (P8, male, UG).

This statement exposes the problem that some lecturers fail to establish the existence of disabled students in their classes beforehand, implying that some overlooked checking this in their courses before the teaching session began in earnest (see section 6.1.4 subtitled lecturers' unawareness of disabled students in their class). Other lecturers, on the other hand, delay submitting examination papers to the special unit on purpose, that is, for quality assurance. It was revealed that some lecturers delayed sending examination to the special unit on time to avoid examination leakages and cases of dishonesty. This was clarified by P11 during an FGD who said:

Some lecturers do not send our exams on time [to the special unit] to prevent examination leakages (P11, female, UG).

This statement suggests that some lecturers believe sending examination papers to the special unit before the examination time would compromise the exam and create room for examination irregularities. A similar view was echoed by student with HI:

Whenever we complain about this matter to our staff in the special unit they said *the problem with your lecturers is that they think if they provide us with the question paper beforehand the examination we will provide you with sample questions which is not the case* (P16, female, UG).

What P11 and P16 hint at is the lecturers lack of trust in the special education unit staff as explained earlier in the use of typewriters in responding to examination at Institution 1 (see comment by P11 and P13). They appear to see it in a negative light that their respective university had developed to facilitate the education of disabled students. However, some lecturers delay sending their examination to special education unit on time due to the reluctance of their heads of department to release examinations at the required time.

Incompetence of transcribers during marking

Some transcribers who mark the examinations written in Braille have been found to be incompetent in Braille. It was reported that, some transcribers transcribed something differently from what the students had written. This was found to be the major problem in the marking of ordinary secondary school national examinations and HE examinations as P10 explained:

The use of what they call specialists to mark Form Four National examinations written in Braille is a problem because most of those specialists are incompetent in Braille (P10, female, UG).

P10 indicates lack of trust in the transcribers' competence in Braille as her statement insists on "*the use of what they call specialists*". This incompetence was observed among transcribers employed in some inclusive secondary schools. During the FGDs, it emerged that transcribers allocated to some secondary schools to assist students with VI and teachers in academic matters were incapable of assisting teachers in the preparation of their

examinations from normal print to Braille format. Nevertheless, they were involved in marking National Examinations for blind students. This was remarked by P15 who said:

During our teaching practice at a certain inclusive secondary school for two years consecutively, we were asked to assist teachers from different departments to prepare their exams in Braille and to grade them although the school had qualified degree holding transcribers but who were incompetent in Braille reading and writing. Unfortunately, they were also included in the marking of National Examinations (P15, female, UG).

The apparent top-down criterion of selecting transcribers to mark National Examinations that P15 alludes to appear to be a source of grave concern. It seems that, the school authorities have limited opportunity in this selection because it was unlikely for the head of school, who is aware of the transcribers' weakness in Braille, to nominate him/her in marking National Examinations. This implies such a decision has to be made at a higher, national level.

Similarly, incompetence in Braille among transcribers was also reported in the two HEIs under review. As reported earlier, students who are blind at Institution 2 use Braille machines in their tests and examinations instead of typewriters. However, marking of their examination papers written in Braille format raised questions regarding competence of transcribers in Braille. Commenting on this aspect, P21 said:

...There was a certain section in one exam where we were supposed to write either True or False, that is, T or F. Unfortunately, all the areas where I wrote 'T' for true were wrongly transcribed as 'B'; and you can imagine, the level of education of this transcriber was a bachelor's degree (P21, male, UG).

In situations where students with VI obtain results of their exams without question papers (as what transpired at Institution 1), it is likely for these students to be given wrong grades resulting from incorrect transcriptions. Concerning the competence of transcribers, the

findings show that transcribers with a certificate in SEN were perceived to be more competent than those with a diploma and even degree level qualifications. In this regard, P12 explained:

Currently, we have degree holding teachers who have been specialised trained in special education for students with VI; however, they are not competent at all in Braille. For example, at... (*Name withheld*) secondary school all our examination papers which are in Braille were marked by one teacher who is blind instead of a specialist who was employed for this task. That teacher volunteered to do so because of poor performance in Braille of the said specialist teacher ... (P12, male, UG).

P12 lamented over the incompetence of some of the degree holding transcribers in Braille. The same complaints were also raised by P15 and P21 above. This incompetence can be associated with the duration of training and shortage of Perkins Braille. Whereas the certificate holders in SEN learn Braille for one or two years, degree holders learn it for four months. Similarly, most of these transcribers with degree certification seem to pursue their degrees at Institution 2 because this is the only institution in the country which offers various degrees with specialisations in SEN (Kapinga 2012). Therefore, due to the scarcity of Braille machines as well as Braille papers at Institution 2 (see section 4.2.1 comments by P25, P26 and P27) it is difficult for transcribers who pursue their degree at this institution to have sufficient practice in Braille reading and writing.

Regarding competence of transcribers, students with VI believe that, transcribers who are blind can do better in transcribing their examinations than sighted transcribers because a blind person is more experienced and competent in Braille than a sighted one. In this regard, P21 said:

For us we prefer our teacher to use our fellow students who are blind to read our work than to use sighted transcribers who learnt Braille for only four months (P21, male, UG).

This was also supported by P10 during the FGDs when she raised her concern about the marking of the national ordinary secondary school examinations by saying:

The government should rather use teachers who are blind to mark papers written in Braille because these teachers are very familiar with Braille or they could let students use typewriters so that their papers could be marked by any sighted teachers rather than to use the so-called specialist in marking (P10, female, UG).

There appears to be a conflict of interest between students with VI and their specialists in Braille, which has cultivated a sense of distrust. Although the government relies on the certification of an individual as a qualification to be employed as specialist in matters related to disabled students, students with VI believe that a certificate alone is not enough. Other factors such as experience of an individual in the area concerned should also be taken into consideration. Therefore, students with VI found blind transcribers to be more competent than sighted ones because they have been using Braille throughout their educational endeavours.

Inappropriate grading systems

Analysis of the study findings also revealed that the examination grading system was not appropriate to meet the needs of students with VI. Participants in this study claimed to be placed in a group that was inappropriate due to poor grading and division classification because teachers seemed to ignore the fact that these students were partly involved in some subjects such as Biology and had no opportunity to learn other subjects such as Mathematics. It was found that, to motivate students to work hard in Mathematics, all the students who

gain “F” grade in their final examination (Certificate of Secondary Education Examination) were penalised in their overall performance, that is, if they had points for the first division ¹ they will be placed in the third division as a punishment (see subsection 4.2.5 below). This concern was voiced by P9 who said:

My Form four results is actually a Division I because I had 16 points but it is written Division III because of fail grade in Mathematics (P9, male, PG).

This was also supported by P21 who said:

I also become a victim of the grading system because I got 17 points which is Division I but on my certificate, it is written Division III because of Mathematics. This is unfair to me and my fellow students because it was not our fault that we did not learn Mathematics instead it is our education system [that allowed this situation to unfold] (P21, male, UG).

The two statements above suggest that penalising students who fail Mathematics has been applied universally to all students including students with VI, who were not allowed by the educational system to study Mathematics. This seems to be unfair grading because these students were exempted from learning the subject. Thus, they could be exempted from this punishment. Similar findings were reported for students with VI who sat for Biology and Agriculture in their ordinary secondary school national examinations. The findings show that, the majority of students with VI who sat for these subjects ended up scoring an “F” grade and very few a “D” grade because the final grade was normally computed as an average of marks scored in the theory and practical components of the examinations. Yet students with VI do not sit for practical exams because they are not allowed to attend practical sessions. As P11 explained:

It is impossible for us to score above ‘D’ grade in Biology and Agriculture because whatever we get in theory is divided

¹ Division 1= 7-17 points ; Division 2=18-21 points ; Division 3=22-25 points ; Division 4=26+ points

by two just as those sighted students who sat for both papers.
(P11, female, UG).

In other words, during marking and grading of Biology and Agriculture subjects, teachers seemed to have overlooked the fact that students with VI had no opportunity to participate in practical sessions, thus they have treated them just as those who had access to practical sessions.

Barriers to information access

The findings revealed that both students with VI and HI face difficulties in accessing information. Whereas students with VI reported problems in accessing printed information, students with HI reported difficulties in accessing oral information especially information on academic issues such as tests and assignments. It was revealed that most of the assignments are announced during lecture and due to the apparent communication barrier students with HI either did not get the information or they received the information very late, that is, when the submission date was due. Delaying in obtaining information forced some of the students to submit incomplete/poor quality assignments or to do a test without ample preparation and, sometimes, they ended up missing the test entirely. This was reported by the following participants:

Most of the time, I am not aware of the assignment that has been given. I end up doing my assignments in a rush to meet the deadline. Thus, I produce an assignment which is below standard (P2, male, UG).

A similar view was narrated by P17:

... I remember to have had missed one test because I was not informed about it. They announced a test as usual and I did not hear it. My fellow students did the test without my knowledge (P17, female, PG).

Despite communication barriers, which hinders their access to oral information, it appears students with HI also have poor interaction with their peers without hearing impairment as

revealed in social barriers (see section 4.3.1). Similarly, the two statements seem to indicate the poor support these students receive from hearing students as well as their note-takers. This problem can be associated with the negative perception that hearing students harbour against students with HI (see section 4.3.1).

Moreover, some students with HI reported difficulties in accessing announcements given during tests and examinations, particularly those related to corrections and instructions. In such a situation, some students found themselves doing tests or examinations without following the updated instructions, hence resulting into poor performances. In this regard, P3 remarked:

One day it was announced during the exam that in one of the sections we should answer only one question instead of three but I could not hear. I ended up responding partially to all three essay questions (P3, male, UG).

P3 highlights a negative effect associated with information inaccessibility pertaining to examinations and instructions for students with HI on their academic performance because failure to follow instructions can lead to poor performance. Similarly, for those who became aware of the test on the same day it is likely those students failed to perform well without adequate preparation time.

Concerning students with VI, analysis of the findings reveal that these students encounter more difficulties in accessing information in HE than in the lower levels of education, especially special primary schools. In the lower level of education, all the information in special primary schools was provided orally during the morning assembly and special school meetings and, if posted on the board, they were also accessible to the students with VI. In

most inclusive primary and secondary schools' information was provided on the assembly ground:

The primary and secondary school that I attended had only one system, they used to gather students on the assembly ground where the announcement could be made. That is how we used to get information (P13, male, PG).

The comments from P13 can suggest either consideration of school authorities in enabling the accessibility of information to the students with VI or the school authorities providing information during the assembly, not to ensure accessibility to students with VI, but rather for their own convenience, that is, to reach most of the students at the same time. This suggests, the system of providing information in some of the lower levels education resulted in inadvertently favouring the needs of students with VI and not necessarily a result of a special consideration of the teachers and school authorities.

However, other secondary schools as well as HEIs used to post their information on the notice-boards in printed format, which was inaccessible for students with VI. Accessibility of the posted information to these students was determined by the ability of the students with VI to interact with sighted students. However, students with VI reported to be uncomfortable with this system, particularly when they wanted to access examination timetables and results.

Responding to this matter, P8 said:

During examinations, we sometimes become victims of the situation because we do not have access to the original information; we only depend on what we hear from our fellow students and sometimes they mislead us unintentionally (P8, male, UG).

This was also amplified by P10 who said:

I remember to do two examinations without any revision because there were changes in the timetable, but no one notified me about them until a few minutes before the exam

when I heard my classmate wishing one another the best of luck [in the examination] (P10, female, UG).

Testimonies from students with VI (P8 and P10) support comments from students with HI (P2, P17 and P3 at the beginning of this section) on the effects of inaccessibility of information on the effective participation in tests and examinations. In other words, there is a need to improve information accessibility for these individuals, especially when it comes to sensitive matters such as examinations.

With regards to examination results, students with VI who are computer-literate reported to access their results via the Internet. The situation was different for some of the students with VI who were not computer-savvy. This was demonstrated by P10 who said:

... We don't have a choice as far as examination results are displayed on the notice-boards or on the Internet we have to ask someone whom we trust or a reader to go and read on our behalf... (P10, female, UG).

The system of displaying examination results in HE hinders the privacy of the students with VI who use a proxy to gain access to their results. At present, many of them access their results by depending on their readers or other sighted students. The examination results are displayed either in printed format or electronically via internet, which hindered computer-illiterate student from accessing the results independently.

Findings also show that lack of information in accessible format in HE has contributed to poor participation of postgraduate students with VI in PhD proposal presentations. This is because information concerning PhD proposal presentations is communicated via letters or notice-boards, which are inaccessible to them:

... I have never attended any PhD presentation at the departmental or school level since I started my PhD...

Whenever I complained about this to the PhD students' representative he would always ask: *Didn't you receive my text message...* even the School of Education is not sensitised enough on this matter. This is why since 1978 to-date they have not changed their ways of giving information to respond to the needs of students with VI (P13, male, PG).

P13 hints at lack of awareness of sighted students on the needs of those with VI as the statement from his PhD representative “*didn't you receive my text message?*” suggests. It is unlikely for such a representative to ask P13 such a question when he knows that P13 is a totally blind student. Similarly, the government's poor consideration of the needs of these students reported in subsection 4.2.2 is also reflected at the institutional level as represented in P13 as “*since 1978 to-date they have not changed their ways of giving information.*”

4.2.5 Barriers in curriculum

Findings of the study also established various barriers related to the curriculum. This subsection is organised in two major parts in accordance with subthemes that emerged on this topic, namely, lack of inclusive curriculum, and exemption of students with VI to learn Mathematics and Science subjects. The two barriers related to curriculum were reported in primary and secondary schools; however, their impact in HE was more pronounced especially in terms of career choices and development. Just like for the examination barrier, students with VI reported more curriculum barriers than students with HI whereby only one student cited this barrier. However, this does not imply that Tanzanian curriculum is appropriate for students with HI or that teachers adapt the curriculum to suit their needs, but rather most of the students with HI seem to be more concerned about the communication barrier than the curriculum. In this regard, this section focuses on findings pertaining to students with VI.

Lack of inclusive curriculum

Findings of the study revealed that, the existing curriculum is not inclusive as it was primarily designed to cater for ordinary students and not students with VI and others with different impairments. Moreover, there is no modification has been made to suit the diverse needs of students. It was further observed that everything in the syllabus were designed to suit the needs of students without SEN. Explaining this orientation, P21 said:

Education curriculum, as it is now, is a problem for us. For example, the one which ended in 1983 and the other one that ended in 1996 were okay for us because they were standardised in terms of learning materials. One book was used as a textbook for all schools in a country; every subject had a book and each book had its copy in Braille. In addition, there was close supervision on the implementation of that curriculum. Education inspectors who visited our schools always asked teachers to show materials that have been prepared to teach students with VI in the classroom. But for the current curriculum there is a problem... (P21, male, UG).

Unlike the new curriculum currently in force, the former curriculum (1983, 1996) were appropriate to students with VI in terms of their L&T resources due to the standardisation made, contrary to the current situation which allow schools to use different books to teach the same subject. Similarly, P21 associated the appropriateness of previous curriculum with education inspectors who strived to ensure that the needs of students with VI were catered for by asking teachers alternative materials for students with VI. This can suggest that lack of regular school inspection appears to foment the existing barriers in curriculum as school inspections have shrunk considerably (see section 6.1.5 for more details).

In addition, other participants associated lack of inclusive curriculum with the design of subject syllabi which seem not to consider the diverse needs of learners in inclusive schools.

When responding to an interview question on curriculum barrier P11 said:

The curriculum is not inclusive as it was prepared for ordinary [non-disabled] students and not for disabled students. This is vivid when you look at the syllabus there is no area where the teacher is instructed on how to teach a certain topic to students with VI or HI. Also, it does not stipulate alternative subjects that students with VI can take, apart from Biology and Agriculture for which VI do not have an opportunity to do practical... (P11, female, UG).

This statement signifies lack of involvement of disabled teachers in the curriculum development process as the instructions and materials illustrated in the syllabus do not reflect the diverse needs of students in an inclusive classroom. Similarly, lack of alternative materials and learning instructions to suit students with SI in the syllabus can suggest lack of involvement of teachers with SI in the curriculum reform process. A study conducted by Kopweh (2014) in Tanzania found that the curriculum reform process of 2005 was top-down oriented as the process was authoritarian rather than participatory. Unless curriculum developers set clear criteria for the nomination of subject representatives to include the voices of teachers with different conditions/impairment in curriculum development or reforms, Tanzania's curriculum will fail to meet the specific needs of students with SI and others with SEN.

Exemption of students with VI to learn mathematics and science subjects

The existing curriculum was also reported to exclude students with VI in learning some subjects such as Mathematics, Physics, and Chemistry at the secondary school level. Similarly, they are partly involved in learning other subject such as Biology and Agriculture because the curriculum was not designed to accommodate these students in practical classes.

This was stated by P13:

...Mathematics, Chemistry, and Physics were not being taught to students with VI in secondary school. We were taught only two science subjects: Biology and Agriculture

but only in theory as we were not allowed to participate in practical sessions (P13, male, PG).

Similarly, P12 said:

Besides Mathematics, I was very much interested in Commerce but just as in Mathematics, I was told we are not allowed... (P12, male UG).

These two comments on the exclusion of students with VI in learning some subjects at the secondary schools' levels indicate that they are limited in their choices of subjects and this may not match their interest, especially at the Form Three levels when students are categorised in response to their subject combinations. This exclusion was reported to have a bearing on subject combination in advanced secondary school and ultimately the career choices. Such a curriculum forces some students to choose careers that they were not interested in. As P8 noted:

It was not my dream to be a teacher. The education system forced me into the teaching career... (P8, male, UG).

This was also supported by P11 who desperately (with a frown on the face) said:

I have been forced to be a teacher after being denied access to science subjects; my ambition was to be a doctor. I really hate teaching but I don't have alternative career... (P11, female, UG).

It is evident from these vocalisations the existing curriculum offers limited career choices for students with VI due to their exclusion of Mathematics and some science subjects in secondary schools for this cadre of learners. Mathematics is considered as a backbone of any scientific inquiry and, thus, students are expected to be good in Mathematics to master any science subjects including Economics (Ali, 2013). Thus, denying students with VI an opportunity to learn Mathematics not only limit the students' career choices in science-based disciplines, such as medicine and engineering, but also in other fields which apply

Mathematics such as economics and statistics. However, P11's lack of interest in teaching career could possibly have resulted from the low status currently accorded to the teaching career in the country. Teachers are among employees in the country whose needs are poorly considered due to poor working and living conditions, as well as low salaries compared to other professional fields such as medicine.

Apart from a few students with VI who were forced into a teaching career, some students were interested in the teaching career. However, their choice of teaching subjects was limited by the exclusion of Mathematics and some science subjects. Thus, they were forced to teach subjects that were not of their interest. This was voiced by P21 who said:

I used to teach Mathematics in primary school and my students understood me very well. I could also teach in secondary school but the system has denied me access to such an opportunity. Instead, I am teaching general knowledge subjects (P21, male, UG).

Indeed, there are some teachers with VI in schools who teach subjects that are not of their interest and preference; nevertheless, they are forced to teach them due to the limited opportunities available to them under the existing curriculum. This limitation might also influence the teachers' preparations and delivery of instruction. By contrast, most of the students with VI were more concerned about the penalty received in Mathematics and/or poor grade in Biology and Agriculture subjects than to be denied learning those subjects (see section 4.2.4 *inappropriate grading systems* comments by P9, and P21).

4.2.6 Barriers to environmental accessibility

Inaccessibility to educational infrastructures

Analysis of this theme revealed that most of the educational infrastructures in Tanzania are not easily accessible to disabled students, particularly those with VI and physical

impairment. During interviews and FGDs participants described their school environment from their primary to tertiary education and showed how limited they were in terms of accessibility. However, the special school environments were reported to be accessible and friendly to students with VI compared to inclusive primary, secondary and HEIs. Generally, corridors and pavements connecting one building to another simplified the mobility of students with SEN. This experience is different from those who attended inclusive primary and secondary schools where students with VI reported to depend on human guides and the white cane in their mobility due to inaccessible of the environment surrounding them.

Most of the inclusive primary and secondary schools reported to have obstacles which hinder the students' mobility. These include ditches, scattered stones, thorns, and unnecessary and/or broken stairs. For example, the use of stones for decorating pathways and gardens in most of the primary and secondary schools was reported as a barrier to students with VI. Stones have been used along the pathways and for creating borders in the garden which negatively hindered the mobility of students with visual impairment. Responding to this matter P21 remarked:

The environment in my secondary schools was not prepared to accommodate students with VI. First, the school paths were bordered by a hedge of thorny bushes and in some places, it was bordered by stones (P21, male, UG).

The response above was supported by P9 who said:

Mobility was very difficult. There were many stones. You know in most ordinary secondary schools in the country, they align stones [along the path] to make some decorations and from the dormitory to the classrooms you take about eight minutes, and you find stones everywhere (P9, male, PG).

P9 and P21 demonstrate a difference in the accessibility of the school environment between special schools and inclusive schools. Generally, inclusive primary and secondary schools

were designed before inclusive education began in 1998. Thus, they were supposed to be modified in response to the diverse needs of the learners now attending those schools.

Moreover, some primary and secondary schools were reported to have ditches constructed along school buildings to control running water during rain, which could cause soil erosion. However, the ditches were reported to be constructed without consideration of students with VI and physical impairments, thus creating barrier to their mobility. As P13 pointed out:

...It (the environment) had so many obstacles which could make me not enjoy the environment. For example, in each of those schools there were unnecessary ditches everywhere, only because they thought that is the only way of controlling the running of rain water... (P13, male, PG).

Such a setup denotes poor planning of school infrastructures, which resulted into what P13 calls '*unnecessary ditches everywhere*'. This scenario suggests that, the presence of ditches could have been occasioned by with improper planning and insensitivity to the welfare of the disabled students. Ditches which are scattered randomly in the school environment create difficulties to these students who need to create mental picture of the layout of the environment to facilitate their mobility. Improper planning of ditches was not only found in inclusive primary and secondary schools but also in HEIs. Apart from the ditches, other barriers to the accessibility in HEIs environment include the steep nature of the environment itself, too many stairs, lack of orientation and mobility training and reckless driving within the campuses' roads.

Lack of orientation and mobility training

Findings from the study revealed that, students with VI in Tanzania lack orientation and mobility training, especially at the beginning of their studies, to assist them to be aware of their environment and how to move safely. It was reported that, orientation and mobility

training is not provided for students in all education levels, that is, from primary to tertiary education. In fact, the onus is also on the students to make deliberate efforts to know and master their environment. This was revealed during interviews and FGDs where all the respondents declared not to have received any orientation and mobility training at the beginning of their studies. One participant said:

I never experienced or heard of such a thing as orientation and mobility training for students with VI throughout my studies to date. It is our own efforts to get used to our environment (P8, male, UG).

The comment from P8 can imply that, mastering the school environment is the sole responsibility of the students with VI rather than their teachers or school authorities. However, it seems to be improbable whether these students could master their environment without orientation and mobility training due to the largely inaccessible nature of their environment reported. For example, whereas some students take three months to master their environment, other students could take up to the whole period of their studies without necessarily being able to move around all the places unassisted. This suggests that, orientation and mobility training seem to work best in a more accessible environment with proper planning of education infrastructures as the following comments demonstrate:

Flat and paved environments with corridors take a shorter time to master than environments which are too hilly and rough. It took me a month to master my primary and secondary school environments than my university environment... The more support we received from sighted students the shorter the time we used to master the environment (P10, female, UG).

Similarly, P15 said:

Here at this university the environment is our biggest enemy. A lot of stairs, the place is very big with a lot of scattered buildings. Imagine I am in my third year now but there are very few places that I can go to without assistance (P15, female, UG).

In their statements P11 and P15 suggest that, the duration one takes to master the school environment depends on many factors, such as the nature of environment itself, the size of the campus, arrangement of the buildings, and support received from sighted students. In other words, the smaller the campus with proper planning coupled with support from sighted students the shorter the time it takes for one to master the environment.

Reckless driving within the campus

Students with VI in both institutions under review reported that, drivers driving through their campuses tend to drive at a reckless speed even when there are disabled students on campus. It was established that in both institutions there are no speed limit signs to alert drivers on the presence of disabled students around the campus. Commenting on this P21 said:

...The authorities are more concerned with keeping the environment clean than the wellbeing of disabled students. This is because there is a notice to order people to keep environment clean. However, there are no signs to alert drivers to slow down in the university area because of the presence of disabled people (P21, male, UG).

P21 points out that, since people respect rules and guidelines from the top authority, being made aware of the presence of disabled people and their crossing points in HEIs could alert drivers to be more attentive in the university environs. On the one hand, some drivers seem to take advantage of the absence of these road signs which should show the existence of disabled students. On the other hand, drivers are either not aware of the white cane or they do not respect them this is because some students have reported to be interrupted by car horns as they cross the roads. Explaining this carelessness among drivers, P11 said:

I am not comfortable to move alone within the campus because of high speed of cars; the drivers have no regard for the white cane at all. They are just like other ordinary drivers out there. One day, a driver was about to knock down my white cane before stopping the car (P11, female, UG).

The reckless driving problem applied to all people regardless of their education level. P11's statement that '*they are just like other ordinary drivers out there*' implies that those drivers in the campus were as reckless as other drivers outside the campus. This suggests that, students with VI did not expect to observe *recklessness* in an intellectual environment. However, the road in the two campuses is also used by general citizens. For example, in one of the campuses the university road has been taken over by TANROADs (Tanzania National Roads Agency), meaning it is a public road and no longer for private use by the university.

The situation at Institution 2 is different from that of Institution 1 because the former has got two campuses which are connected by the main road from the city centre to the villages where all vehicles including inter-regional buses pass at breakneck speed. All the disabled students including those with VI, move from one campus to another for their lectures using either the main road or pathways. Notwithstanding the high speed of the drivers, some students prefer to use the main road rather than the pathways. In this regard, P25 remarked:

...The challenge is movement from campus B to A. The main road is not user-friendly and it has lots of motor vehicles passing at high speed. In addition, the pathways have got a lot of stones and it is too hilly to pass comfortably (P25, male, UG).

The statement affirms that both the main road and pathways at Institution 2 were not easily accessible by the students with VI. The distance between the two campuses in this institution is around 20 minutes' walk and sometimes these students are supposed to attend lectures immediately after finishing one lecture from one of the campuses. Attending lectures from these two campuses becomes extremely difficult due to long distance, inaccessible pathways and high-speed vehicles along the main road. During the rainy seasons, the situation was aggravated because of the accumulation of mud along the main road and slippery pathways.

4.3 Social barriers of students with Sensory Impairment (SI)

In exploring the second research question, data from both students with VI and HI was analysed. Analysis of data involved 27 semi-structured interviews, two FGDs and eight students with HI who responded to open-ended questionnaires. From the analysis, attitudinal barriers emerged as a major social barrier encountered by students with SI with three subthemes, namely, society negative perception that individual with SI are incapable, a burden and beggars; social isolation and difficulty in making and keeping friendship as illustrated in the mind map below (figure 4.4):

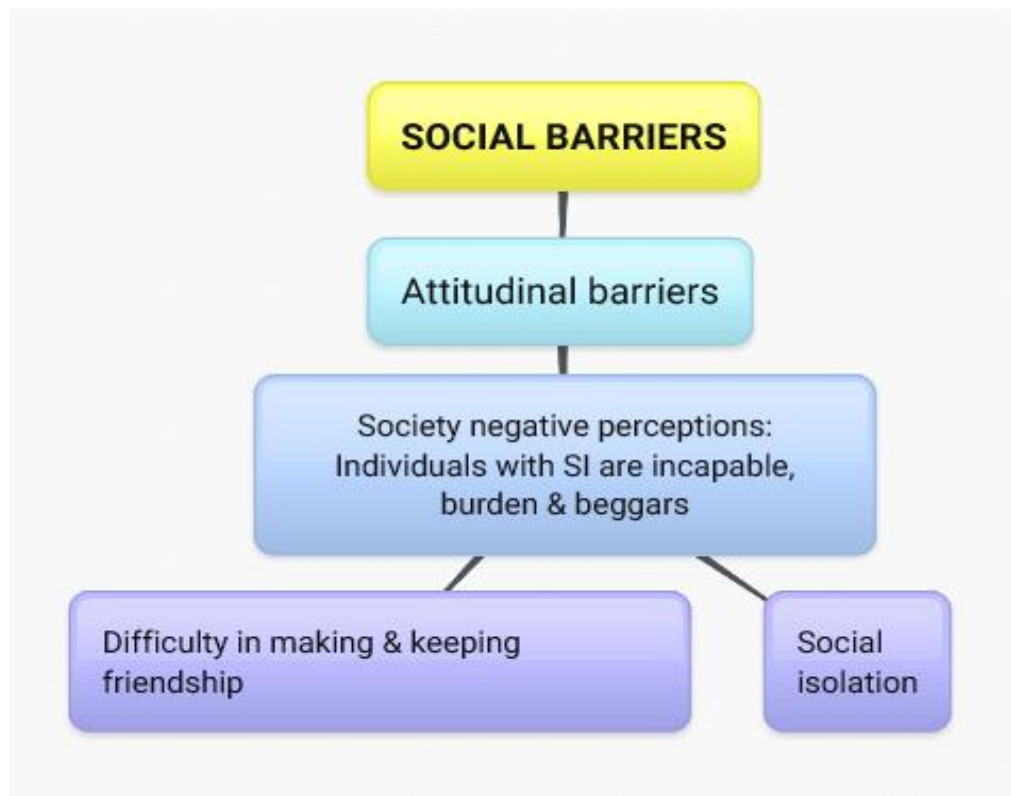


Figure 4.4: Summary of theme and subthemes on social barriers.

4.3.1 Attitudinal barriers

To be perceived as incapable

Students with SI revealed that various groups of people from society perceive them as incapable of doing anything productive in society. They perceive these students as a burden to the family and society at large. Analysis of data revealed that this attitudinal barrier exists among all groups of people regardless of their educational level, religious affiliation and individual position in society. It was found that teachers in lower levels of education, such as primary schools, were more positive and better understood the ability of students with SI than those in secondary schools and HEIs. This was claimed by P10 who said:

In primary school, teachers involved us in everything, that is, academic and non-academic activities because they believe in our abilities but in secondary school and HE teachers perceived us as a burden and incapable (P10, female, UG).

This quotation suggests that primary school teachers are more supportive and understanding to disabled students than teachers in secondary schools and lecturers in HE. This can possibly be attributed to the fact that, there are relatively more teachers with training in inclusive and SEN in primary schools than in secondary schools because inclusive education was first piloted at the primary school level. Moreover, most research in inclusive education in the country has concentrated on the primary school levels, which could have given primary school teachers an opportunity to be aware of various issues related to disabled students.

During FGDs, it emerged that some teachers in secondary schools were unhappy to have students with SI in their schools or classes, as they believed that their very presence would lower their school's rank in National Examination performances by increasing the number of Division Zeros.

This was also confirmed during interview by P11:

Our teachers used to perceive us as failures. This is because whenever they talked about Form Four national examination results and if a class had.... let's say three disabled students they would always say, this year I am going to get three divisions zero in my class (P11, female, UG).

Similar experiences were reported by students with HI, one of whom said:

Most secondary school teachers rejected students with HI in their classes fearing to lower down their mean score... (P17, female, PG).

These two statements refer to the negative attitudes of some of the secondary school teachers towards students with SI, as well as low expectation of disabled students. Lecturers in HEIs were also reported to hold this belief for students with SI. It was revealed that some lecturers used to doubt the performance of students with SI especially when they attained high grades.

This was confirmed by P11 who said:

Even lecturers do not believe in our abilities. This explains why they don't allow us to answer our examination using Braille thinking that transcribers will favour us during marking (P11, female, UG).

P11's view on the lecturers' perception of students with SI seems to concur with secondary school teachers' perception of disabled students. This can suggest that, a negative perception of disabled people exists among different people regardless of their level of education. Further analysis of the findings indicates that some students with SI have been denied enrolment in some universities regardless of their performance and some who have been enrolled were denied access to study certain courses on the pretext that they would not perform at the required level. This was revealed by P21 who had this to say:

I faced a lot of difficulties to be enrolled in computer course. The lecturer told me *this course is not for blind students you are not going to make it...* (P21, male, UG).

A similar view was voiced by P13:

Some lecturers were not happy with us. Whenever they see more than one student with VI in a seminar room, they would tell us to spread out in different seminar rooms. I can remember one lecturer, who has passed away, was very furious with us; he used to say that, *to have these people in one seminar room is a big problem* (P13, male, PG).

These two statements attest to negative attitudes of some lecturers in HEIs towards disabled students. The statement made by P21 in particular indicates that one lecturer was so negative that he dismissed the students by declaring: *'This course is not for blind students you are not going to make it'*. This statement appears to suggest that computer courses are only for sighted students and not the blind, which is a misguided view. Similarly, P13's narration also reaffirms the negative attitude exhibited by one of his lecturers whose statement of *'to have these people in one seminar room is a big problem'* reinforces the stereotyping of treating disabled students as an extra burden to the lecturer or to the whole group.

Regarding the parents of students with SI, most of them were reported to be positive, supportive and considerate to their children. However, attitudinal barriers were also revealed because some parents and other family members were reported to perceive their children as incapable. It was found that students with SI used to be left at home alone while other family members engaged in other activities outside the family such as social gatherings, shopping or farming. This was remarked by P26 who said:

Before this problem, they used to involve me in all family matters but now they do not involve me in anything even going to parties... (P26, male, UG).

Another participant said:

My parents were not ready to send me to school. They were always saying that, *this is a blind person what will he be doing in school?* (P13, male, PG).

The two statements indicate the parents' inclination towards excluding or over-protecting their disabled children. Whereas some parents were reported to exclude their children with good intentions, as they thought they were protecting them against dangers, others avoided doing so due to the negative comments from the society. Similarly, some parents reportedly failed to send their children to school on time until they were forced by the authorities because they believed that sending them to school was a waste of time and resources as at the end of their education journey they would not succeed.

Besides, other parents with female blind children were reported to be reluctant to accept that their daughters were able to marry because they believe that women who are blind are not capable of fulfilling their gender roles such as taking care of a husband and children as well as other house chores. This was demonstrated by P11 who said:

My parents never believed in my ability since my childhood. First, since my lower level of education they used to discourage me by saying *do you think you will pass the Form Four national exams with your condition; you are just wasting your time and energy*. Thanks God I managed to prove them wrong, but it is not yet over as they are not ready to accept me to get married, and if I force them they said they will not take the bride price or hold a send-off party for me as they believe that my husband will return me home because of being a burden to him (P11, female, UG).

P11's testimony demonstrates that overcoming negative attitudes and perceptions is a lifelong process. She has been perceived negatively since her childhood and she has to continue defying the odds that she deserves to be treated like other children in the family. This suggests that fighting against negative attitudes is not a responsibility of disabled people but required concerted efforts from various groups of people in society.

The single most striking observation to emerge from the data in this subtheme is that some religious leaders were also reported to have poor perceptions of individuals with VI, especially when they wish to marry to their church members. This is found striking because it is contrary to what society expects of religious leaders to behave towards disabled people and other people in society. As P21 confirmed:

I had a girl with whom I agreed to get married. We even got blessings from the parents but a certain Bishop from one of churches in my region where my fiancée used to worship was very bitter about that decision. He went to my mother-in-law to demand reasons for her to allow her only daughter with high position and respect in the church to marry a blind person (P21, male, UG).

What P21 alludes to is how deeply engrained the negative attitudes and stereotyping in society, as even in powerful religious leaders, who are servants of God and who are expected to be role models in changing society, are also not immune to them as they harbour negative attitudes towards disabled people. There is also a biblical precedence as Jesus' disciples had associated blindness with sin under the Judeo belief. As it is documented in the Holy Bible:

Now as *Jesus* passed by, He saw a man who was blind from birth. And His disciples asked Him, saying, "Rabbi, who sinned, this man or his parents, that he was born blind?" Jesus answered, "Neither this man nor his parents sinned, but that the works of God should be revealed in him" (John 9:1-3 NKJV).

This scripture suggests, a belief that disability is a curse from God resulting from evil deeds. This wrong perception has a long history in the Judeo-Christian tradition. In this regard, one could not expect a similar belief to manifest in this era after the New Testament. This suggests that some people in society still uphold some beliefs from the Old Testament that are tied to the Judeo beliefs and traditions.

The belief that students with SI are incapable was also reported among their fellow non-disabled peers. The findings reveal that some non-disabled students believe students with SI lack the necessary capacity to succeed in education, thus sending them to school was counterproductive. This was remarked by P8 who stated:

During my secondary school, my fellow students used to ask me *do you think you can pass Form Four examinations with your condition. You will end up wasting your time and energy* (P8, male, UG).

A similar experience was voiced by P10 who said:

Sighted students think that we have been favoured to be admitted at the university. They also believe that we are provided with examination answers before doing our exams. Most of them are puzzled by our good performances (P10, female, UG).

These two comments highlight the negative perception prevalent among sighted students, who treat students with VI as incapable. They appear reluctant to believe that students with VI have been admitted to HE on academic merit and that they continue excelling from one academic year to another on merit. Other participants associated negative attitudes with age; it was revealed that non-disabled people are more positive to young people with VI than old people with VI. This was narrated by P13 who said:

When I was taking my master's degree in the 1990s I did not experience negative attitude as I am experiencing now in 2015. I am thinking maybe my old age also contributes to negative attitudes... Imagine whenever I fall into a ditch they do nothing and you could hear them saying *worry not that is an old man who deserves even to die* (P13, male, PG).

Such negative attitudes among sighted students was evident in all educational levels in Tanzania. One would expect students and lecturers in HE to be more understanding and positive towards students with SI and others with conditions/impairments than those in lower

levels of education because of their higher education; however, the contrary was largely true. Although some students reported a positive change in attitudes of the teachers, fellow students and society at large towards disabled people from when they were in lower level education to-date, this is not the case for some students, as narrated by P13. His accounts suggest that some students experience attitudinal barrier more in HE than in their lower levels of education. Similarly, P13's description suggests that negative attitudes increase with age, that is, older disabled people seem to experience more negative treatment from non-disabled people compared to younger disabled people.

The negative perception was also reported among some employers. It was found that some employers perceive individuals with SI, especially those with VI, as the burden and incapable. Participants revealed that, it is easier for them to be employed as teachers in primary/secondary schools than in HE despite their good performances. This is because of rejections they experience when applying for jobs in HEIs. This was demonstrated by P9 who said:

My friend and I were rejected in all four institutions that we applied for. The first time I applied for the job and sent my letter to the head of department, the following day, I made a follow-up of my application letter, but the head of department said *I did not receive a letter from you*. I sent another application package, referees recommended positively, but it ended up with the human resource manager who was waiting for a recommendation from the head of department. The head of department delayed until the permit from public service office expired (P9, male, PG).

This narration denotes that gaining employment for an individual with VI was more challenging under the current prejudiced environment in Tanzania than being enrolled in an educational institution. This suggests that poor implementation of the law guiding the employment of disabled people remain an issue. In this regard, employers may be reluctant

to employ these individuals as they may perceive it as a favour and not their right.

Responding on social barriers, P9 continued:

My friend who is also blind did an interview in one of the universities, he was the only one with master's degree and he also had all the required qualifications, but he was not selected. We went to another university but they also refused to employ him by saying *if you hire a person with visual impairment you need to hire another person to assist him* (P9, male, PG).

P9s statement provides one of the possible reasons behind the employers' reluctance to employ individuals with VI, as reflected in the statement *if you hire a person with visual impairment you need to hire another person to assist him*. This suggests that, some employers perceive people with VI as a burden in their institutions as employing them would require "additional" expenses for either special resources or an assistant to assist him/her.

Analysis of the findings further revealed that, other people in the society perceive people with VI as beggars. This attitudinal barrier was experienced by students with VI in different social circumstances outside their educational institutions. Others experienced this when they were shopping. It was reported that some shopkeepers hesitated to give them the service they needed as they thought that those individuals with VI were there to beg for money.

This was remarked by P10:

One day I was in a bookshop buying books for my daughter. Unfortunately, when the shopkeeper saw me he said *Can you come later; it is still in the morning we have nothing to offer* (P10, female, UG).

This was also supported by P15 who said:

I was doing shopping one day, when I entered one of the shops the shopkeeper said *hey get out it is not Friday* (P15, female, UG).

Both statements imply that, people associate blindness with poverty because some disabled people, including those with VI, earn their living through charities (particularly from religious organisations) or begging for money or food in the streets or shops. In this regard, this negative perception can be associated with poor economic status for the most disabled people because, in some cases, individuals would perceive a certain group of people in terms of their socio-economic level in the society. Those with high socio-economic status receive more respect than those with low status. Unfortunately, in Tanzania just like in some other developing countries most of the individuals with conditions/impairments, including those with SI, come from lower socio-economic status (Mitra *et al.* 2011).

Society negative attitudes towards people with SI and others with conditions/impairments can be traced to society's lack of exposure to people with SI who are achievers. Literature has documented the effect of familiarity in developing preferences over objects, things, or people, that is, mere repeated exposure of an individual to a stimulus object which enhances his/her attitude towards it (Zajonc, 1968). This was also revealed in the study as narrated by P13:

When I was first introduced as an Assistant Lecturer to my students they did not like me at all. I felt a sense of rejection from them, I even heard some students saying *how can this blind lecturer teach us?* Nevertheless, one semester was enough for them to change their attitude towards me. After attending my classes for sometimes, slowly they become fond of me and my courses. To-date I am among the few most respected lecturers in that institution (P13, male, PG).

P13's statement suggests that students at that institution have never been exposed to a teacher with VI before. These students were just like other people in society who believe that individuals with VI are incapable. Lack of students' exposure to teachers with VI limited their knowledge on these teachers' abilities, which resulted into their negative perception, as

expressed in the statement, *how can this blind lecturer teach us?* However, through exposure to a lecturer with VI, students changed their attitudes and their perception of P13 and he was not associated with his impairment but with his distinguished abilities to teach. This is reflected in the statement: *to-date I am among the few most respectable lecturers in that institution.*

Social isolation and name-calling

Another attitudinal barrier reported by both students with VI and HI is social isolation, discrimination and name-calling. Students with SI have been given names in society connected with their impairment. Instead of recognising a person by his/her name society, in accordance with the age-old stereotyping, recognise a person by his or her condition/impairment and name the person accordingly. This was demonstrated by P22 who said:

Among the things, I hate most in this university is to be called *binti kiziwi* [a deaf girl], I always tell my fellow students to call me by my name but they never listen (P22, female, UG).

It is apparent that some people in society tend to focus more on an individual's limitation than on their strengths. When they meet a person with an impairment, instead of seeing a person first, they see impairment first. In this regard, they seem to capitalise more on the impairment of a person than on the abilities that individual possesses.

The findings further reveal that non-disabled students isolate students with SI in various academic and non-academic gatherings. In academic matters, these students face numerous difficulties in participating in the group discussions. For example, when they desired to join certain group, most of the time they were rejected. This is exemplified by P23

... Students would not involve me in their group discussions.
I used to be alone most of the time (P23, male, UG).

A similar view was also voiced by P3 who said:

... They (hearing students) will make sure that they meet for discussion without my knowledge to embarrass me during the presentation (P3, male, UG).

From the two statements above, it can be deduced that, students with HI were more victimised by social isolation than those with VI. P3 and P23 are both students with HI. Their statements represent views of others with the same sentiments because from the analysis there were more students with HI who reported social isolation than their counterparts with VI. This discrepancy can be attributed to the communication barrier those with HI have to contend with, as this study has been able to establish. Most of the students with HI, who participated in the study, depended either on lip reading or sign language for communication. The two modes of communication hinder their effective participation in group discussions because most of students without hearing impairment lack skills in sign language, and do not know how to communicate with these students using lip reading.

Social isolation was also reported in HE; it was revealed that some non-disabled students in HE seemed to be more negative and inconsiderate to disabled students than those in lower levels of education. This was remarked by P2 who had this say:

I never experienced this isolation and rejections in my primary and secondary schools as it is today...I face a very big problem of forming a group for different academic activities, whenever I ask a certain group to be a member they will say *We are very sorry we have exceeded the required number...* (P2, male, UG)

P2's description illustrates the kind of hearing students' lack of trust in the academic abilities of students with HI. As explained earlier regarding teachers who perceived students with SI as incapable because of pre-conceived ideas that these individuals are incapable, they

avoided being with them in group discussions as they saw them as a burden. This suggests the perception that students with SI were incapable resulted into social isolation. In other circumstances, some students with HI managed to force their way into a group discussion; however, they faced another form of isolation because they rarely had an opportunity to contribute to a discussion and when they did so their contribution was largely ignored.

The findings of the study also reveal that being involved in a group discussion depends on an individual's ability in academic setting. Those students with SI who are very good academically did not look for a group to join, rather the group invited them to be one of the members and in such a case some students with SI especially those with VI found themselves being invited by more than one group. This was stated by P12 who said:

In this university when they discover that you are good in academics, they will involve you in their group discussions as they are going to benefit from you. For those who are not good, they have a hard time here (P12, female, UG).

This was also supported by another respondent with VI who said:

I never experienced rejection in group assignment or discussion. They even chose me to be a group leader. By the way, so long as you are bright they will involve you in everything (P9, male, PG).

These two comments from students with VI underscore the fact that group discussion is a reciprocal activity and relationship that involved a give-and-take situation. In this regard, those who are good academically, have a higher chance of attracting different groups than those who are moderate and poor in academic study. However, this does not apply to all categories of learning difficulties because those with HI are, nevertheless isolated regardless of their intellectual ability because of their limited communication skills, which hinders their social interaction.

Difficulties in making and keeping friendship

Findings from the study show that some students with SI reported to be lonely in the school environment, dormitories and even at home because they had either few friends or no friend at all to interact with. It was revealed that non-disabled students liked to associate more with other non-disabled students than with their disabled peers. As demonstrated by a student with HI who said:

Negative attitude is my major obstacle. I used to have lots of friends but I lost all of them after this problem. Now I don't have friends at all. My husband is the only friend I have. (P17, female, PG).

Another student with HI claimed:

I have very few friends because of negative attitudes among our fellow non-disabled students. I am very keen on selecting friends. I normally select only those who understand my problem (P16, female, UG).

These two related statements from students with HI indicate that students with HI face more difficulties in making and keeping friendship than students with VI who mostly reported to have a good number of friends as the following statements reveals:

Socialisation is not a problem to me at all. Since secondary school, I used to have lots of friends. Even here at this university, I have uncountable friends; I can interact with almost all sighted students without any problem (P4, male, UG).

P4 attests to the fruits of good socialisation skills among some of the students with VI. The statement also demonstrates the ability of an individual in attracting others to be his/her friends as another determinant when it comes to making and keeping friendship because it was reported that, creating friendship depends not only on academic ability as narrated by P9 and P12, but also on an individual's ability to socialise and attract others to become

friends. However, ability to make and keep friendship can also be determined by personality factors of an individual rather than conditions/impairments. For example, extroverts are more likely to have more friends than introverts. In this regard, the more students with SI interact with non-disabled peers, the more friends they are likely to have and vice-versa.

Summary

Findings on educational barriers of students with SI revealed that L&T resources, as well as teachers/lecturers' exclusionary practices, are major academic barriers encountered by students with SI throughout their studies. Similarly, communication barriers were reported to be the foremost barrier among students with HI due to scarcity of sign language interpreters, hearing aids and difficulties inherent in reading lips of teachers/lecturers during the L&T process. It was also revealed that special primary schools, especially from the 1950s to the late 1990s seemed to have most the resources needed by students with SI compared to inclusive primary which started late in the 1990s, as well as secondary schools, and HEIs. Some similarities and differences were also revealed from data between students with HI and VI as well as between Institution 1 and Institution 2. Institution 1, for example, was found to be far better off in L&T resources than Institution 2. However, both institutions had neither book in large print nor Braille format.

Regarding social barriers, although both groups reported attitudinal barriers, students with HI appeared to be more affected by social isolation and difficulties inherent in making and keeping friendship than their counterparts. Moreover, the teachers' negative perceptions of students with SI were reported to be more pronounced in secondary schools and HE than they were in primary schools. The next chapter presents findings and analysis on coping strategies that students with SI deploy to manage the educational barriers they encountered.

CHAPTER FIVE

FINDINGS AND ANALYSIS:

COPING STRATEGIES OF STUDENTS WITH SENSORY IMPAIRMENT

5.0. Introduction

This chapter presents the findings on coping strategies that students with SI in HE employed throughout their studies. The findings are presented according to the third and fourth research questions as outlined in chapter one subsection 1.6. Seven themes emerged from the analysis of third research question and these are presented into two categories: problem-focused coping (adaptive coping strategies) and emotional-focused coping (non-adaptive coping strategies). The chapter is organised into three subsections. The first two sections (5.1 and 5.2) explain the coping strategies that emerged in the study and their analysis and the last section (5.3) covers the fourth research question on differences in coping strategies in relation to the respondents' demographic characteristics as illustrated in the mind map:

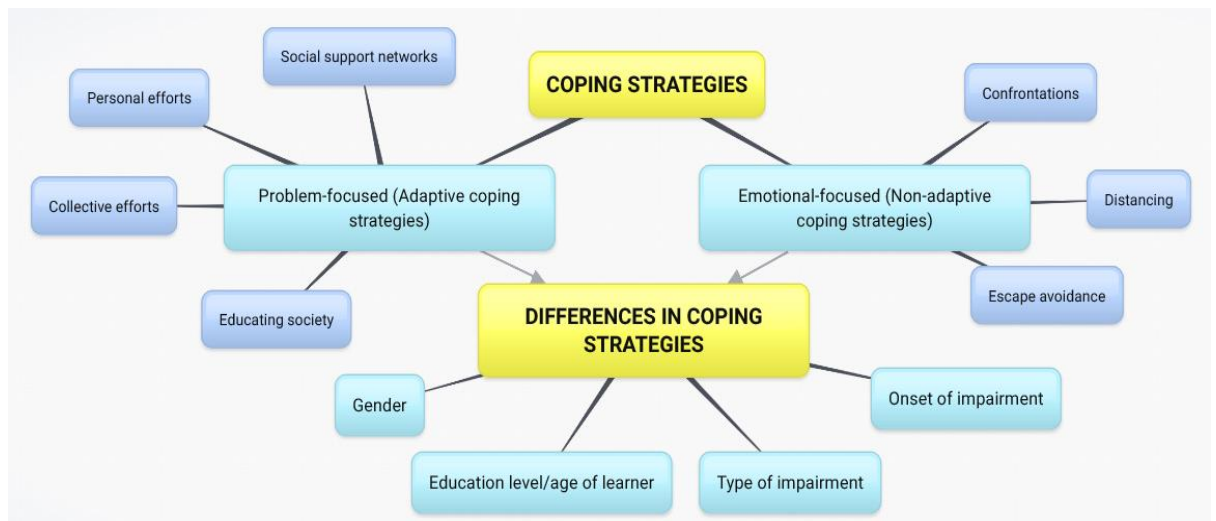


Figure 5.1: Summary of themes and subthemes on coping strategies

5.1. Problem-focused coping (Adaptive coping strategies)

5.1.1 Social support networks

Findings from the study revealed social support networks as one of the problem-focused coping strategies, which assisted students with SI not only to cope with educational barriers but also to adjust in and recover from a stressful situation. Analysis of the findings revealed that, social support networks were commonly used by students with SI to cope with various barriers encountered throughout their studies. These networks include support from parents/spouses, siblings and other relatives, fellow students, readers and note-takers, extra support from teachers, and other external agencies. Social support networks provided material, moral or psychological support to these individuals.

Support from Parents and spouses

Findings from the study revealed that parents play an important role in allowing their disabled children to go to school. In addition, some parents have reportedly been supportive and considerate to their children's' education by paying for extra classes to compensate for what they had missed in the regular classes due to exclusionary practices and lack of resources reported earlier. This was revealed by P3 who said:

If it was not my parents who decided to pay for my extra classes after school, I don't know whether I could have reached higher education because in the classroom I was just neglected... (P3, Male, UG).

Indeed, apart from sending children to school, parents have a role to play of monitoring their children's learning and take necessary measures to make sure that their children compensate for what they missed in the formal curriculum. A similar view was narrated by P17:

...Thank God, my parents were very supportive. My father used to teach me English and Mathematics all the time in my primary and secondary school, whereas my mother used to buy me a lot of books and, therefore, I developed an attitude of depending on books to compensate for what I missed in the classroom (P17, female, PG).

P17's statement suggests that apart from attending extra classes away from home, some of the students were being taught by their parents at home. Moreover, extra classes were coupled with the students' determination to read various books related to subjects/topics covered or expected to be covered in the classrooms. However, the extended parents' support depends as much on their attitudes towards disabled children as their economic status and/or education. Parents can be educated but fail to be supportive because of their poor perception of disabled people, particularly that they are incapable (see subsection 4.3.1). Also, parents can have a good economic position but fail to be supportive to them due to negative attitudes to the effect that investing in the education of disabled students is useless. Thus, positive attitudes are important for parents to provide necessary support to their children.

Extra classes were provided not only to students with HI but also to students with VI:

My parents have sent me to school, paid for my education and also paid for my extra evening classes. The situation in my secondary school was so worse off that I could not make it without private evening classes (P11, female, UG).

This was also supported by P18, who said:

...My father is why I am here today. He once told me that as *far as I live I will make sure that you get an appropriate education, get a job and later get a wife* (P18, male UG).

These two interviewees underscore the importance of extra support from parents in assisting students with SI in coping with the educational barriers they encountered. Apart from

material and monetary support through evening classes, some parents provided their children with psychological support through encouragement and motivation, especially when their children wished to give up their education because of the barriers they encountered. This was voiced out by P2:

I almost dropped out of school when I got this problem, but it was my parents who motivated me to carry on. They told me that there are lots of students at the University of Dar es Salaam with multiple impairments...but they manage their studies... So, they tried to make my problem simple and manageable (P2, male, UG).

This quotation implies that, students with SI, sometimes, needed coping strategies that are focused on emotion to relieve their mind from negative feelings associated with the impairment or the problem itself when they did not have a control over the situation (Lazarus, 1991). Parents' moral and psychological support is among emotional focused coping strategies which assisted students with SI to continue with their studies despite their difficult conditions.

Some spouses were reported to be supportive in the education of their partners. This was demonstrated by P17's comment:

... My husband is the reason I am here in HE, he encouraged and motivated me to continue with tertiary studies. In fact, he personally applied for higher education on my behalf and took me to the university because he believes in my ability. He is the one who is meeting my education costs right now like purchasing all the books I need... (P17, female, PG).

In other words, spouses can play a pivotal role in their partners' lives by providing them with the moral and material support they need for their education. Some disabled students tend to lose hope due to the difficult conditions they encountered. Some face a feeling of learned

helplessness that *no matter how much they try they will still fail*; at times, they need close people to comfort, encourage, and motivate them to move forward and spouses are among these close people. A similar view was reported during FGDs by P18 who acknowledge the support received from his wife in his tertiary education.

Support from siblings and other relatives

Findings from the study show that siblings and other family relatives have a role to play in supporting students with SI to cope with barriers encountered in their educational journey. Some siblings work together with their parents to support their brothers or sisters to progress successfully with their education. In other circumstances siblings, can play a parental role in the family where one or both parents are dead. This was demonstrated by the P2:

...When the situation was worse I could not follow teachers even when seated in front. I had to use my twin brother who was in the same class with me to assist me. We used to have spare time after classes where he assisted me by explaining what I had missed in class (P2, male, UG).

This was also narrated by P3:

In general, my major problem was my inability to follow teaching in the classrooms but my brother was very supportive. He used to teach me different subjects after classes. This helped me to catch up with what I missed in the class (P3, male, UG).

These two interviewees demonstrate that achievement of students with SI does not depend only on parents' support alone, but also on other family members. Collaboration between family members eases the parents' responsibilities for a disabled child. As P2 has narrated, his parents provided him with psychological support whereas his brother taught him to cover the gap left by his teachers. A similar experience was echoed by P25 who demonstrated the usefulness of extended support received from his brother:

... I remember my brother told other family members that, *if I failed to educate all of you, then I will choose only one person because of his condition*, and that person was me and he promised not to get married until I became independent of which he did so... (P25, male, UG).

The supportive brother treated education as the only key to the liberation, particularly for marginalised groups, such as disabled people. Thus, there is a need for parents and other care-givers at the household level to prioritise the available resources for the benefit of this group. This is because disabled people experience lower levels of educational attainment in most developing countries than non-disabled people and, in fact, very few could complete primary education which increases the high level of unemployment among them (Mitra *et al.*, 2011). P25's account also suggests that for individuals with SI and other disabled people to live independent lives, they need to be educated beyond primary education.

Extra support from teachers/Lecturers

Findings from FGDs, interviews as well as the open-ended questionnaire revealed that despite the negative attitudes demonstrated by teachers to students with SI, some teachers were supportive and sensitive to their needs. It was reported that, some teachers provided extra support to these students including arranging extra classes in their offices for students who needed further/extra support to the subject/topic taught. Some teachers were reported to assist students in recording their lectures and provide the tape recorders to the students so that they could listen and compensate what they missed in class. Moreover, some teachers and lecturers provided these students with their lecture notes which assisted students to fill the gaps that occurred during lectures because of exclusionary practices. This is exemplified by the following participant during the FGDs:

I had a teacher in secondary school who was very concerned about the problems I faced in class; she decided to prepare

tape-recordings of different teachers teaching different subjects and gave them to me (P11, female, UG).

The narration from P11 suggests that assisting students with SI cannot necessarily be associated with one being trained or financially well-off, but rather with the willingness and readiness of people to support these students. When teachers are willing to support they can find any possible means through which to assist the students accomplish their goals. The teacher, who assisted P11, used a simple and cheap method of helping the student to cope with teachers' exclusionary practices. Support from teachers was also reported by students with HI who commented:

As the problem slowly became known to the teachers, some of them would voluntarily ask me to sit in front, and some would go further to give me extra classes in their offices to catch up with my fellow students (P1, female, UG).

The teachers who volunteered to provide remedial classes to students with SI were concerned about the classroom challenges these students face. In this case, teachers demonstrated that they were responsible for making sure that all the students learn in the classroom irrespective of the circumstances. In fact, the one-to-one teaching helped the students to cope with communication barriers they faced during the L&T process.

Some teachers assisted students with SI in coping with scarcity of special resources. It was recorded during FGDs that in some schools with scarcity/absence of special resources, some teachers took initiatives of searching for sponsors to purchase some of these resources for students in need. Similarly, other teachers used to seek expertise and equipment from other schools with special unit and equipment. This kind of help was narrated by P15:

... I was so lucky that one teacher from this school who believed in my ability decided to support me by borrowing all equipment and materials I needed from a nearby school

which had students with VI... In addition, all my examination scripts were marked by a trained teacher from the nearby school who volunteered to do so... (P15, female, UG).

This experience suggests that without the teacher's intervention against the absence of special equipment, P15 could have been affected in her educational progress as she had attended a regular school without a special unit and resources. The support the teacher extended allowed her to cope positively with the absence of special resources in that school.

Extra support was also revealed among lecturers:

... There are few lecturers who are very considerate. For example, one lecturer is very friendly and supportive. He would always make sure that I attend his lectures and when I am fail, he would call me and arrange to teach me in his office... (P7, male, UG).

This was also supported by P11's comment:

Thanks to God for the lecturers at (name withheld). Most of them would make sure that they are aware of students with SEN in the class. Usually, whenever they come to class for the first time, they would ask for students with SEN and later meet with them in their office and discuss how they would be of assistance... they also bring our exams on time and provide us with electronic lecture notes... (P11, female, UG).

From the statements by P7 and P11, we can infer that supporting students with VI or others with conditions/impairments does not necessarily require training in special and inclusive education but rather readiness to support these students. The implication is that some teachers use lack of training as an excuse to exclude these students during L& T process.

Support from readers and note-takers

It was revealed in this study that readers and note-takers can have a significant role to students with SI to succeed in Tanzania's inclusive education. Readers play a key role in

assisting students with VI coping with teachers' exclusionary practices, absence of Braille books, information inaccessibility, and environmental barriers. Readers are the "eyes" of students with VI. These students use readers to access information in normal print which includes books and lecture notes. In accessing books, P13 clarified:

When I enter the library, I go to a catalogue and then tell my reader to select a book with a topic which I want. So, in the process of reading different titles of books related to my topic, I will, from time to time, stop him and ask him to note down the title of the book which is very important to me. The reader will collect those books and start reading the table of content for me, when reading and I find there is something good for me, then I will either tell the reader to photocopy that place for me for future use or to note down through my Braille machine at the special unit... (P13, male, PG).

This narration shows that in Tanzania's schools, where libraries lack Braille books, e-books as well as journals, students with VI could hardly progress in their studies without the support from readers or other sighted students. Moreover, readers, as well as note-takers, assist students with SI to cope with teachers' exclusionary classroom practices by providing them with teaching/lecture notes and clarifying some points in cases where the students failed to capture a lecture in class. This was commented by P3:

...In the first three weeks of my university studies it was very difficult until when I was provided with my note-taker. This student is the one who supports me with lecture notes and private study particularly over points I did not understand during the lecture. We normally plan for evening hours for him to assist me and later, he gives me notes to write (P3, male, UG).

To students with HI, especially those facing difficulties in making and keeping friendship, a note-taker becomes very useful in their education. As P3 remarked, before being introduced to the note-taker it was difficult for him to cope in the lecture room due to the communication

barrier. However, the note-taker provided the support he needed to catch up with the rest of the students in academic matters.

Due to the inaccessible school environment documented in section 4.1.5, coupled with lack of orientation and mobility training among students with VI and reckless driving within campuses, readers took the responsibility in supporting these students to master their environment by showing them around and guiding them within their campuses:

The environment at this institution is not user-friendly at all.... The big challenge stems from vehicles which pass within the university. Most drivers do not take precaution of people like us. So, my readers assist me in this (P4, male, UG).

Despite students' state of being used to difficulty environment or being independent in their mobility there are challenging situations that require support from a sighted person which their readers and note-takers play. Moreover, students with VI depend highly on their readers as well as other sighted individuals to access information posted in normal print, such as examination results. However, due to various problems related to the effectiveness of readers and their accessibility, (as documented in subsection 4.2.1 subtitle *barriers to accessing the reader*), some students were very much supported by their friends or other fellow students.

Support from fellow students and friends

Findings from the study show that the majority of the students with SI were able to cope with various barriers using the support they received from their friends or other fellow students. These barriers include teachers' exclusionary practices in the classrooms, information inaccessibility, inaccessible environment, absence of Braille books and communication barriers. It was further documented that those students with many friends coped better in various situations than those with few or without friends. Friends and other

fellow students acted as readers to students with VI and note-takers to students with HI. Thus, they assumed all the roles that were supposed to be performed by readers and note-takers and, sometimes, they were reported to be more effective and supportive than the assigned readers and note-takers. The study revealed that, students who acted as readers/note-takers did this work out of goodwill and friendship, whereas some of the assigned readers/note-takers were very much interested in the payment or privileges they received from undertaking this work than the work itself (see subsection 4.2.1). In this regard, P17 demonstrated:

...In HE it was very difficult for me to cope; I remember the first week I attended lectures but could not write anything... Two weeks later we had a test and I got 8 out of 20; I felt very bad. I thank God that later, I got two of my fellow students who were in-service teachers... One of them decided to be my note-taker in every subject. They also informed other students about how to assist me. These two students gave me very good support which assisted me to perform well in my undergraduate studies (P17, female, PG).

The remark from P17 shows how important fellow students are in the academic progress of disabled students. As a student with HI, P17 could not follow her lectures due to the apparent communication barrier she encountered. Without the support received from her fellow students the situation could be even more difficult as the institution did not offer any means of supporting students with HI. In addition, some students seeking support from their fellows were keen on who they choose they did not take support from just any student but rather they selected those who were either brighter or who had good hand-write.

Similarly, it was found that group discussions were useful for students with SI and particularly those with VI. Findings from FGDs revealed that students with VI used group discussions more frequently in coping with teachers' exclusionary practices and scarcity of L&T resources than other strategies such as using their readers. For example, in situations

where students had Perkins Braille without Braille papers they would ask sighted students to discuss with them whatever they had learnt in class. Similarly, the absence of literature books in Braille format such as novels forced students to use group discussions to go through the themes, characterisation and organisation of a literary work. This was revealed by P15 who said:

Group discussions with sighted students assisted us a lot in answering examination questions because sometimes we did not have our own notes written in Braille due to shortage of Perkins Braille machines (P15, female, UG).

The use of group discussions was also reported by P11:

There are no books in Braille format, as said earlier we depend on sighted students in group discussions. So, we just ask sighted students to elaborate for us what they have read (P11, female, UG).

P11's narration shows how important it is for disabled students to interact with other fellow non-disabled students. Through such interactions such as group discussions the students were able to obtain academic support. However, it was also reported during FGDs that to be involved in a group depends on what the student with SI has to offer in the group and how active the student is during discussion.

Support from Non-governmental and religious organisations

The study findings revealed that some non-governmental and religious organisations played a role in supporting the education of students with SI. It was revealed that some religious organisations provided sponsorship in terms of tuition fees and other educational costs for some students with VI as reported by P21:

I used different means to secure funds for my education like churches, ordinary people and government through local councils. For example, it was funds from a certain church that paid my tuition fee in the whole period of my secondary school. But those who could not convince people/organisations to support their education ended up in

primary school or dropout at Form One or Two in their secondary education (P21, male, UG).

This quotation shows that students from poor family backgrounds needed different sources of support such as religious organisations to support their education. Similarly, NGOs such as the Tanzania League of the Blind (TLB) as well as Sight Savers International (SSI) were reported to be very supportive in the education of students with VI. Among other things, TLB, as well as SSI, funded a programme on Information and Communication Technology (ICT) and assistive technology skills for individuals with VI, which equipped some students with VI with computer skills. This was documented by P21 thusly:

I learnt computer at Mwereni Moshi, where I got some basics in computer, then in Dar es Salaam and later on in Kenya. The training was funded by Sight Savers international. Really, I am very gratefully to these people (P21, male, UG).

A similar view was echoed by P9 who narrated:

I learnt computer and the software through Tanzania league for blind in collaboration with Open University of Tanzania, Sight Savers International and freedom scientific (P9, male, PG).

Assistive technologies, as well as computer skills are essential for students with VI as they use these skills in coping with absence of Braille books that persists in Tanzania's education system. With assistive technologies, these students access books and articles in normal print and search for materials from the Internet. However, findings from the study revealed that most students with VI in Tanzania were computer illiterate and majority of the education institutions faced an acute shortage of computer resources and special computer program for students with VI. The two narrations attest to the personal efforts that went into learning computer skills for students with VI in HE, as well as the kind of support the students

received from outside the academic institution. What emerges from this testimony is that such computer training was not necessarily the concern of the higher education authorities where they were learning. Support from outside the academic institution tends to rely much on how an individual is exposed to various non-governmental organisations which offer such support as well as one's social networking.

5.1.2 Collective efforts of students with SI

Sharing the available resources

It was revealed in the FGDs that students with VI used to share available resources to cope with the scarcity of learning and teaching resources. For the shortage of Braille machine and typewriters these students used to allocate time amongst themselves to utilise the equipment in turn for writing notes. However, this was different during examinations. It was reported that students scrambled for the equipment available since each one would like to finish his or her examination early to have ample preparation time for the next exam:

In exam, we scrambled for the Braille machine and if you don't get one you will end up using Braille interlining frame which is very time consuming (P10, female, UG).

Regarding Braille papers, these students used to distribute them equally as it is described by P25 during an interview:

... We have been provided with only one ream of papers to be shared among the five of us for the whole semester (P25, male, UG).

These two statements demonstrated that, students tried to cope with the barriers encountered collectively and utilise resources available for the benefit of all students in need. As such, they exercised a communal method of life in which everything available in society is shared among its members. However, sharing the available resources was not possible when the

problem was critical. In this situation, students used the division of labour as a coping strategy.

Division of labour

Division of labour was one of the collective strategies used by these students to cope with acute shortage of Braille machines and Braille papers. It was reported that instead of each student writing notes in Braille format for every subject, they distributed the subjects amongst themselves so that each one was assigned specific subject(s) to write notes on behalf of the group. Thereafter they shared copies of Braille notes with the rest of the students in the group. Under this division of labour, one student was not assigned more than two subjects in a year. This arrangement was voiced out during an FGD by P4:

It was difficult for each student to write all the notes alone...we did not have enough resources, so each student was given his/her subject to write notes on behalf of the group (P4, male, UG).

In a very critical situation when the institution had only one Braille machine, one student with high typing speed was assigned to write notes of all subjects and others would borrow this copy in turns until all the students had produced their own copies for each subject. In addition, due to the acute shortage of Braille papers students with VI used to collect files of previous lecture notes written in Braille format from their fellow blind students in advanced classes. Similarly, students with HI reported that, when they faced a communication barrier during L&T process they compensated this shortcoming by reading notes of their fellow hearing students who were in advanced classes. Collective efforts were also used by these students to cope with absence of literature books in Braille format. Using this strategy, these students requested sighted students to read the literature book aloud and recorded them. Later, they assembled to listen to the tape-recorded material.

5.1.3 Personal efforts of students with SI

Findings from the study revealed that personal effort is important in coping with educational barriers of students with SI. Social support networks and collective efforts work effectively when personal efforts are combined for sustainable outcome. In other words, parents may send a child to evening classes and purchase lot of books; however, without personal effort to study and read those books such support would be in vain. Personal effort of students with SI are divided into two categories: general personal effort and specific personal effort. General personal effort are strategies students use to cope with more than one barrier. On the other hand, specific personal effort are strategies students use to cope with a specific barrier. The following are examples of general personal effort that emerged from the FGDs, interviews, and open-ended questionnaire.

I. General personal effort

Determination and persistence

It was reported that coping with educational barriers prevalent in Tanzania's education system demanded a student with SI to be determined and persistent. Such a student needs to be aware of *who s/he wants to become in future*. This awareness motivated students with SI to work hard and use the support available effectively to fulfil their ambitions. This was reported by P21:

I wanted to have an independent life as well as a family and there was no any way that I could be independent and marry someone without having a good employment. This inspired me to work very hard (P21, male, UG).

What motivated P21 to fight for his education despite the barriers he faced was his ambition to be independent and have a family. This determination gave him energy to be persistent to

sustain all the hindrances that came his way. This was also documented in the questionnaire by a student with HI who noted:

I never gave up in any difficult condition I faced in life. I would make sure that I struggled until I got the solutions to my problems (P17, female, PG).

This statement suggests that coping with any stressful situation in life needs personal drive and persistence. The statement *never gave up* entails that P17 was determined in what she desired to achieve in life and she was also persistent, which gave her the ability to endure pain for maximum output. Being determined was also demonstrated by the students' ability to set high objectives in life. This was revealed during the FGDs, for example:

"I normally set high objectives in my studies this is why I get high performance" (P4, male, UG).

This statement shows that objectives individual sets in life become a driving force towards achieving them. Indeed, high objectives demand a high driving force and vice-versa. In other words, a person who sets high objectives will need to invest more effort, energy and support to achieve them than a person with moderate or low objectives. In the school environment, the effort to be expended by a student aiming to attain a distinction in academic performance will not be the same as the one aiming merely to pass.

Reading books

Findings from the open-ended questionnaire and interviews revealed that students with HI coped with communication barriers and teachers' exclusionary practices during the L&T process by reading books related to their subject matter. It was revealed that some students read certain topics prior to their being introduced in class. By doing so, they managed to

cover all the gaps resulted from teachers'/lecturers' exclusionary practices. This was documented in questionnaire as well during an interview with P1 who said:

Reading books helped me a lot with my hearing problem. I would search for a book and read the next topic in advance and if it happens that some parts of this new topic have some difficulties in understanding, I would ask my friend who is in the higher class for help (P1, female, UG).

A similar view was advanced by P17:

My education depends on reading books. So, I needed to have enough money to buy as many books as possible to catch up with other students in my class (P17, female, PG).

These two accounts reveal that coping strategies depend on the nature of impairment itself. Whereas students with VI cope with teachers' exclusionary practices by using audio methods like listening to tape-records and participating in group discussions, students with HI depend more on reading books. However, reading can be limited by the availability of books in the school and financial background of the student. P1 attended her secondary education in a private school, where they had a good library with enough books. Her coping strategy was supported by the availability of books in the school. P17 who attended her secondary education in a public school facing a scarcity of books benefited from her parents who bought the books she needed (see subsection 5.1 *Support from Parents*).

Apart from reading books, students with HI, especially those in urban areas, used to buy and read different handouts related to their subjects of their interest. Similarly, some students with VI who are computer literate reportedly read books using assistive technology in addition to searching for materials from the Internet. This revelation came from P8 during the FGDs:

During my secondary school, I depended much on my fellow students but in higher education I use Internet to search for materials and compensate for what I miss during the lectures (P8, male, UG).

P8's statement shows that coping strategies can change with time and situations in which the barrier occurred. During secondary schools, many students are still too naïve to look for various coping strategies on the difficulties they faced and, thus, depended much on the support they received from others. However, as they mature and are exposed to technology their coping strategies become more specific and independent.

Active participation in class and group discussions

One example of the personal effort used by students with SI to cope with the exclusionary practices during L&T process as well as rejections in group discussions was to be active. It was reported that, teachers in primary and secondary schools tend to involve students who participate in class rather than those who do not. Thus, the only way to be involved during teaching is for them to participate fully in the whole teaching and learning process, particularly during group discussions, where most of the ordinary students tend to work together with those they believe add value to the group discussion, as confirmed by P4 during the FGDs:

I was involved in the class because of my active participation during teaching. I was always active in the class through asking and answering questions (P4, male, UG).

This statement implies that active involvement in class made it easy for other students to reach a decision on whether to involve them in the group discussions as well. Students' experience revealed that those who were passive remained uninvolved throughout their studies. This was also confirmed during interview by the same respondent:

... However, later, after realising that we were answering questions and sometimes more than ordinary students, then it is when they [teachers] decided to involve us. Otherwise, other VI students who were not active in class would remain uninvolved for the whole term (P4, male, UG).

The implication is that in the Tanzanian educational system, students with SI tend to become involved in the class and group discussions depending on their personal effort rather than on the teachers. A similar view was also captured in P12's accounts (see section 4.3.1 subtitle *social isolation and name calling*) when explaining social isolation in group discussions that it favours those who are active and good academically. This implies that, group discussions depend on the reciprocal relationships that is, give-and-take. Each party needs to benefit from the process. Thus, for a student with SI to be involved in such group discussions he or she needs to convince other members that they will also benefit from him/her. This was also documented by a student with HI in the open-ended questionnaire:

In secondary school, I did not face difficulties in group discussions because I was very good in Mathematics and most students were very weak, so they befriended me to get assistance (P3, male, UG).

Being active coupled with special ability served as a passport for inclusion and participation with non-disabled students when it comes to students with SI and other with condition/impairments in group discussions.

Positive reappraisal

i. Accepting your condition/impairment

Findings from the study revealed that the first step into successful coping with various educational barriers for students with SI was to accept their impairment. Accepting their impairment allowed them to identify what they can do, thus capitalising on their abilities rather than on their weakness. In this study, this is perceived to be a good emotional- focused

coping strategy as it helped individuals to release their negative feelings associated with the impairment (refer comments from P5, P17, and P21 in the following pages). By doing so, students with SI reportedly developed the ability to interact with non-disabled students and to make as many friends as necessary. Moreover, some students with SI were not discouraged by their impairment and, therefore, they forced their way into various group discussions until they became accepted. It was reported during the FGDs, interviews and open-ended questionnaire that those who accepted their impairment coped well with negative attitudes from other people. Apart from being able to make and keep friends, as well as forcing themselves into groups, these students perceived those who treat them negatively as ignorant of disabled people. This is demonstrated in P10's remark:

The other way to defeat negative attitudes is to perceive a person who treats you negatively as ignorant when it comes to people with conditions/impairments (P10, Female, UG).

Findings from the study further show that those who perceived their impairment as part of their self-identity/self-image coped better in difficult situations than those who perceived their impairment as a hindrance to achieving their respective goals. As documented in the discussion chapter, accepting one's condition/impairment tends to foster positive feelings of an individual's bodily image which, in turn, translates into positive self-concept. Indeed, those who reported to have a positive perception of their "self" were eager to struggle for the solutions of their problems, as they believed that the problem encountered did not result from their impairment but rather from the way the education system was organised. This opinion was also reported in a questionnaire by P17:

The moment I managed to accept my impairment [as an HI] I was able to focus on my studies and fight against whatever difficulties I faced (P17, female, PG).

This statement suggests that, accepting one's impairment is a process, not something which takes place overnight. Thus, students with SI and others with conditions/impairments require psychological support on how they can accept their conditions/impairments and move forward. For the process to be effective there should be collaboration between family members and teachers. At the family level, parents and other relatives should provide moral and psychological support to their children. At the school level, there should be special guidance and counselling services for students with various conditions/impairments, aimed at equipping them with skills in managing difficult situations irrespective of their conditions. Similarly, the statement from P17 attests to the student's understanding that failure to accept one's impairment can hinder an individual's focus in his/her studies and ability to deal with difficult situations. This is also exemplified by P5 who said:

...I was scared to be known as a person with a disability [impairment]. Even special unit staff were not aware of my problem. I used to avoid my fellow students in different activities to hide my problem which resulted into discontinuation from my studies due to poor performance. Even now, I am not ready to expose my disability[impairment]... (P5, male, UG).

This statement exposes the negative outcome of a student with VI who failed to accept his impairment. This suggests that failure to accept one's impairment can result in poor performance due to lack of concentration which, in turn, can lead a student fail or dropout. P21 also reinforces the view that accepting one's own impairment is a key to successful coping:

... Being blind is not a problem to me at all as far as I can accomplish my goals in life. If there is something that I could ask God for is to live a comfortable life but not to be able to see (P21, male, UG).

In other words, P21 perceives blindness as part of his identity and not a setback in the pursuit of his goal. To him a comfortable life is what matters more than the ability to see. In this regard, individuals' success in life is not associated with their ability to see but rather with their efforts towards achieving their set goals.

ii. Perceiving impairment as an opportunity rather than as a problem

Findings from the study show that some students coped with the negative perception from teachers and other people namely that they are incapable by perceiving their impairment as an opportunity to show their abilities. These students believed that to be an exemplary individual, for doing a job well or good performance is the only way to changing the society's negative attitudes towards students with SI and others with conditions/impairments. This was voiced during interview by P9 who said:

... There are evaluation forms here whereby students evaluate their lecturers [I am a lecturer too], when [the management] find positive recommendations from students, and that you have been ranked higher, [then to me I see] that as the first point to defeat negativity (P9, male, PG).

The statement above demonstrates how positive self-perception towards one's impairment can overcome the society's negative attitudes. The more students with SI believed in their abilities the more other people changed their perceptions towards them. A similar opinion was echoed in P13's remark, when describing students' disapproval of him as a blind lecturer (see section 4.3.1 subtitle *to be perceived as incapable*). It was revealed that at the beginning, students were not positive and receptive to having a lecturer who was blind. However, the perception did not affect his work; instead he seized it as an opportunity to show his ability and he managed to overcome negative attitudes from his students. A similar experience was reported during FGDs by another student with VI:

... My parents never believed in my ability since my childhood. First of all, since my lower level education they used to discourage me by saying that *do you think you will pass your National Form four exams with your condition? You are just wasting your time and energy*. Thanks God I managed to prove them wrong... (P11, female, UG).

The implication is that students with SI have the power to desist from accepting discouragement from people around them. As for P11, she decided to use her impairment as an opportunity to show her parents what she is capable by studying hard and reaching HE. This is represented by her statement *thanks to God I managed to prove them wrong*. This means that her achievement to being accepted to HE was not accidental; she had worked hard to attain her rewards. Indeed, she worked hard to prove, not only her parents, but also the society as a whole wrong. This was also supported by a student with HI who reported in the questionnaire:

Rejections and negative attitudes gave me confidence to work hard so that to prove them wrong on what they believe on my ability (P17, female, PG).

The statement highlights that not all the students with SI responded negatively to social rejections and negative attitudes. Whereas some students felt insecure and inferior when they were rejected and perceived as incapable, others used social rejection as an opportunity for boosting their confidence to work hard and achieve their set goals. This suggests that in social rejections and negative attitudes, there can be two alternative outcomes: it is either to take it as an opportunity to show your abilities or accept it and perish.

II. Specific personal efforts of students with SI

i. Coping with inaccessible environment

Creating mental picture of an area

Findings from FGDs revealed that apart from using readers and their fellow students to cope with inaccessible environment, students with VI also struggled to create a mental picture of a given area. The mental picture of an area assisted them to identify locations of physical and manmade features in their environment. These include the presence of hills, steep slopes, ditches, broken stairs and any other object in the environment. Awareness of various objects and features surrounding their environment enabled them to be more independent. This was demonstrated by P8 during FGDs who said:

What I always do in a new environment is to be inquisitive when walking around with sighted person; I try to be aware of what things are available on and around my way (P8, male, UG).

This statement refers to personal effort geared towards mastering the environment. Although some students with VI depended solely on a human guide in their mobility, other students wished to be independent; they used the human guide when they were new in the environment to assist them to develop their mental picture. The statement *to be inquisitive* represents the students' efforts in asking a sighted person on important objects that surrounded his environment. A similar experience was reported by P9 during interview:

... After being oriented with my friend every now and then after some time I developed a mental map and being able to walk comfortably even without a white cane. You know what, when you become familiar with the environment you can even run without a problem... (P9, male, PG).

This statement implies that a mental map of an area assists students with VI, not only to cope with inaccessible environment, but also to reduce over-dependence on sighted people in their

mobility. The experience of P9 reveals that, when students with VI become aware of the features surrounding their school environment, they develop a capability to move from one place to another just like any other ordinary person.

Similarly, some students cope with an inaccessible environment by familiarising themselves with one route before looking for alternatives ones. It was reported that one of the strategies for coping with an inaccessible environment is to avoid using more than one route before mastering one simple route. However, students differed in what they meant by *a simple route*. Whereas some students perceived a simple route as the one with a short distance to their destination, others perceived it as the one with few and manageable obstacles. The latter suggests that a route which is shorter in terms of distance but has many obstacles on the way is not categorised as a simple route for students with VI.

ii. Coping with exemption to learn Mathematics and Science subjects

Shifting interest to alternative subject/career

Findings from the study revealed that some students with SI who had an interest in science career, had to shift their interests to social sciences (see chapter four subsection 4.2.5). This was reported during the FGD:

I wanted to be a medical doctor but our curriculum denied me access. I tried to force myself into Science and Mathematics classes; however, I could not make it due to lack of special resources and poor teaching methodology. I had no choice but to shift my interest to arts subjects (P8, male, UG).

This setback underscores the value of the curriculum in nurturing ones' career. P8 was eager to become a medical doctor, but his interest could not be fulfilled due to the nature of the curriculum and the teaching methodology which failed to co-opt students with SI. His

statement *I tried to force myself ...however I could not make it* indicates that the current curriculum is not structured to prepare students with VI in the science career. Therefore, the system relies on the ability and perseverance of the student to develop a career. Similarly, it was documented, in the previous chapter that due to the inappropriate grading system in Biology and Agriculture subjects, students with VI were awarded either a *D* or an *F* grade which, in turn, influenced their final performance. Thus, to overcome low division classification because of a failure in those two subjects some students made more effort in other subjects. This was echoed by P13's comment:

... Alternatively, we developed interest in English subject, a subject which in most government-oriented schools was difficult for most students but for us with VI it became a very friendly subject because we took that as an alternative when we found that it was difficult to learn Mathematics (P13, male PG).

This statement suggests that some students with VI shifted their interest from Mathematics to English for two reasons. First, they did so to improve their final performance, which could be affected by Biology results and the penalty incurred in Mathematics. They also wanted to be competitive with sighted students who had an opportunity to learn Mathematics and attend Biology practical sessions but happened to be poor in English. A similar view was reported by a student with HI who said:

... Challenges in the medical field are so much for people with HI, particularly during practical or in operation rooms where all doctors are required to wear mouth masks. In such a case, I could not read anyone's lips... For that reason, I saw teaching as the only profession I could manage to opt for as my career (P3, male, UG).

P3 implies that while some students with VI changed their career interest because of being denied access to learning science-based subjects, students with HI had access to science

subjects but some did not opt for science-based subjects because of their communication barriers and nature of the career itself.

iii. Coping with the problems of typewriters

The use of carbon paper and being extra attentive during typing

Findings from the study revealed two major problems of using typewriters for students with VI (see subsections 4.2.1). It was reported during an interview that to avoid producing an empty answer sheet during examinations, in fact, some students with VI used carbon paper during typing to produce two copies of answer sheets. Doing so, students encountering any problem with the first copy could submit the second one. With regard to the inability to edit their work when using typewriters, P9 said:

You need to be very keen during typing to minimise typographical errors and if you make mistake you have to cancel and rewrite (P9, male, PG).

In other words, for a student with VI to reduce typographical errors when using typewriters, he or she needs to be extra-careful during typing. However, teachers need to be always considerate during marking, especially tolerating the mistakes resulting from the students' inability to edit their work.

iv. Coping with communication barrier

Pen and paper strategy

The findings from the study show that some students with HI who encounter a communication barrier with people in society managed to cope with the problem by using a pen and paper technique. This technique allows a student to write down what s/he wants to communicate to the second party and the second party will respond accordingly in the same manner. This was commented by P22:

In places, such as the hospital where medical practitioners are not familiar with sign language I normally communicate through writing on a piece of paper and the doctor or nurse will ask me questions related to my illness using the same technique (P22, female, UG).

This was also voiced by another student with HI:

I normally communicate through writing when I am at the bank. So before asking for any services, I would tell a bank teller that I have HI. Thereafter we communicate through writing on a piece of paper (P23, male, UG).

These two quotations entail that students with HI do not solely depend on lip reading and sign language for communication as revealed in the analysis; they also have other options to achieve their goals when they encounter difficulties in using lip reading and sign language. Medical services and financial transactions in banks involve communication between two people; a service provider and a client. In such cases, communicating through a pen and paper becomes imperative. The same technique can also be extended to their fellow students and it can be useful, particularly for those who are isolated because of a communication barrier.

5.1.4 Educating the Tanzanian society

Findings from the study revealed that some students with SI went a step further in managing societal negative attitudes towards disabled people by educating them on what disabled people can/cannot do and how to communicate with them. Whereas students with HI educated their fellows on how they can communicate with them through lip reading and sign language, students with VI educated people on how people with VI can be productive in society and live an independent life. It was reported during the FGDs that some people behaved negatively because of ignorance; however, after being educated they changed their attitudes towards these students. Similarly, some students with HI who faced a

communication barrier when interacting with their fellow students managed to reduce the problem after educating them on how to communicate with them. This was reported in the questionnaire by P1:

I have decided to be open to my fellow students that I have a problem and educate them on how to communicate with me, that is, to speak loud with pauses while looking at face to face... (P1, female, UG).

This was also supported by another HI student who commented:

My fellow students used to reject me in group discussions, thinking that I have nothing to contribute until when I decided to educate them that being HI does not mean low Intelligent Quotient as there is no association between HI and intelligence (P22 female, UG).

These two statements suggest that a society needs to be aware of people with various conditions/impairments, as social awareness provides them with knowledge on how to interact with disabled people. As for those with HI since it is not easy for other people in society to identify whether an individual has HI by merely look, being open is the first step towards coping with the problem. The tendency of P1 and P22 to provide basic knowledge to their fellows on HI and how to communicate with them entails that they associated barriers they encountered with society's ignorance on handling individuals with HI and not their impairment. This was also supported by students with VI as narrated by P21:

... In most cases, I would ask for funds from the head of school and prepare a social gathering and call all the students and villagers around our school to come together and do something together... So, we used that platform to educate them about disabled people. For example, in extra-curriculum day we used to arrange participants in groups of two: one with and the other without disability[impairment] so that visitors could see how and in what capacity disabled students could do something. This has been very useful such that to date people along my village have no problem with us anymore (P21, male, UG).

What P21 highlights is the importance of education in managing a society's negative attitudes towards disabled people. This suggests that education provides cognitive information on disabled people which help to correct whatever negative belief the society has against these people, as belief influence people's attitudes towards an object, situation or person (Fishbein and Ajzen, 1975). In addition, social events organised by P21 and school management exposed society to people with VI, which in turn changed the society's negative attitudes towards disabled people. This implies that sustained exposure of an individual to a stimulus enhances his/her attitude towards it (Zajonc, 1968).

5.2. Emotional-coping strategies (Non-adaptive coping strategies)

5.2.1 Distancing

Findings from the FGDs revealed that some students with SI coped with society's negative attitude by distancing themselves from a problem. Students did this through mental disengagement. Mental disengagement involves a range of activities that distract the person from thinking about the problem (Carver *et al.* 1989). Students with SI used mental disengagement to ignore negative statements and actions directed towards them by not paying attention to the statements or not taking those negative statements and actions directed towards them seriously. This kind of emotional-coping strategy constitutes non-adoptive coping because, they do not provide solutions to the problem, rather they helped them to avoid/reduce negative feelings such as insecurity resulting from negative treatment from other people. This was narrated by P8 during FGD who said:

I used to ignore a lot of negative statements from peers, teachers and other members of the family. [I can remember some] statements such as *do you think you can reach far with that condition; I think you are wasting your time; and how come a blind person get high score than you?* (P8, male, UG).

P8 implies that negative statements from other people have no effect on an individual unless individual attaches meaning to those statements. This entails that what affects disabled students is not negative statements but their interpretation or reactions to those statements. As this study, has revealed some students with SI managed to deal with some negative attitudes by ignoring them; they continued with their studies as if they were not being perceived negatively by others. This implies that the meaning that we attach to the stimulus influences our reactions towards the stimulus (Lazarus, 1991). As P8 remarked, the tendency to disregard negative statements can assist anyone in overcoming negative attitudes from other people. A similar notion was narrated by a student with HI:

...To me the other way not to be affected by rejections and negative attitudes is to ignore all the people who treat me negatively. You know sometimes people take advantage of my condition and say nasty things in my presence as they believe that I cannot hear them. They don't know that I can read their lips. In such a situation, I also do the same, pretending not to be aware of what they said (P17, female, PG).

This was also supported by another student with HI who reported in the questionnaire:

I used to be affected by social rejections but now I am trying my level best to ignore them (P3, male, UG).

What P17 and P3 above suggest is that, although some coping strategies are constructive as they led an individual to adaptive coping such as determination and persistence, other coping strategies such as distancing are negative coping strategies (non-adaptive) as they do not assist a person to adjust to a new situation (Forkman and Lazarus 1988; Givorn and court, 2010).

5.2.2 Escape-avoidance strategy

Findings from the study revealed that the escape-avoidance strategy was used by students with SI to cope with social rejections, negative attitudes and communication barriers by using behaviour disengagement. Behaviour disengagement occurs when individuals encounter feelings of helplessness, especially when they expect poor coping outcomes, thus they tend to reduce or give up overcoming the situation (Carver *et al.* 1989). In this regard, these students avoided all situations which involved interactions with non-disabled students, such as evading group discussions involving non-disabled peers. Similarly, to cope with communication barriers, some students with HI avoided all situations that demanded the processing of linguistic information through hearing.

The study findings further revealed that the avoidance strategy was reported more by students with HI than those with VI due to the communication barrier they faced. This was revealed during interview thusly:

I tried my level best to avoid all debates in groups or ask any thing in the class because of the hearing problem (P2, male, UG).

This was also supported by another HI student who said:

...They labelled me with stigmatised names and as a result I lost all my friends. It affected me a lot during my primary and secondary education. But now I do not care anymore; I am used to being alone (P17, female, PG).

The two statements attest to the importance of emotional-focused coping strategies when an individual has no control over the situations. Due to the communication barrier students with HI faced, some of them decided to isolate themselves from participation in debates and group discussions to avoid embarrassing themselves caused by their inability to hear.

Moreover, some students with HI seemed to give up taking the initiative to interact with hearing students after experiencing negative attitudes. This is represented by P17 statements who asserted that *now I do not care anymore, I am used to being alone*. This statement indicates that P17 is not concerned about her state of being alone as she is used to it; she has abandoned the effort to socialise with hearing students. This may strengthen her behaviour of isolating herself from her fellow students to avoid negative treatments. As said earlier, this kind of coping strategy of disengaging oneself from the problem does not lead an individual to adoptive coping (Carver *et al.* 1989; Givorn and court, 2009).

5.2.3 Confrontations

Findings from the study revealed that when negative attitudes from people became too much to bear some students reacted in an aggressive manner against those who treated them negatively. This was narrated by P22:

My fellow students used to criticise every point that I contributed during the group discussion but I managed that behaviour by confronting them until they understand and accept my decision or assist me (P22, female, UG).

This was also supported by another HI student who said:

Sometimes, we quarrelled with our fellow students to be accepted in group discussions. If you accept every rejection you may end up doing an assignment alone. Being aggressive assisted me to manage social rejections (P20, male, UG).

These two statements suggest that on some occasions students with SI deployed an aggressive approach to overcome negative treatment from other people. This indicates that coping can involve both adaptive and maladaptive strategies to manage the situation at hand (Thompson *et al.*, 2007). Maladaptive strategies include the use of hostile reactions such as aggressive behaviour to a person who caused the problem (*ibid.*).

Students with VI also reported the use of confrontation in managing some of the exclusion practices and negative treatment from their teachers/lecturers. It was reported that during the L&T process when teachers use language that excluded these students, they usually reacted in unfriendly manner to force the teacher to change the language. Similarly, some students with VI also employed confrontation strategy to manage lecturers' negative treatment:

... One day one of our lecturers decided not to bring the exam in the usual place. Instead, he asked us to carry our Braille machines and go to another campus to do the exam. We confronted the lecturer and refused to go because we could not carry our machines over such a long distance of about 20-minute walk without transport prepared for that purpose (P21, male, UG).

The implication is that students with SI did not only adopt aggressive behaviours to manage negative treatment from their fellow students but also to overcome exclusionary practices and undesirable conduct from their teachers. This suggests that there are other situations when maladaptive coping assists individuals to overcome their problems. P21's narration shows that they could not accept carrying their machines to another campus; they wouldn't allow similar behaviour to repeat itself in future not only with the same lecturer but also with other lecturers. In other words, their confrontations helped to solve their problem at hand and prevented other lecturers from mistreating them in future.

5.3. Differences in coping strategies in relation to the respondents' demographic characteristics

5.3.1 Coping strategies in relation to gender

Findings from the study revealed that female students relied more on social support networks in some of the barriers, such as coping with inaccessible environment than male students. On the one hand, female students felt more secure to be accompanied by their reader or a friend to aid their mobility throughout their studies. On the other hand, male students

reported to use sighted individuals at the beginning and later they struggled to create a mental picture of an area so that they could reduce their over-dependence on sighted students and be independent in their mobility. This can be represented by the following two quotations:

What I always do in a new environment is to be inquisitive when walking around with a sighted person; I try to be aware of what things are available on and around my way (P8, male, UG).

Similar opinion was narrated by P9:

... After being oriented with my friend every now and then after some time, I developed a mental map and was able to walk comfortably even without a white cane... (P9, male, PG).

These two statements from male students attest their desire to be independent in the mobility and reduce their over-dependence on sighted individuals. Being independent in their mobility gave individuals with VI freedom to plan their daily routine without bothering another person to guide them. This is different for students with VI who depend much on the human guide in their mobility as the following quotations from female students demonstrate:

The only area that I can move comfortably in this university is from my hall of residence to the Special Education Unit and to the cafeteria (P11, female, UG).

This was echoed by another female interviewee who said:

... You can't imagine I am in my third year now but there are very few places that I can go to without assistance (P15, female, UG).

These two statements were made by female students who were in their final semester of completing their three-year undergraduate studies. Despite being on the campus for three consecutive years, they had managed only to master very few places on the campus. This suggests over-dependence of these students on the social support in coping with the inaccessible environment, which hindered their ability to create a mental picture of different

areas as compared to their male students. The female students seemed to face more difficulties in coping with the inaccessible environment than male students because they perceive safety and insecurity differently. Viswanath (see Lambrick and Rainero, 2010) reported that, women and girls tend to avoid an environment they perceived as threatening. For example, women were found to stop going out alone after dark whereas men did not. Thus, the feeling of insecurity among women over the threatening environment can be used to explain differences revealed between female students and male students with VI in coping with an inaccessible environment.

Although both male and female students reported negative treatment from others, female students reported to be more concerned about the negative attitudes than their male counterparts. Similarly, more female students perceived the negative attitudes as a threat to their goal attainment than their male counterparts who appraised it as a challenge to be taken head-on as the following quotation demonstrates:

The big problem that I faced is social rejection because I was rejected by my teachers in secondary school, my fellow students used to laugh at me even other people. Social rejection is a barrier for us to achieve our objectives (P17, female, PG).

The statement above implies that P17 was very much more affected by the society's negative attitudes than other barriers such as communication. Moreover, she associated negative attitudes with her condition of being hearing-impaired and not the society's ignorance on the people with HI and other conditions/impairments. Similarly, social rejections were perceived as a threat to her objectives. This may suggest that female disabled students seem to be more sensitive to other people's attitudes towards them than their male student counterparts as echoed in P21's comment:

...Being blind is not a problem to me at all as far as I can accomplish my goals in life (P21, male, UG).

In other words, P21 is not troubled by his condition of being a person with VI; he is not concerned about what others think or talk about his condition as far as he could accomplish his goals. This suggests that, negative attitude and social rejections are perceived as a challenge rather than a threat, as voiced by P17 above.

5.3.2. Coping strategies in relation to education level/age of the learner

Findings from the study revealed that students with SI relied more on social support networks and collective effort in coping with various barriers encountered during lower educational levels than advanced secondary school education and HE, where they employed more personal effort than other strategies. This suggests that at lower educational levels students were still very young and inexperienced and, therefore, depended on others who were more experienced and matured in managing their difficult situations. In addition, this may suggest that it is the responsibility of others to lead them through their educational journey. In this regard, it is the role of the parents and teachers to provide the support these students with SI and others with conditions/impairments need at this critical period of their education to reduce academic under-achievement and students' dropouts as documented in literature. It was also established from the findings that some students were exposed to technology as well as realising the importance of education in their life mid-way through their secondary education (16 years+). This awareness assisted most of these students to focus more on personal effort particularly determination and persistence in coping with various barriers, than on the social support networks as they did when they were in primary as well as ordinary level secondary schools.

In ordinary level, secondary schools, VI students used to cope with teachers' exclusionary practices by using fellow students to teach them or assist them in reading their notes. In HE some of the students reported the use of the Internet through assistive technology in searching for materials missed from the lecture. This implies that at 15, the students were at the formal operation stage of Piaget cognitive development where individuals have an ability to utilise abstract, logical and formal thinking to make sense of their environment as well as to resolve problems systematically by formulating and testing hypothesis (McLeod, 2015). Similarly, students at the advanced secondary schools and those in HE were matured and experienced enough that they knew what they wanted and how to achieve their set objectives, as well as how to use past experience in managing the current situations.

5.3.3. Coping strategies in relation to type of impairment

Findings from the study also revealed that students with HI reported resorting to distancing through mental disengagement from the problem and avoidance through behaviour disengagement more often than students with VI when it came to cope with the society's negative attitudes and communication barriers (see subsections *distancing and escape avoidance* above). In this regard, the study's findings suggest that the nature of impairment can determine the type of coping strategies. Students with HI feel more emotionally secure to interact with their fellow HI than hearing individuals; thus, they tend to isolate themselves from hearing people (Stinson and Whitemire see Hallahan, Kauffman and Pullen 2012).

Whereas students with VI used fellow students in group discussions to cope with exclusionary practices, students with HI used more personal effort, especially reading books on their own due to the communication barrier they faced. Although students with HI employed social support networks in their coping strategies, they used support from close people such as parents, spouses and siblings more often than their fellow hearing students.

This suggests that students with HI did not only feel emotionally secure to interact with their fellow HI students but also with people close to them such as family members. However, for students with HI to cope with the societal negative attitudes and communication barriers they need to avoid social isolation and interact with individuals without HI for social acceptance (Hallberg *et al.* 2000).

5.3.4 Coping strategies in relation to onset of impairment

The study findings also revealed that only one interviewee out of 27 was born with the impairment. The rest acquired it after birth. Moreover, the majority of the students with low vision acquired it in their secondary schools and others in HE. With regard to the students with HI almost all the interviewees had acquired it in their secondary schools (see Figure 4.2 in chapter four). Findings from the study also found no differences in coping strategies among students who were blind at birth and those who acquired the disability after birth, but differences were observed between students with low vision and those who are total blind. This can be attributed to the fact that most of the blind students involved in this study acquired it in their early childhood (that is under-five years) and before they were enrolled either in pre-primary or primary education as demonstrated by Figure 4.1(chapter four). The implication of this result is that a student who was born blind and others who acquired the disability after their birth nevertheless started their educational journey in primary schools with a common characteristic, which is an inability to see. Regarding students with low vision, majority (25%) started experiencing VI during their secondary school days and tertiary education, that is, beyond 20 years. This could explain the differences reported in coping strategies between students with low vision and blindness.

Students with low vision reported more difficulties in coping with various educational barriers than blind students. Some students with low vision reported resorting to distancing

themselves to cope with negative attitudes. However, there were no students who were blind who reported that coping strategy. Although Lazarus and Folkman (1984) argue that there is no single coping strategy considered to be more appropriate than other strategies, people often resort to distancing as an emotional-focused coping strategy when they have no control over the stressful encounter. Similarly, students with low vision reported an inability to accept their impairment compared to students who were blind as demonstrated by P5 quotation (see section 5.1.3: General personal efforts subtitled *Accepting your condition/impairment*). P5 was not ready to be known as a person with low vision which suggests that he did not accept his impairment as part of his self-image. This was quite different from how students who are blind perceived their impairment as it was narrated by P21 in the same section. P21 explained how much being blind did not affect his goal attainment. The possible explanation for the differences in coping expressed by P5 and P21 could be the onset of their impairment. Whereas the former acquired low vision at the age of 20+, the later acquired blindness at age two.

The age at which a student acquires an impairment can also explain the differences reported above in coping with negative attitudes between students who are VI and HI as well as the difficulties they encountered in making and keeping friends. Students with HI reported more the use of escape-avoidance as well as distancing coping strategies than students with VI. This is because just as students with low vision, most of the students with HI involved in this study acquired the impairment when they were in secondary schools and HE that is between ages 11 and 20 years.

Summary

The third research question was aimed at exploring strategies that students with SI deployed to address academic and social barriers encountered in their educational journey. Both problem-focused and emotional-focused coping were employed by students with SI.

Findings from the study revealed that, although some coping strategies are problem-focused such as *social support networks*, other coping strategies are emotional-focused such as *distancing*. Findings further revealed that, social support networks were frequently used by both students with VI and HI compared to other strategies.

Some similarities and differences in the coping strategies were also revealed. On the one hand, some strategies such *social support networks, personal efforts especially determination and perseverance, confrontations and educating the society* were used by both groups irrespective of their impairment. On the other hand, some strategies were very much related to a certain type of impairment. Whereas students with VI coped well with teachers' exclusionary practices using readers/fellow students through group discussions, students with HI relied much on reading books on their own due to the communication barrier they encountered.

Moreover, the study findings revealed that, coping strategies depend on the situation and age of the learner. During primary schools, most of the students with SI relied much on social support networks. However, in their late secondary schools, as well as HE they depended much on personal efforts to cope with various barriers. Similarly, due to exposure to technology, especially in HE, some students reduced over dependency on their fellow students and started using technology like Internet to cope with lack of Braille books and to compensate for what they had missed in the classroom because of teachers' exclusionary practices.

Lastly, the findings from this study confirm the findings by Lazarus (1991) that there are no effective coping strategies as both adaptive and non-adaptive coping strategies were used to manage educational barriers they encountered. Although some students with SI coped with negative attitudes by providing education (adaptive coping) to those who treated them negatively, other students used confrontations (maladaptive coping) to cope with teachers, fellow students as well as society negative attitudes.

CHAPTER SIX

DISCUSSION OF THE FINDINGS

6.0 Introduction

This study explored educational barriers that students with Sensory Impairment (SI) in Tanzania's Higher Education Institutions (HEIs) encountered in the country's schooling system and their coping strategies. Specifically, it examined the academic and social barriers students with SI experienced and the strategies they used to cope with those barriers.

This chapter is organised into four Sub-sections related to research questions, namely:

- i. Academic barriers faced by students with sensory impairment
- ii. Social barriers faced by students with sensory impairment
- iii. Coping Strategies of students with sensory impairment
- iv. Differences in coping strategies in relation to respondents' social demographic characteristics.

6.1. Academic barriers faced by students with Sensory Impairment

6.1.1 Scarcity of Learning and Teaching (L&T) resources

Findings from the study revealed that most of the Tanzanian educational institutions from primary schools to HE seemed to be constrained by a shortage of special L&T resources. This barrier was experienced by all students with SI. Whereas special primary schools were reported to have essential resources needed by students with SI, some inclusive primary, secondary schools as well as HEIs lacked essential resources. The findings of this study seem contrary to what various policy documents on education in Tanzania espouse. For example, one of the objectives of the 2007-2011 Primary Education Development Plan (PEDP II) was

to place more focus on the provision of quality education (URT 2007), because PEDP I, which ended in 2006, focused more on enrolment expansion (access to education) with little attention being paid to the aspects of education quality (URT 2001b). Although quality education seems to be a complex term with several meanings and views (Sahney *et al.* 2004; Sifuna 2007), one should consider fundamental concepts when defining the quality of education. These include the input, process, and output of education (Sahney *et al.* 2004; Sifuna 2007) where by the *input* covers the L&T resources among other points. The present findings, on the scarcity of L&T resources for students with SI, imply that, the Primary Education Development Plan (PEDP II's (2007-2011) objective of improving the quality of education has yet to be achieved because just as was the case with the PEDP I (2002-2006) the country still has to contend with the challenges of inadequate inclusive resources for disabled pupils.

The reported absence of access to such crucial resources implies that some policy documents are more theoretical than practical because inclusive practices revealed in this study do not reflect what has been stipulated in the National strategy of Inclusive Education and other educational guidelines as explained earlier. This suggests either a conflict of interest between national policy guidelines and global policy agenda or the problem is attributable to the complex nature of policy-making or its interpretations into practice (Armstrong 2016a). For example, one of the government attempts of ensuring *Education for All* (EFA goals 2000) was to widen access to education for marginalised groups, including disabled students by increasing their enrolment. However, the rise in the enrolment of these students did not correspond with an increase in L&T resources or professional training.

Findings from this study, on the scarcity of L&T resources, are consistent with those of other studies (Hakielimu, 2008; Tungaraza 2010; Soorenian 2011; Reeds and Curtis, 2011; Reeds

and Curtis 2012; Tungaraza 2012; Ghulam *et al.*, 2014; Kiomoka 2014; Nasiforo 2015) which reported such a shortage of L&T resources for students with VI and/or inaccessibility of alternative learning materials according to their needs (see chapter two section 2.1.1[i]).

Findings on the scarcity of special resources for students with VI in HE was also reported by Phiri (2013) in Zimbabwe who found lack of Braille and large printed books, Braille papers, inadequate assistive devices and audio recorders. The absence of essential L&T resources remained a barrier to the education of students with VI not only in Tanzania and other developing countries but also some developed countries such as Canada and England (Reeds and Curtis 2011; Soorenian 2011). Whereas Reeds and Curtis (2011) reported the absence of Braille and large printed books in some HE institutes in Canada, Soorenian (2011) reported difficulties that students with VI experienced in some English HEIs when accessing L&T materials in an alternative format in accordance with their needs. Similarly, some students with VI reported delays in receiving L&T materials in an alternative format (*ibid*). This reported time lag is consistent with the findings of this study where some students reported of delays in receiving lecture notes either in hard copy or electronic format.

However, students with VI in Tanzania seem to be more disadvantaged by absence of Braille books, large printed books and inaccessibility to alternative materials than the students studied by Reeds and Curtis (2011) in Canada and those studied by Soorenian (2011) in England. This is because students with VI studied in Canada and England had access to assistive devices and technology to access standard printed books as well as electronic materials contrary to their counterparts in Tanzania, the majority of whom neither had access to assistive devices, nor assistive technology skills. Similarly, Wong and Cohen (2011) documented limited skills among students with VI in Singapore for deploying assistive technology as well insufficient provision for assistive technology in schools for students with

VI. The findings of the present study on the inaccessibility of library books and materials for students with VI also concur with that of Soorenian (2011), who found that some students with VI in some English HEIs rarely used libraries for research and academic purposes because of the inaccessibility of printed books and lack of assistive devices such as CCTV in the library to access standard printed books.

With regard to assistive technology, Douglas *et al.* (2011) underscore the value of assistive technology such as Low Vision Aids (LVAs), Closed-Circuit Television (CCTV) and electronic magnification in terms of space and time in the education of students with VI compared to access materials such as Braille and large printed books. Whereas assistive technology provides students with VI an opportunity to access normal print independently at their own pace, space and time, without depending on other people, the accessibility of Braille and large print books is limited by space and time (Corn *et al.* 2003; Douglas *et al.* 2011). Moreover, in terms of comprehension and reading speed among students with low vision, researchers have found no differences between a student reading 10 font size with optical devices and the one using large print of 18 font size (*ibid.*).

However, literature presents contradictory findings on the preference of students with low vision of optical devices over accessible materials (Corn *et al.* 2003; Douglas *et al.* 2011). Whereas some students prefer optical devices as their main source of reading (Corn *et al.* 2003), others prefer large printed books because they do not like to look different from their fellow students (Douglas *et al.* 2011). Similar findings were also reported by Soorenian (2011) and Plasket (2015).

Findings from this study for students with HI regarding L&T resources revealed a shortage of hearing aids, as well as poor quality hearing aids, which compounded problems for

students with HI. Similar findings were also reported by El-Zraigat and Smadi (2012), Musengi and Chireshe (2012), Safder *et al.* (2012), Weedon *et al.* (2012), Shahminan 2012; Mpofu and Chimhenga (2013) and Alothman (2014).

Although El-Zraigat and Smadi (2012) did not report a shortage of hearing aids in their study, their findings concurred with this study's findings as they described problems related to hearing aids. Other scholars have reported similar findings on hearing aids, affirming that the devices provided to students with HI failed to help them because they were either too old to assist them in learning as they distorted sound and created noise for students or the sound they caused pain in their ears (Shahminan 2012; Musengi and Chireshe 2012). These findings concur with the current study as reported by participants P1, P2, P16 and P17 (see section 4.2.1).

Problems with hearing aids revealed by this study and elsewhere need to be drawn to the attention of educational stakeholders and other practitioners for these students to benefit from the education provided in much more meaningful ways. The findings raise questions regarding the quality of hearing aids students with HI receive in some developing countries. On the one hand, the problems raised on hearing aids can be associated with either poor diagnosis before students receive these devices or poor-quality devices altogether or both. On the other hand, the findings suggest that students with HI are accommodated in unsupportive classrooms, which are not soundproofed to reduce external noise which interferes with their ability to process linguistic information using hearing aids.

Generally, scarcity of L&T resources seems to be a seemingly intractable problem in the Tanzanian educational system as all participants reported experiencing this barrier in their

education journey. Persistence of this barrier can be attributed to either one or all the following reasons:

- I. Government's poor or limited investment in education,
- II. Poor consideration for the SEN of students in Tanzania's national budget, and
- III. Inadequate and poor management of capitation funds among local government authorities and some school authorities

Government poor or limited investment in education

The trend in annual budget allocation to the education sector in Tanzania shows that, the government allocates inadequate funds in the development expenditure vote (physical investments) compared to the recurrent expenditure (salaries and operational costs). For example, in 2014 out of TShs² 3.5 billion (£1,116 million) allocated to the education sector, TShs. 2.7 billion (£855 million) was for recurrent expenditure and only TShs 809 billion (£261 million) for development expenditure (Hakielimu, 2014a).

Poor consideration of the special educational needs of students in Tanzania's national budget

Analysis of five national budget statements from 2011 to 2015 indicates that the needs of disabled students in inclusive schools have either been forgotten or are not among top priorities of the government because the needs of these students, especially those in inclusive schools are not clearly reflected in the five budget statements (URT 2011; URT 2012a; URT 2013; URT 2014a; URT 2015a). This suggests that the funds allocated serve all the students irrespective of their needs. It is unrealistic to budget for students identified with SEN, especially those with SI, in the same way as those without, because their needs cannot be the same (Tungaraza 2012b). Moreover, the Tanzanian government allocates inadequate

² £1≈TSh 3,104.86 (Bank of Tanzania exchange rate 18/02/2016)

capitation funds per pupil per annum in both primary and secondary schools. Hakielimu (2014b) documents that the government allocates TSh. 10,000 (£3.2) and TSh. 25,000 (£8.1) per student per annum in primary and secondary schools, respectively. This amount is wholly inadequate for the needs of students with SI and others identified with SEN.

Therefore, there is an urgent need of direct intervention from both governmental and non-governmental organisations as well as the community as a whole to mediate through the provision of special funds or charities that could minimise or eliminate the scarcity of L&T resources undermining the quality of the education of disabled students.

6.1.2. Teachers' exclusionary practices during L&T process of students with SI

The Inclusive Education strategy of the United Republic of Tanzania (URT 2009) requires teachers to encourage students with diverse needs, including those with SI, participate and benefit from education provided in regular schools. This thrust involves the utilisation of teaching methodologies, instruction and materials that will accommodate all children in the classes regardless of their abilities. Contrary to the perspective of inclusive education explained above, findings from this study found teachers'/lecturers' exclusionary practices during the L&T process to include their reluctance to be tape-recorded, to provide their teaching notes to students with SI and to involve these students during teaching/lecturing. Generally, teachers' reluctance to be tape-recorded during the L&T process could imply any of the following three aspects: absence of formal guidelines from HE authorities or special education unit on the students' need to tape record a lecture; lack of assurance that the recorded tape may not be used for any other issues apart from academics; and, lastly, some teachers might not feel comfortable with teaching while being tape-recorded.

Analysis of the findings further revealed that teachers' exclusionary practices were more prevalent in secondary schools and HEIs than in primary schools, particularly special schools. From the experience of students involved in this study, the situation above could be attributed to, first, special schools seemingly having trained teachers with ample experience in supporting students with certain condition/impairment; and, second, there are relatively more L&T resources as well as low teacher-to-students' ratio compared to inclusive schools and HEIs as revealed by participants during interviews and the FGDs.

The teachers' reluctance to involve a disabled student during L&T process is similar to what Smith, Salend and Ryan (2001 p. 20) termed as *ignoring a student during instructional activities* which can result in the feeling of social exclusion as the student does not feel a sense of belonging. Teachers' exclusionary practices revealed in this study imply that their teaching methodologies seemed not to correspond with individual differences, diverse needs of students and inclusive values (Armstrong 2016a).

The findings also concur with those of Mpofu and Chimhenga (2013), Phiri (2013) and Ghulam *et al.* (2014). Regarding the provision of teaching/lecture notes for disabled students, Mpofu and Chimhenga (2013) insist that in a situation where note-takers are not provided to students with HI, teachers should provide them with lecture notes in advance because it is difficult for them to read lips and take notes at the same time.

Other exclusionary practices revealed during the study were associated with the teachers' ways of teaching especially overdependence of multimedia projectors over oral explanations and vice-versa. These findings have also been reported elsewhere by Phiri (2013), Morris (2014), and Nasiforo (2015), who found barriers to learning among students with VI which

resulted from the lecturers' and other supporting staff's tendency to use power-point presentation/whiteboard without accompanying oral explanations.

Similarly, students with HI reported exclusion by teachers/lecturers who either relied on pure lecture (oral explanation) or those whose teaching styles did not allow them to learn through lip reading. This scenario implies that what works for students with VI might not necessarily work for students with HI. This study suggests a concurrent use of multimedia projectors and oral explanations during teaching students in inclusive settings to allow students with VI to learn through hearing and those with HI through vision in a bid to ensure that learning also benefits other students who learn in different ways.

Exclusion of students with HI reported in this study are consistent with that of Oyewumi (2008) and Mpofu and Chimhenga (2013) who documented difficulties students with HI encountered when attending instructions dominated by oral explanations. However, findings from the present study are inconsistent with Tanzania's official line of inclusive education described earlier and an Index for inclusion which emphasise the participation of all children in inclusive settings regardless of their conditions/impairments (Booth and Ainscow 2002; URT 2009). Inclusion of disabled students is not about their placement in regular classes but rather the ability and readiness of the schools' system to increase the participation of all students and reduce the barriers to learning, as well as various forms of exclusions (Booth and Ainscow 2002).

In this regard, the Tanzanian government needs to equip teachers at various levels of education with strategies on how to prepare and deliver instructions that will accommodate students with diverse needs and increase their participation in the L&T process. There is also a need to establish or transform some of the existing inclusive schools from the present state

to an improved and standard form whereby pre-service as well as in-service teachers will have an opportunity to learn various teaching strategies that meet the diverse needs of learners in a real context. Similarly, a special in-service teacher training on inclusive education teaching strategies can be prepared and made compulsory for all teachers in inclusive schools to attend during students' long vacation.

The findings from this study are also in line with other previous studies (see, for example, Lewis and Little 2007; Weedon *et al.* 2012; El-Zraigat and Smadi 2012; Musengi and Chireshe 2012; Safder *et al.* 2012; Mwakyeja, 2013; Mpofu and Chimhenga 2013; Ghulam *et al.* 2014). Although some of these studies did not document teachers' exclusionary practices directly, they revealed lack of teachers' knowledge and skills to either teach students with SI in inclusive classes or to conduct curriculum adaptation which indirectly implies exclusionary practices.

Findings on teachers/lecturers' exclusionary practices can be explained by either/all the following;

- I. Teachers' poor understanding of inclusion;
- II. Negative attitudes; and
- III. Lack of support from heads of school.

Teachers' poor understanding of inclusion

Teachers'/lecturers' exclusionary practices of students with SI during the L&T process suggests that educators perceive inclusion of students with SI as a mere placement of these students in regular classes with little consideration of transforming the education system to meet their needs. That is, they associate learning difficulties of students with SI to their

impairment, hence, they require a specialist to fit into the inclusive schools. This kind of perception among teachers impedes creativity in terms of teaching styles, classrooms structures and access to appropriate resources to meet students' diverse needs (Richards 2016a). Moreover, teachers' exclusionary practices suggest that since students with SI own the problem, the solution is, therefore, their responsibilities rather than the teacher's or that of the educational system.

Teachers' negative attitudes

Findings from the study reveal negative perceptions of teachers towards students with SI. It was revealed that some teachers and lecturers perceived students with SI as incapable (see section 4.3.1). This perception seems to influence the teachers' expectations of students with SI, with the study finding that most of them have a low expectation of these students. Teachers' exclusionary practices can also be associated with their attitudes to students with SI because attitudes influence behaviour (Fishbein and Ajzen, 1975). It is documented that, attitudes of educational stakeholders towards inclusive programmes affect the outcomes of those programmes (Freund & Rich, see Tungaraza 2012b). The results from this study demonstrate some empirical examples of teachers with neither knowledge nor skills crucial in supporting students with SI were, nevertheless found to be receptive and responsive to the particular needs of these students (see comments from P1, P7, and P11, and P15 section 5.1.1 *extra support from teachers/lecturers*).

Lack of support from the head of school

Exclusionary practices revealed in this study can also be associated with lack of support from school authorities, specifically the head of school. Literature documents that support from school authorities is crucial in developing positive practices in inclusive schools (Woolfson and MacFarlane 2013; Bursuck and Friend, see Alothman 2014). It is apparent that teachers'

positive attitudes and readiness become more effective when they are supported by school authorities and equipped with knowledge and skills to support students with diverse needs. Chaula (2014) argues that heads of school are the role models to teachers and, therefore, their support can help teachers to achieve their goals (see also comments from P12 on support from head of school section 4.2.1, p.165).

6.1.3 Communication barriers

Communication barriers were identified by students with HI to be the major obstacle that hindered their access to learning. The findings from this study suggest that external factors such as the absence of special resources and sign language interpreters, as well as unsupportive classrooms can have negative effect on students with HI communication and participation during L&T process. It was established in this study that some students with HI attended classes without sign language interpreters because they were in short supply, and others reported difficulties in learning through lip reading. Similarly, those who could use hearing aids had given up using them due to the negative experiences explained earlier (see subsection 4.2.1 for more details). This finding confirms those by Shahminan (2012) that sufficient L&T resources for students with HI facilitate their language development, hence improving their communication and vice-versa.

Other studies have associated communication barriers among students with HI with the presence of unsupportive classrooms (El-Zraigat and Smadi 2012; Alothoman, 2014; Wadesango, Eliphanos and Gudyanga 2014). These studies have reported that most of the classrooms where students with HI were accommodated had never been modified to meet their specific needs, which caused some limitation in the effective utilisation of hearing aids which, in turn, created a communication barrier among learners. Similar experiences were reported in this study that there was no mechanism for reducing external noises from

interfering with students with HI processing linguistic information in class. Literature has also revealed that noise is the major hindrance to the effective use of hearing aids because when the L&T environment is surrounded by a myriad of sources of noise the hearing aids are likely to amplify the undesired noises instead of the teacher's voice in class (Wadesango, Eliphanos and Gudyanga, 2014). However, the noise-free classrooms may not be suitable for learners who learn best in more interactive situations such as group discussions.

This implies that students with HI not only need quality hearing aids to address communication barriers, but also a modified classroom with minimal destruction from outside noise. This is consistent with UK's Building Bulletin 93 which provides guidelines for schools to adhere to acoustic design by ensuring that *each room or other space in a school building shall be designed and constructed in such a way that it has the acoustic conditions and the insulation against disturbance by noise appropriate to its intended use* (BB93 [DfES] 2003, p.3). The acoustic design of schools is very effective in facilitating the classroom teacher-students' interactions as well as student-student's interaction because the acoustic design controls all types of noise from outside the classroom from interfering with the L&T process and controls noise within the classroom which, in turn, improves the listening conditions for students with HI and others in class (ibid.).

Other importance of acoustic design of schools to students with HI include: to improve speech among students with HI and to enhance the use of hearing aids (Ainscow 1995; Alothman 2014; Sirimanna 2016). The acoustic design features include a sound-proofed classroom, which absorbs outside noise through ceiling board and/or acoustic walls, as well as the use of carpets on the rough surface and/or rubber on the legs of students' desks and chairs to control sound within the classroom. Other barriers revealed under this particular

research question include difficulties in lip reading during L&T process. This finding supports those by Soorenian (2011) and Mpofu and Chimhenga (2013).

Difficulties in lip reading revealed by Mpofu and Chimhenga (2013) resulted from inappropriate teaching style, such as teaching without looking at the student and/or moving from one point to another during teaching. This barrier provides a clear picture of problematic teaching methodologies teachers/lecturers applied in an inclusive setting that failed to reflect the Universal Design for Learning (UDL). UDL requires teachers to adapt a curriculum according to the diverse needs of learners so that they could all benefit from the classroom instruction, irrespective of their differences (Rose and Meyer 2002). For teachers to enhance learning through lip reading, they are required to face students directly during teaching/lecturing, evade writing on the board while talking, avoid any obstacle in their faces that could hinder lip reading like moustaches, beards, hands, books and microphones (Mpofu and Chimhenga 2013).

6.1.4. Examination-related and information inaccessibility barriers

Findings from this study revealed five subthemes related to tests and examinations which are inaccessible examination format and administration procedures, lack of feedback from teachers, delays in examination time, inappropriate grading system and incompetence of transcribers during marking.

Inaccessible examination format and administration procedures

Data on the examination format and administration procedures revealed that students with VI faced more problems in examinations than students with HI due to the nature of their impairment. Students with VI require a modified examination either in large print or Braille format, as well as special resources to respond to their examination, as opposed to students

with HI who could access an examination in its standard format. For example, four out of five examination barriers reported resulted from either lack of special resources such as Braille machines, Braille papers and/or typewrites or lack of special/inclusive education training among teachers as well as lack of specialist.

Furthermore, it was revealed that students with VI were provided with their examinations orally, that is, teachers read questions out and the students responded in the same way— orally. Alternatively, the teachers read the questions out and the students typed them out and they responded later using Braille machine or typewriters. Whereas the former approach suggests lack of both special resources for students with VI and specialists in Braille, the second approach suggests absence of transcribers and skilled teachers in Braille functions.

Although the administration of an examination in oral format can be perceived as one of the alternatives in a school without resources and specialists in Braille, this format seemed not to be supportive of these students as it might result into poor academic performance among the students. Moreover, this format does not provide students with adequate time to think about the correct answers compared to other formats such as Braille print, which offers students with an opportunity to skip difficult questions and respond to them later after having sufficient time to think about the possible answers. Similarly, in most schools due to lack of transcribers, students with VI used typewriters to respond to their examination which most of them reporting to be uncomfortable with the devices (see subsection 4.2.1).

Similar findings were also reported by other scholars (Cobb 2008; Mokiwa and Phasha 2012; Ghulam *et al.* 2014). Ghulam *et al.* (2014) reported that examinations provided to students with VI did not respond to the students' needs. For example, some students were not allowed to do examinations using computers and others were denied the use of the Braille. There was

no clear explanation provided; however, this problem can be associated with the scarcity of computers as well as the shortage of transcribers who could mark examinations written in Braille. Mokiwa and Phasha (2012) reported two barriers related to examinations: outdated computer software installed in the students' devices and inaccessible examination format, particularly on the multiple-choice questions answer sheet.

Lack of feedback from teachers

Under this subtheme, students with VI reported lack of oral and written feedback from teachers after completing their tests and examinations. There were schools with Braille machine(s) that students used to respond to their examinations, but which lacked transcribers to mark and teachers skilled in Braille operations. This scenario suggests that the availability of special L&T resources will not only assist students with SI to access curriculum, teachers' instructions, follow L&T process but also will also help solve examination-related barriers.

Delays in examination time and inappropriate grading system

Results from this study revealed that delays in examination time and an inappropriate grading system (to be penalised in subjects that students with VI did not learn, see section 4.2.5 comments by P9, P11 and P21), did not result from lack of special resources or specialist, but rather from other factors, for example, government's poor considerations of SEN (see section 6.1.1), teachers' negative attitudes towards students with VI (section 6.1.2) as well as lecturers unawareness of students with SI in their classes (see the end of section).

Incompetence of transcribers during marking

Under this subtheme, students reported incompetence of transcribers who marked their examination answered in Braille. Paradoxically, the transcribers with a certificate, as well as a diploma in SEN, were reported to be more competent in Braille than those with degree in

SEN because in the degree program students' teachers have had limited time to learn and practice Braille compared to those taking the certificate and diploma courses. This result is likely to be related to the duration of training and shortage of Braille machines (see subsection 4.2.4). The first two subthemes above suggest that, the shortage of special L&T resources and teachers' training in special/inclusive education did not only hinder the students with VI in participating during L&T process but also in accessing and responding to their examinations.

The findings on barriers in examination and information inaccessibility can also be attributed to the persistence of the scarcity of special L&T resources and assistive devices which are essential in making materials as well as examination accessible to students with VI (see subsection 4.2.1). Other barriers such as lack of feedback from teachers were observed in the lower level education and not in HE. The possible explanation for this is the fact that in HE, students with VI respond to their examinations using typewriters that allow lecturers who are not skilled in Braille to grade their examination papers.

Further analysis also revealed some differences in the examination format and procedures among students who are either totally blind or with low vision who prefer large font examination than Braille print. Although teachers were reported to provide large font examinations to students with low vision, results from this study were unable to provide clear criteria used by teachers/lecturers to determine appropriate font size for students with low vision. Phrases such as "...I am not sure of the font size, what I know is that, my teachers prepare my exam in large font" were common among students with low vision, hence suggesting that the provision of large font examination in some schools in Tanzania does not consider the needs of students with low vision.

It seems that, teachers use any large font size they think is appropriate without considering the particular needs of these students. This can imply either or both of the two aspects: lack of collaboration between the Special Education unit and lecturers in HEIs (see end of this section) or poor exercise of SEN identification in the lower level education, which resulted into students' unawareness of their optimal font size. This suggests that when a student with low vision encounters difficulties in reading standard print (12 font size), there is a possibility of feeling some comfort with any size above the standard print whether the size meets his/her specifications or not.

This discovery supports the finding by Cobb (2008), whose results established the insufficiency of the large print examination format in relation to the varying needs of students with low vision. Research has also reported that the optimal print size enhances the reading competence of students with low vision and when the print is not of the appropriate font size it affects the students' reading speed (Hall Lueck *et al.* 2003). In this regard, teachers/lecturers and other educational stakeholders, who work with students with low vision, need to understand that for a large print examination format to be effective for these students, they need to establish the optimal font size for each student by considering factors such as students' reading speed for different print sizes, student preferred size, and individual reading ability (Hall Lueck *et al.* 2003; Swenson, see Jones and Maloney 2015).

Regarding information, both students with VI and HI reported difficulties in accessing information displayed in their schools or campuses. Whereas students with VI reported difficulties in accessing standard printed information (Mokiwa and Phasha 2012; Morris, 2014), those with HI reported barriers to accessing oral information especially examination instructions and assignments.

Generally, all these barriers in examination and information accessibility can be associated with teachers' poor understanding of the concept of inclusion, negative attitudes and lack of support from school authority as elaborated in section 6.1.2. It is doubtful for teachers with negative attitude and/or lack of support from school authority to make the effort to check whether the information provided to students was also accessible to disabled students like SI. In addition, delays in examination time in HE can also be associated with lecturers' unawareness of students with conditions/impairments in their classes, as well as lack of collaboration between Special Unit staff and lecturers as explained below:

Lecturers' unawareness of disabled students in their classes

Analysis of the findings revealed that some lecturers in HE were not aware that they had students with impairments in their courses. On the one hand, this can be associated with lecturers' terms and conditions provided to them during employment. The employment package does not specify/inform a new employee about the existence of disabled students in the institution. On the other hand, the online course registration system is limited as it does not provide students with a section to indicate whether they have impairment. Thus, some lecturers only become aware of these students in the lecture halls when they see them seated in the front row. However, this is difficult for lecturers who teach courses with large number of students to realise what are the specific needs of those students.

Furthermore, there are no professional development programmes in HE offered to equip lecturers with knowledge and skills to support these students. Most of the lecturers are employed based on their high-Grade Point Average (GPA), that is, from 3.8+ (upper second) of their bachelor's degree on a 5.0 scale and/or excellent performance in their master's degree for which the average should not be less than 4.0 on a 5.0 scale and/or doctoral degrees where no degree classification is necessary.

Lack of collaboration between special unit staff and lecturers

Findings from the study documented that some lecturers delay sending their examinations to special unit to avoid examination leakages. This suggests a lack of trust among lecturers and staff in the special education unit. Lack of trust can be attributed to lack of collaboration between the two parties. Although lecturers and Special Education Unit staff share the same goal of serving disabled students they seem not considering the needs of these students holistically. Lecturers teach and prepare examinations for these students and the special unit staff transcribe their examinations into Braille format. This implies that they only meet twice in an academic year, that is, during examinations which take place at the end of each semester.

6.1.5 Barriers in curriculum

The current study revealed two major barriers relating to curriculum, namely, lack of inclusive curriculum and failure to permit students with VI to learn Mathematics and Science at the secondary school level. Although the two barriers were reported in secondary schools, their impact was observable at the HE level, where some students faced limitations in career choices and development. In addition, the Tanzanian national curriculum excludes students with visual impairment from accessing subject matters related to drawing diagrams as well as reading and drawing maps, which creates difficulties for students with VI to grasp some concepts such as Geometry and other graphic subjects (UNESCO 2006; AFB 2014a). In other words, the Tanzanian national education curriculum does not only hinder education accessibility for students with VI but also limits their range of career choices in higher level of education, especially in Mathematics, Sciences, and even technical drawing.

In fact, the current curriculum in Tanzania was designed for non-disabled students and one of the means for students with SI and others with conditions/impairments to benefit from it

is through curriculum adaptation (AFB, 2014). Curriculum adaptation is a continuous process, which involves modification and adaptation of prescribed learning experiences and materials to meet learners' diverse needs in the classroom (Rose and Meyer 2002; Edyburn 2005). This suggests that teachers and school authorities have a significant role to play to allow students with SI and others with conditions/impairments access curriculum by making necessary adjustments tailored to meet their specific needs. This is because *a one-size-fits-all curriculum* has been proven to be ineffective in meeting the diverse needs of all learners (ibid).

Curriculum adaptation is not a new term in the Tanzanian context, as it is acknowledged in the Inclusive Education Strategy of 2009-2017 as one of its 14 strategic areas of action to be strengthened in a bid to improve the implementation of inclusive education (URT 2009). In this strategic area, schools are obliged to make necessary *differentiation* (adaptation) when using the core curriculum in inclusive settings to meet the learning requirement of students identified with SEN.

However, the findings revealed that teachers in inclusive schools teach students with SI using the core curriculum without any differentiation. This finding supports previous study results (see, for example, Tungaraza 2012b; El-Zraigat and Smadi 2012; Shahminan 2012; Musengi and Chireshe 2012; Mwakyeja 2013; Nasiforo 2015). At the time, this study was being carried out, it had been seven years since this inclusive strategic action was initiated, and yet it was not reflected in Tanzania's inclusive practices. This can be explained by lack of awareness of the *Universal Design for Learning* (UDL) among education stakeholders and curriculum developers. UDL provides a set of principles to follow during curriculum development to ensure that all students have equal opportunities to learn regardless of their differences (Rose and Meyer 2002; Edyburn 2005). This implies that the curriculum should

be flexible enough to be modified according to the individual needs of students to fit every student in terms of instructional goals, teaching methods, L&T resources as well as assessment procedures (www.udlcenter.org).

Similarly, poor school inspection reported by the URT (2014b) seems to aggravate this matter because school inspections play a vital role in curriculum monitoring and evaluation process (URT 2014c). URT (2014b) argues that only 833 out of 4,576 secondary schools were inspected in 2012 which accounts for only 18.2 percent of all the secondary schools in Tanzania. Such severely limited school inspections can be associated with lack of resources, especially transportation to and from the schools, and shortage of qualified inspectors (URT 2014b; URT 2014c).

Curriculum adaptation is likely to be determined by the teachers' attitudes towards disabled students, knowledge and skills in curriculum adaptation and participation of disabled teachers in curriculum development and reforms. These results agree with the results by Lewis and Little (2007), Richards (2016), Mongwaketse (2011), Shaver *et al* (2011), Mwakyeja (2013) and AFB (2014). Other factors include time constraints (Musengi and Chireshe 2012; Reed and Curtis 2012; Shahminan 2012), with some teachers/lecturers perceiving curriculum adaptation as an additional work load which consumes time. Shahminan (2012) reported that, some teachers faced difficulties in conducting curriculum adaptations because of time constraints resulting from teaching overcrowded classrooms.

However, the concept of overcrowded classrooms seems to be relative depending on the context because the class which is referred to by Shahminan (2012) as overcrowded had 26-30 students which in Tanzania is below the teacher-pupil target ratio of 1:40 (URT 2012). In Tanzania, an overcrowded classroom ranges from 50-110 students in a single class including

those with SEN (Ezekiel 2009; Mwakyeja 2013; TEN/MET 2013). This suggests that, training in special/inclusive education is crucial not only in instructional delivery but also in curriculum adaptation.

Thus, teachers' exclusionary practices, coupled with barriers to curriculum adaptation, revealed calls for compulsory training on inclusive/SEN at least to one teacher in every inclusive school in Tanzania to co-ordinate all matters related to the L&T of all students, especially those with SEN. This is in accord with the roles played by the Special Education Needs Co-ordinator (SENCo) in English schools and UK in general (Mackenzie 2007; Qureshi 2014). SENCo's key roles include the co-ordination of L&T activities, raising awareness of inclusion through the training of teaching assistants and monitoring of their work, as well as giving pedagogical advice to teachers and teaching assistants (Mackenzie 2007; Qureshi 2014).

Another possible explanation for lack of inclusive curriculum is having an education system dominated by an examination-oriented curriculum. Such parts of a curriculum could compel teachers to rush through the preparation of students for examinations, which entails completing the syllabus ahead of the scheduled examinations rather than to facilitate the acquisition of knowledge and skills among learners (Mongwaketse 2011). About the guideline that prevents students with VI from learning Mathematics and Science subjects, the study revealed mixed feelings among the students. Whereas some were not bothered by the exclusion, others lamented that their career choices had been severely limited due to their inability to learn these subjects (see subsection 4.2.5). This could imply that lack of special resources and trained teachers resulted into the exclusion of these students from learning Mathematics and Science subjects for example, (URT 2014c) reported over 50% shortage of mathematics and science subjects' teachers in Tanzania.

After all, the general situation of teaching and learning of Mathematics and Science in Tanzania has not been encouraging (URT 2010; Ali 2013; Kihwele 2014; Enu *et al.* 2015). Specifically, Mathematics by its nature has a potential of presenting barriers to learning among students with VI compared to the sighted students, especially in the conceptualisation of symbols and diagrams (Morris 2014). Other barriers include difficulties in accessing diagrams and graphic learning materials (Mokiwa 2013; Morris 2014) due to the insufficient assistive devices, coupled with lack of specialists in the area (Morris 2014).

6.1.6 Environment accessibility-related barriers

Findings on the educational journey of students with VI revealed environmental inaccessibility across all education levels. Specifically, most of the educational infrastructures in Tanzania were reported to obstruct the mobility of students with VI. This limitation implies that the government, educational stakeholders, as well as private education institutions were either unaware of universal principle of education (The Centre for Universal Design 1997; Burgstahler 2012) or they found it difficult to implement. One could expect new educational institutions to abide by this principle and old infrastructures to be modified according to needs diversities. However, this is not the case in the institutions under review.

Both institutions involved in this study were reported to be inaccessible for students with VI, despite accepting students with impairments. Similar findings were reported by (Phiri 2013; Ghulam *et al.* 2014; Nasiforo 2015), who reported accessibility barriers in the HE environment and buildings in Zimbabwe, Pakistani and Rwanda respectively. Phiri (2013) reported that, physical barriers forced some students with VI and physical impairment in Zimbabwe to sacrifice most of their lectures which were conducted in inaccessible lecture

halls. In addition, Phiri (2013) has raised a salient issue pertaining to the health and safety of some students with physical impairment who had to be lifted up and down staircases by their fellow students whenever they wanted to attend any academic events in upstairs classes. Inaccessible lecture halls were also reported by Soorenian (2011) in England. Indeed, some English HEI lecture halls were inaccessible for students with physical impairment due to malfunctioning lifts and/or the small size of the lifts to accommodate wheel chairs, which resulted into some of these students stopping to attend seminars/workshops or lectures held in lecture-rooms upstairs. Other studies reported similar physical barriers at the primary or secondary school levels (URT 2004; Hakielimu 2008; Tungaraza 2012b; Kiomoka 2014).

Whereas some environmental barriers, such as inaccessibility of educational infrastructures, may be related to financial constraint, as well as government's poor priority when it comes to the SEN of these students, other barriers revealed include reckless driving within campuses and lack of orientation and mobility training (section 4.1.5), which can be explained by either unawareness of students with SEN among academic and non-academic staff on the campuses and society's negative attitudes towards disabled students as explained in the previous section (6.1.4).

Students with SI also reported lack of orientation and mobility training across their educational levels. Although they were not as concerned about this barrier than the previous two barriers. The available literature documents that orientation and mobility training allow students with VI to move around just as sighted students (Cox and Dykes 2001; Jones and Maloney 2015). Moreover, such training enhances the independent mobility skills in both familiar and unfamiliar environments, thus reducing over-dependence on sighted students when in need of on-campus mobility (Jones and Maloney 2015). In this regard, orientation and mobility training are vital for students with VI, whether the environment is inaccessible

or not, as such training and exposure provide them with awareness about the school infrastructures and its boundaries, as well as the layout of classrooms, and other relevant places such as resource rooms, the library, cafeteria, halls of residence and restrooms (Cox and Dykes 2001).

6.2. Social barriers of students with SI

Analysis of the findings revealed attitudinal barriers in the educational journey of students with SI. These barriers included perceived negative attitudes from teachers/lecturers, fellow students, parents and other people in society of treating these students as incapable. Teachers, as well as societal attitudes towards disabled people, determine their readiness in responding to the needs of these students because negative attitudes obstruct the L&T process. Secondly, the analysis revealed social isolation and name-calling as well as reported difficulties in making and keeping friendship. These social barriers, just like most academic barriers, were reported across all education levels.

6.2.1. To be perceived as incapable

Under this subtheme, respondents agreed that some teachers/lecturers, fellow students, parents, as well as other people in society perceived them as “incapable”, “a burden”, and/or “beggars”. Similarly, Phiri (2013) and Alshahran (2014) reported the presence of negative attitudes among lecturers/educators, as well as non-disabled students towards disabled students including those with VI and deaf students. The negative perception of individuals with VI was also reported by Plasket (2015) as some peers without VI tended to perceive those with VI as weak and low in the social hierarchy.

Other literature reported negative attitudes towards these students in terms of negative labels such as *zombie and monster* given to them by their fellow peers without VI (ibid.) or the

use of unkind names generally (Alanazi 2012). Negative perception was also revealed in terms of the teachers' low unjustified expectation from disabled students that they are underachievers (see comment by P11 section 4.3.1). Defining students' performance in terms of what they cannot do is a barrier to learning and to inclusion as it can obstruct students' talents and abilities (Smith, Salend and Ryan 2001).

This finding is in consistent with the medical model of disability (see section 1.1.3). The negative attitudes among teachers/lecturers reported in this study, however, do not necessarily mean that there was no evidence of positive attitudes. Notwithstanding the negative treatment from many of the teachers/lecturers, there were also positive attitudes documented in the study (see chapter five subsection 5.1 extra support from teachers/lecturers).

With regard to the attitude of non-disabled students, similar findings were also reported by McDougall *et al.* (2004), and Jacques *et al.* (see Hodkinson 2016) who found that female non-disabled students had more positive attitudes than male non-disabled students. Their studies established that students with VI and others with conditions/impairments received academic support more often from female students than from male students. Similarly, the findings of the current study illustrate that more female students reportedly provided academic support to these students free-of-charge, than male students who would usually charge these students either cash or payment in kind for the academic support rendered.

One of the possible explanations for such a difference between female and male students in supporting students with VI and others with conditions/impairments, could be the involvement of women in most of *care-taking* activities in society compared to men (<https://www.caregiver.org/women-and-caregiving-facts-and-figures>). Similarly, women

are expected in society to be empathetic to others, considerate, and caretakers to their children and other members of the family (ibid.). Despite the existence of negative attitudes, the analysis of this study revealed substantial evidence of positive attitudes from non-disabled students to students with SI (see chapter five subsection 5.1 *support from fellow students and friends*).

Possible explanations for the society's negative attitudes include the following: negative social cultural values and traditional beliefs; low socio-economic status of most disabled people; lack of society exposure to the achievement of people with SI and other with conditions/impairments (see section 4.3.1). In addition, societal negative perception of disabled people has a long history as it can also be traced to the early Judeo-Christian traditions as documented in the Holy Bible (John 9:1-3,8) that, people perceived impairment (blindness) as resulting from sin either from parents or individual himself/herself, and that these people earn a living through begging (<http://www.kingjamesbibleonline.org/John-Chapter-9/>)

6.2.2. Social Isolation and name-calling

Analysis of the research question related to the social barriers, revealed social isolation among students with SI. Under this subtheme, it was found that, social isolation was occasioned by either non-disabled students who isolated those with SI in academic and non-academic activities or by students with SI who isolated themselves from non-disabled students. However, it is not clear from the findings whether it is non-disabled students who started isolating those with SI or it is those with SI who isolated themselves from their fellow non-disabled peers. What is clear from the findings is that non-disabled students isolated students with SI due to their negative perception, namely that students with SI are “incapable” and “a burden”. Similarly, those with SI isolated themselves either in response

to the apparent social isolation from their fellow non- disabled peers or their own poor self-concept (see end of this section).

These results concur with those obtained by Connolly, Rose and Austen (2006), Salleh and Zainal (2010), Reed and Curtis (2011), Shahminan (2011), Reed and Curtis (2012), Hallahan, Kauffman and Pullen (2012), Heward (2013), Alothoman (2014), ASHA (2015), and Plasket (2015). However, there are rare cases of social isolation among students with VI reported in this study, compared to students with HI. This can be substantiated by their extensive use of social support networks, especially friends and other fellow students in coping with academic barriers that students with VI encountered (see chapter five subsection 5.1 *support from fellow students and friends*).

This is contrary to students with HI, who reported the use of a more extensive personal effort in coping with academic barriers than reliance on friends or fellow students because of limited interactions with hearing students. This discovery also supports the findings by Alothoman (2014) who revealed evidence of social isolation among students with HI, which resulted in the isolation of these students during extra-curricular activities. The findings of the current study are also concurrent with the findings by Al-shahran (2014) who reported the likelihood of students with HI to be neglected by their fellow hearing students in the mainstream classes as a result of the communication barrier.

Furthermore, students with HI were given names related to their impairment such as *bint kiziwi* (deaf girl) and *kiziwi wenu* (*that deaf person of yours*) which made the disabled students uncomfortable. Those who refer disabled students according to their impairment are likely to focus more on an individual's impairment, rather than on his or her abilities.

Similar findings have been reported by Kiomoka (2014) who established poor interactions (social isolation) between students with VI and their sighted peers as well as the use of name-calling.

Various factors are associated with social isolation among students with SI which include intensity and severity of the impairment (see section 2.1.2). Other literature has associated social isolation of students with HI with the influence of the deaf culture, which puts more emphasis on the use of sign language in communication than other assistive devices, such as cochlear implant and hearing aids (Jones 2002; Shahminan 2012). Sign language has been found to have a negative impact on inclusion because it can isolate individual with HI from the society due to lack of skills in sign language among most of the people they interact with (Jones 2002).

Apart from external factors associated with social isolation, other internal factors such as negative self-concept among students with SI themselves can also be associated with this barrier. This is because individuals with low self-esteem are more likely to experience low levels of confidence and social anxiety, which affect their socialisation with others as they tend to exaggerate events as being negative even when they could be positive (Rosenberge and Owen, see McLeod, 2012).

6.2.3. Difficulties in making and keeping friendship

Both students with VI and HI reported difficulties in making/keeping friendship. However, more often students with HI reported lacking friends or having few friends than the students with VI most of whom reported to have had a good number of sighted friends. This result contradicts that of Plasket (2015) who found that most of the students with VI had friends who also had VI and that they preferred VI friends to sighted peers as friends. This

inconsistency might arise because in this study students with VI needed sighted friends not only for social interactions but also for academic support for them to cope with academic barriers they encountered which, in turn, improved their social acceptance.

Generally, the disabled students were found to interact with their fellow disabled peers for mutual understanding and emotional support and with their fellow non-disabled peers for social acceptance (Hallberg *et al.* 2000). Similarly, disabled people, just like others, want to feel that they are valuable members of a group, hence their tendency to identify with their fellow individuals with the same impairment to maintain their sense of self-worth (Jones 2002). This implies that disabled people do not feel accepted by their non-disabled peers and, thus, they interact with them not because they like to but because they wish to gain their peers' acceptance. The findings of the present study on the inherent difficulty in making and keeping friendship among students with HI is consonant with the result of social isolation whereby students with HI were found to be more affected than their counterparts. This implies that, the feeling of loneliness/social isolation seems to affect an individual's ability to make and keep friends. Similar findings were documented by Hallahan, Kauffman and Pullen (2012), Heward (2013), Alshahran (2014) and ASHA (2015).

The results from present study and other literature on difficulties in socialisation among students with HI, are at odds with the findings by Musengi and Chireshe (2012) as well as those by Safder *et al.* (2012). Musengi and Chireshe found that students with HI had many friends and participated in extra-curricular activities, and Safder *et al.* (2012) reported no difficulties in socialisation among these students with their fellow hearing students due to cordial relationship reported. These inconsistent results between this study and that of Musengi and Chireshe may be due to differences in the level of education and age between participants involved. This study involved matured students aged 20-50+ years, who were

undergraduate and postgraduate students, whereas Musengi and Chireshe's study involved primary school pupils whose age range between 7 and 14.

Moreover, disabled pupils in primary school can be too immature, due to their age, for them to associate the behaviour of their fellow students with negative attitudes contrary to secondary school, undergraduate and postgraduate students. This is in line with Plasket (2015) who found that primary school peers without VI were more understanding to individuals with VI than secondary schools' peers. Thus, there is a possibility of non-disabled pupils in primary school to be more supportive and kind-hearted to their fellows disabled than those in HEIs. In this study, for example, most of the participants started to experience attitudinal barriers (including difficulty in making and keeping friendship) when they were in secondary schools compared to when they were in primary schools. Another possible explanation is that most of the students in primary school pupils attend the institution found in the same locality with similar customs and traditions compared to secondary schools and HEIs in the country, which draw students from different regions (provinces) of the country.

Regarding differences in the findings between this study and that of Safder *et al.* (2012), the sample size used is likely to provide explanations for the inconsistency in the findings whereas the current study used 27 participants of whom 11 were students with HI, the study by Safder *et al.* (2012) used four students with HI. It is more likely to achieve data saturation regarding the barriers that students with HI encounter using 11 participants than with four participants. Regarding the sample size in qualitative research, Onwuegbuzie and Collins (2007) have documented that, qualitative research neither requires a large sample size that would make it difficult in undertaking a deep and intensive analysis, nor so small a sample that it can make it difficult to achieve data saturation.

6.3. Coping strategies of students with sensory impairment

6.3.1. Problem-focused coping (Adaptive coping strategies)

Findings from the present study reveal that both adaptive and non-adaptive coping strategies were used; however, adaptive coping strategies were more frequently used than non-adaptive coping strategies. The analysis of data collected under this research question revealed that an individual's ability to choose either adaptive or the non-adaptive coping strategies depended much on the cognitive appraisal, that is, how an individual interprets the problem either as a threat or a challenge to be met. This finding concurs not only with cognitive motivational relational theory of coping (Lazarus 1991) guiding this study, but also with the coping model adopted. This finding suggests that nurturing an individual's way of looking at the problem is vital for effective coping to materialise. Four adaptive coping strategies were revealed in this study. These are social support networks, collective effort of students with SI, personal effort and educating the society.

I. Social support networks

Analysis of this research question revealed that among the four adaptive coping strategies explored, social support networks were used extensively by the students with SI in a bid to cope with academic and social barriers they encountered. The kind of support they relied on came from parents, spouses, siblings, readers and note-takers, fellow students and friends, and teachers, as well as non-governmental and religious organisations. Social support networks played both problem-focused and emotional-focused roles (Lazarus 1991).

On one hand, the tendency for parents and spouses to pay for extra classes for their children compensated for what they missed in regular classes. This is perceived as a problem-focused coping mechanism as it is directed towards dealing with the actual problem and it is also an adaptive coping strategy (Forkman and Lazarus, 1984; Lazarus 1993; Thompson *et al.* 2007;

Givorn and Court 2010). On the other hand, parents and spouses support their children to assist them in changing/managing their negative feelings towards the situation they encountered. This approach is perceived as emotional-focused coping (Forkman and Lazarus, 1984; Lazarus 1991).

Similarly, the analysis of this study findings revealed that the support from parents and spouses played not only the role of social support coping resources as illustrated in the coping model, but also constituted the material and psychological coping resources (see coping model section 2.4 Figure 2.1 subtitled, *secondary appraisal*). For example, the provision of funds and/or L&T resources needed by students with SI can be categorised as material coping resources, whereas motivation, encouragement and reinforcement can be classified as psychological coping resources (see section 5.1.1 parents and spouses support).

Notwithstanding the importance of the support rendered by parents and spouses, each sub unit in social support networks had its own relevance in assisting students with SI in coping with educational barriers. Despite the unique contributions of the support of parents/spouses in the education of these students as elaborated in section 5.1.1, there were some cases where these students needed support from either readers/note-takers or fellow students and friends, which their parents or spouses were not in a position to provide. This implies that coping strategies can change according to the situational context in which the problem occurs (Forkman and Lazarus, 1984; Lazarus 1993). As such, it can be suggested that an effective coping process requires a combination of situation-dependent strategies for either an individual or group of people surrounding that individual in need.

Similarly, findings on the coping strategies revealed that some coping strategies, such as peer support, were employed across different stressful conditions and time. This finding supports the idea by Carver *et al.* (1989) to the effect that in some cases people do not approach the problems they encountered in life as a new situation but rather employ certain coping strategies which were effective when dealing with similar experiences in the past. In this regard, some coping strategies can be stable and fixed across time and situations (*ibid.*), whereas others can change across time and situations (Forkman and Lazarus, 1984; Lazarus 1993). Due to the vital role of peer support plays in helping students with SI there is a need to make peer support official in Tanzania's inclusive schools, whereby non-disabled students are trained on how to support their fellow disabled students because the experiences reported in this study is something informal, not planned or organised by the school authorities.

The findings on the use of social support networks are consistent with the conceptual model guiding this study (see section 2.4 Figure 2.1). The model categorises three coping resources (material, psychological, and social support networks), where social support networks involving family, teachers, fellow students and friends. However, the findings have extended the social support networks to include non-governmental and religious organisations which were previously not in the original model. This sub-unit of social support was added in the model due to its unique contribution to the coping process of students with SI. Its presence in the model will not only motivate other NGOs, religious organisations and charity organisations to support the government in the education of students with SI and others with impairments but will also shed light on the disabled students particularly regarding social support available when they encounter similar problems.

Some similarities and differences were revealed in the use of social support among students with SI. Whereas students with VI made extensive use of all social support networks,

students with HI relied much more on the support they received from parents and close relatives, such as siblings, than on fellow students and friends. This orientation can be explained by communication problems students with HI have to contend with, which affected their interactions with others (Hallahan, Kauffman and Pullen 2012; ASHA, 2015). In other words, the effective use of social support depends on an individual's ability to interact and socialise with other people in society.

The findings of the present study support the results of other similar studies which documented the use of social support among individuals with either VI or HI in coping with the different barriers they encountered (Hallberg *et al.* 2000; Hagnebo, 2003; Shahminan 2012; Phiri 2013; Stevelink, Malcolm and Fear, 2015). Stevelink, Malcom and Fear (2015) argued that “coping with VI is a continuous struggle” that needs social support. This view was also supported by Phiri (2013) who documented the use of family and peer support among students with VI in coping with academics-related barriers.

Shahminan (2012) reported a remarkable contribution of social support networks to the education of students with HI, asserting that the extensive use of parents, family, teachers, hearing siblings and peer support enhances academic achievement. The use of social support has also been revealed by other studies in coping with conditions/impairments other than SI, or managing chronic illness as well as handling daily stresses (Forkman and Lazarus 1984; Thompson *et al.* 2007; Givorn and court 2010; Burns *et al.* 2013; Claire, 2015). Givorn and court (2010) just like Hallberg *et al.* (2000), did not use the term “social support” in their study but mentioned the use of social support in their coping strategy called “determination”, whereby students with reading and attention difficulties reported using their peers to assist them in academic tasks such as reading. Similarly, Burns *et al.* (2013) reported effective use of social support in coping with daily tasks by individuals with dyslexia.

The findings from this study and other related studies demonstrate the relevance of other people (social support) in assisting individuals with conditions/impairments to overcome challenging situations. This also entails that social support is crucial in coping with various stresses, regardless of whether an individual in stressful condition has impairment or not. However, for disabled people, social support networks can be hindered by society's negative attitudes towards this group because some people in society, including teachers, still uphold some negative attitudes towards disabled people (Alanazi, 2012; Phiri, 2013; Alothman, 2014). Based on this finding, some people may not be ready to assist disabled students because they perceive them as "incapable" and others may not wish to be associated with them because of social conformity. Thus, the transformation of teachers and societal attitudes towards disabled people is essential for this group to benefit fully from social support.

Moreover, findings on the use of social support networks revealed an association between an individual's ability in social interactions and effective use of social support. It was revealed that those who had positive interactions with others, (teachers, peers, family members) coupled with having a good number of friends, employed more social support networks and other adaptive coping strategies than their counterparts lacking these characteristics. This finding supports the vital role that secure attachments with others play in dealing with stressful conditions (Ognibene and Collins 1998; Shaver and Mikulincer 2008; Lopez *et al.* 2001; Berry and Kingswel 2012).

Indeed, secure individuals have a greater chance of seeking social support than those who were insecure (Ognibene and Collins 1998; Lopez *et al.* 2001) because they have the ability to recognise the availability of support from friends and family members that surround them and take advantage of that (Ognibene and Collins 1998). Conversely, individuals who avoid

attachments with others are less likely to seek support from others (Shaver and Mikulincer 2008).

II. Collective efforts of students with SI

Findings from the study revealed that apart from students with SI seeking support from other people such as parents and fellow students, they also forged links and combined strengths as students who share the same problem. This belongingness of disabled students, who share a similar problem, creates mutual understanding among their ranks and allows them to provide emotional support to one another (Hallberg *et al.* 2000). As sections 5.1.2 have demonstrated, these students learnt to share the little available resources and cope with the acute shortage of resources through the division of labour for the benefit of the whole group. Although this coping strategy was reported to be effective, it also created additional demands on a student selected to type out the notes of all the subjects on behalf of their fellow. This approach is involving because typing consumes time regardless of whether a person has high speed or not. Thus, when one student allocates most of his/her time to typing notes, there is a possibility of compromising his/her time that could otherwise be spent on private reading, which in turn could affect his/her preparation for tests and examinations. Instead every student could have a turn in this exercise; allowing those with low speed to improve their typing, and to relieve the burden of typing from one student.

III. Personal efforts of students with SI

This coping strategy involved various exertions of an individual to overcome stressful situations. It includes general and specific personal effort. One of the general personal efforts reported was determination and persistence (see section 5.1.3I). Students with SI who reported determination and persistence as one of their coping strategies coped better than their counterparts. This is in line with Jones and Maloney's (2015) view that individuals with

self-determination were more likely to achieve their goals effectively than those without such self-determination. Analysis of the findings revealed that determination and persistency were more pronounced in secondary schools and HEIs than in primary schools. It seems the adolescence stage has influenced the findings in this regard as it constitutes a critical stage during which individuals acquired various skills including having self-direction and self-determination (Wehmeyer *et al.* 2013).

Although some personal exertions were effective in more than one stressful encounter, other strategies were specific to certain stressful encounters (see sections 5.3.1 and 5.3.2). For example, individuals' ability to persevere in difficult situations assisted them to cope with different situations. This is possibly because the ability to persevere is more than a coping strategy; it is also a skill that enables a person to deal effectively with situations, grow in the process and adjust from it (Artuch, see Gonzalez and Artuch 2014). Moreover, literature has documented that individuals who persevere in difficult situations are more likely to employ problem-focused coping strategies (*ibid.*), which in turn improves their social functioning and assists them to adjust from stressful conditions.

The determination and persistence attested to in this study are in accord with Phiri's (2013) idea of internal and external factors that motivated students with VI to proceed to HE. Just as in Phiri's study, some students with SI who deployed this strategy were driven with the desire for self-worth, that is, obtaining good employment and having a family (see section 5.1.3I subtitled determination and persistence comment by P21).

Determination and persistence have been found to be the most adaptive coping strategy that allows an individual in a stressful situation to demonstrate a range of personal competencies when overcoming a difficult circumstance (Givon and Court 2010).

Students with SI, who reported determination and persistency as their coping strategy, also demonstrated other qualities which assisted them to persevere, such as belief in their abilities, having high expectations in life, and/or positive social interactions with others. This implies that such qualities are vital in promoting resilience in difficult situations among people or any student regardless of whether one has conditions/impairments or not. This finding is in accord with internal and external factors that can facilitate resilience among individuals as proposed by Artuch (see, Gonzalez and Artuch 2014).

Resilience was found to be an essential attribute in overcoming difficult situations (Gonzalez and Artuch 2014), as it provides an individual with strength, competencies, skills and the ability to endure and deal with stressful encounters in more adaptive ways. In this regard, resilience seems to be an important element in coping with different stressful situations, regardless of whether a person has a disability or not because the resilience attribute allows individuals in stressful condition to be less likely to give up in difficult conditions. Although literature seems not to be certain whether resilience is an inborn characteristic or acquired, Gonzalez and Artuch (2014) argue that all individuals have a potential to be resilient. This suggests that, parents, care-givers, teachers, and counsellors can nurture resilience among children using the external factors to activate resilience factors. In addition, the type of personal effort revealed in this study were found to be effective in enabling someone to cope with educational barriers as they served as a basis for social

support networks and students' collective efforts. This can suggest that personal effort plays a vital role in consolidating the use of social support networks.

Positive reappraisal was revealed as one type of personal effort which involves accepting one's impairment and perceiving the impairment as an opportunity rather than as a problem. This is one of the emotional-focused coping strategies (Forkman and Lazarus, 1984; Forkman and Lazarus, 1988). The findings are consistent with the conceptual model of the study, which advances that, the coping process depends on how a person appraises his/her encounter (see section 2.4 *Primary appraisal*). Those who appraise the encounter as not controllable they opt for emotional-focused coping. Similarly, those who accepted their impairment as their self-identity/image perceived it as an opportunity and coped better with the ensuing challenges (see section 5.1.3 subtitled *positive reappraisal* comment by P9, P13, P17, and P21).

The findings of the present study also confirm the coping model guiding this study, which acknowledges the fact that accepting impairment is a process which can be achieved at the end of the coping process and in this study, it is perceived as the outcome of the coping process which can be influenced by the way an individual appraises the situation, evaluates the coping resources at hand, and selects the coping strategy to use.

IV. Educating the Tanzanian society

This strategy was revealed to be effective in managing societal negative attitudes towards students with SI (see section 5.1.4 comment by P21). As one of adaptive coping strategies, the provision of education to the Tanzanian society helped to deal with one source of negative attitude, which is society's ignorance about disabled people and primarily because of stereotyping. Just as in other types of coping strategy, the choice to use this strategy or

any other strategy, such as avoidance and/or distancing, depended on how students with SI appraised their respective society's negative attitudes (Forkman and Lazarus 1984; Thompson *et al.* 2007).

Those who decided to educate Tanzanian society reported appraising the society's negative attitude as resulting from society's unawareness of their abilities, which they perceived as *a challenge to be met* (refer to the conceptual model guiding this study). Similar findings were reported by Hallberg *et al.* (2000), who found that individuals with HI educated those without HI on how best they can relate to them to meet their needs. Based on this finding, it can be suggested that, society's attitudes towards individuals with SI can become an educational barrier depending on the meaning that students with SI attach to those attitudes.

The provision of education has the potential of effectively translating into attitude formation and change as it provides cognitive information to people, which is vital in changing an individual's belief towards an object, situation, a person or a group of people (Fishbein and Ajzen, 1975). Similarly, education provided by individuals with SI helped to correct some of the negative beliefs harboured by society as belief generally influences people's attitudes towards an object (*ibid.*). Findings also concurred with Rieser (2001) who reported positive outcome of seminars on inclusive education in South Africa which helped to breakdown feeling of shame among parents of disabled children, and enhanced positive attitudes towards inclusion among parents of non-disabled children who previously were not in support of inclusion.

6.3.2. Emotional-focused coping (Non-adaptive coping strategies)

Compared to the adaptive coping strategies these strategies were rarely used. Nevertheless, they were found to be employed by students with SI in circumstances where it was difficult to control the situation or where an individual had no influence over the situation. These coping strategies are referred as non-adaptive because they involve negative/irrational/hostile actions such as confrontations, denial, distancing, and avoidance among other things (Thompson *et al.* 2007; Folkman and Lazarus 1988; Lazarus 1993). The findings of the present study are in accord with Hagnebo (2003), who reported that coping strategies such as escape/avoidance and confrontative coping were occasionally used by individual with HI. Non-adaptive coping is similar to what Carver *et al.* (1989) termed as *dysfunctional* coping.

Non-adoptive coping strategies are used to manage or change negative feelings associated with the encounter though the actual situations had not changed (Lazarus 1993). Since these coping strategies are directed towards the emotions and not the root of the problem, they provide an individual with a short-term relief in the interim period as the problem has not yet been tackled (Lazarus 1993; Seiffge-Krenke 2004; Givon and court 2010). They are also referred to as non-adaptive because they are associated with psychological symptoms, indicating distress among individuals who employ them (Carnice and Calderan 2012).

In the present study, students with SI coped with society's negative attitudes, social isolation and communication barriers by distancing themselves from the problem through mental disengagement, behaviour disengagement, for example, avoiding people/situations with negative attitudes and/or confronting those who treated them negatively (Folkman and Lazarus 1988; Carver *et al.* 1989; Firth, Greaves and Frydenberg 2010; Givon and Court 2010). Although Firth, Greaves and Frydenberg (2010) reported the use of non-adaptive

coping strategies, such as ignoring the problem, their findings differ from those of the present study because in their research they had found more extensive use of non-productive coping (ignoring the problem) than productive coping among students with learning disabilities. This is contrary to the findings of this study where both adaptive and non-adaptive coping were employed with non-adaptive being utilised mainly in coping with social barriers.

Although the three coping strategies (distancing, escape-avoidance and confrontation) assisted individuals with SI to manage their emotions associated with negative attitudes, they did not help them to adjust from the attendant society negative attitudes, social rejection as well as communication barriers because these strategies did not focus on addressing the source of the problem. Moreover, non-adaptive coping, such as behaviour disengagement can lead to negative psychological well-being (Carnice and Calderan 2012). To ignore the problem is similar to what Freud (1966) calls *denial* of the problem where by the primary objective is to distort the reality. In fact, this approach does not provide a permanent solution to the problem; rather it allows the person temporary relief from negative treatment as it is not always possible to disengage one's mind from the problem or negative attitudes directed towards one. Freud (1966) argues that the painful emotions and feelings people try to forget by suppressing them to the unconscious mind can be brought up to the conscious mind. Similarly, ignoring the problem complicates the situation even more as the event becomes more serious to manage (Carver *et al.* 1989).

Moreover, the findings revealed an association between the use of non-adaptive coping strategies and social isolation, difficulty in making and keeping friends because students with HI, who reported more cases of social isolation and difficulties to make and keep friends, were found to use non-adaptive coping strategies more than their counterparts. This result is in line with the idea that, insecure individuals—those who avoid attachment with

others—have fewer chances of employing problem-focused coping, such as social support, as they may prefer distancing and/or avoidance strategies (Ognibene and Collins 1998; Berry and Kingswel 2012).

The association between poor social interactions among students with HI with the use of non-adaptive coping strategies can draw the attention of school counsellors and teachers to the fact that nurturing positive social interactions among these students can stimulate effective use of adaptive coping among students with SI and others with conditions/impairments. This finding concurs with Shaver and Mikulincer's (2008) idea that cognitive appraisal of a stressful encounter and the ability to cope can be influenced by an individual's attachment style. Indeed, individuals with secure attachments with others have a greater chance of interpreting a stressful situation as less threatening than their counterparts with insecure attachment (*ibid.*).

6.4. Coping strategies in relation to respondents' demographic characteristics

6.4.1. Gender

Findings from the study revealed similarities between male and female students in the level of coping. However, some gender differences were reported in coping with the environmental barrier and society negative attitudes. The differences resulted from their interpretation of the encounter and coping strategy selected. Regarding the environmental barrier and societal negative attitudes, some female students interpreted them as a threat to their goal attainment, whereas some male students interpreted them as a challenge to be taken on. Similarly, female students reported to be affected more by those barriers than their male counterparts. This result supports the result by Seiffge-Krenke *et al.* (2001) and Matud (2004) to the effect that there were differences between females and males in cognitive appraisal, whereby the females reported to experience more times the amount of stress and

found it to be more demanding and challenging than the males. The differences in appraising the encounter in this study resulted into differences in coping. For example, whereas some female students relied much on social support in coping with inaccessible environment, male students used personal effort such as *creating mental picture of an area*. This result matches with the coping model on the view that primary appraisal does not only influence coping resources, but also the type of coping strategy (see section 2.4 Figure 2.1).

Gender differences revealed in this study support the findings by Gelhaar *et al.* (2007), and Melendez (2012). However, the gender differences revealed in this study are not based on the number of stressful experiences that female students with SI experienced over male students but are based on the magnitude of the experience they went through while subjected to a similar problem and how they interpreted that situation. In this regard, the difference revealed does not suggest gender inequalities in coping: that male students are more “powerful” (Macionis 2010), or have more access to coping resources or coped better than female students. Rather the difference demonstrates how female students can interpret a certain situation they encountered differently from male students, which could possibly be influenced by other things such as socio-cultural factors, which nurture male child to be more independent than a female child (Macionis 2010). This suggests that, male students’ efforts to create “a mental picture of an area” as a strategy for coping with an inaccessible environment could be their effort to conform to socio-cultural expectations and not necessarily the state of being male or female. Generally, the findings from this study revealed more gender similarities in coping strategies between male and female students than their differences.

6.4.2. Age

Findings revealed a wide application of the social support networks, especially parental support, compared to other strategies during young ages, that is, the age of primary and early secondary schools as compared to advanced secondary and HE when participants started to employ other strategies such as determination and persistency. This finding supports the result on the influence of age in coping by Seiffge-Krenke (2004), Gelhaar (2007), and Zsolnai, Kask and Braunitzer (2015). Age-related differences in the use of social support among students with SI can be associated with changes in their individualised cognitive developmental and social maturity (Seiffge-Krenke 2004). Age-differences were also reported in the use of different types of social support. In secondary schools and HE peer support (readers, note-takers, friends, and fellow students) was more pronounced than parental support. This is in line with the findings by Gelhaar (2007) who found a decrease in the use of parental support among older adolescents because they prefer to confide more in peers than in parents.

Preference of peer over parental support during adolescence was found to be more economical and effective in managing difficult situations, because at this stage of development individuals feel comfortable talking about their problem in a peer setting (Seiffge-Krenke 2004). Similarly, students with SI started to report alternative coping strategies such as determination and positive reappraisal during late secondary school and HE (16 years+). These findings are in accord with other previous results in affirming that coping strategies increases with age (Seiffge-Krenke 2004: Gelhaar 2007). Gelhaar (2007), for example, reported that, internal coping, which involves cognitive reflective process (determination and positive reappraisal), was found to be more apparent in late adolescence than in earlier stages of development. The implication of this finding is that parents, teachers and school counsellors need to be aware of the effect of age in coping strategies for them to

establish the type of support needed at a certain stage of development to assist students with SI and others with conditions/impairments cope with educational barriers much more effectively. Specifically, school counsellors and/or teachers are obliged to nurture the cognitive reflective process of students with SI and others with conditions/impairments, which are vital in developing internal coping strategies such as determination and positive reappraisal.

6.4.3. Type of impairment and its onset

Differences in coping were revealed between students with HI and VI in the use of non-adaptive coping strategies whereby students with HI reported the use of non-adaptive coping more than their counterpart with VI. Although this difference is supported by literature, which indicates that, students with HI tend to isolate themselves (behaviour disengagement) from hearing students due to communication difficulties (Stinson and Whitemire, see Hallahan, Kauffman and Pullen 2012), the onset of impairment can also explain this difference. Most of the students with HI who participated in this study acquired a hearing impairment in their secondary schools and HE compared to students with VI, the majority of whom had acquired it during childhood.

Therefore, age differences at which they acquire an impairment play a more vital role in orienting their differences in coping than their impairment. This is also applicable among students with VI as the findings did not report any difference in coping between a student born with VI and those who had acquired it early in childhood; however, differences emerged between those who had acquired in early childhood and those who had acquired it later in later life stages. This finding implies that the onset of impairment can better explain the differences in coping among disabled students than the type of impairment in the process of accepting the impairment and coping with the barriers associated with the impairment.

This is because accepting one's impairment is a process which can be determined by the onset of the impairment (Stevelink, Malcolm and Fear 2015). This entails that those who were born with a certain impairment or acquired it in childhood face a better possibility of demonstrating a smooth coping process than those who acquired the impairment in adulthood (see section 5.1.3 subtitled *accepting your condition/impairment* comment by P5 and P21). The findings match the idea of Stevelink, Malcolm and Fear (2015) that those who acquire a disability in adulthood take time to accept the situation as they pass through the five-stage model of coping with trauma; Denial, anger, depression, bargaining and acceptance. Although this study revealed some differences in coping strategies among participants in terms of age/educational level, gender, type and onset of impairment, it failed to substantiate whether the differences revealed were significant due to the qualitative nature of the study. Thus, one of the recommendations for further research focused on this area (see section 7.5.2.II).

Summary

This section discusses the findings of the study based on four major research questions (see section 1.6). With regard to academic barriers, the study has established persistence of scarcity of L&T resources as typical challenges attributed to the government's ineffectiveness in educational investment, poor consideration of the identified SENs of these students in the Tanzania National Budget statements, and unequal balance between educational access and quality of education. Another academic barrier is related to teachers' exclusionary practices associated with their poor understanding of the concept of inclusion, teachers' negative attitudes and lack of support from authorities. Other academic barriers include inaccessible examinations and communication barriers. It has also emerged during the discussion that what is actually taking place in Tanzania's inclusive schools is incongruent with official education policies and guidelines on how to support students with

diverse needs. Under the second objective of the study focusing on social barriers, the study associated attitudinal barriers with; Negative social cultural values and traditional beliefs; low socio-economic status of most disabled people; lack of society exposure to the achievement of people with SI and other with conditions/impairments and poor self-concept among students with SI themselves.

In terms of coping strategies, students with SI were found to employ more adaptive coping strategies than non-adaptive coping strategies. Whereas adaptive coping strategies were used to deal with the source of the problem, non-adaptive coping strategies were used to manage negative emotions associated with difficult situations. Some differences were recorded in coping strategies between different age groups, gender, and the onset of the impairment. For example, parental support was most predominant during the primary school age than secondary and HE age when peer support and other strategies took over and became more pronounced than parental support. Regarding gender, differences were revealed on the extent to which both genders experienced the same problem. Finally, the onset of impairment was found to influence the coping process among students with SI in that those who were born with the impairment or acquired it early in childhood were found to cope better than their fellow who had acquired the impairment later in life. The next chapter presents summary, conclusions and recommendations.

CHAPTER SEVEN

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

7.0 Introduction

This chapter presents a summary of the study findings, conclusions and recommendations drawn from the findings. The chapter is organised into five subsections. The first section appraises the theoretical implications of the study and provides a summary of what inspired the researcher to conduct this study and the theory which guided the study. The second section explains the strengths of the study and its methodological implication. This section describes the unique aspects of the study that differentiates it from other similar studies. The third section summarises the findings according to the major themes that emerged during analysis. The fourth section presents conclusions and the last section provides recommendations drawn from the findings, that is, recommendations for actions and for further study.

7.1. Theoretical implications drawn from the study

Findings from this study constitute a response to the literature gap that needed an exploration of educational barriers and coping strategies of students with SI in the Tanzanian context. Literature has consistently documented academic under-achievement of disabled students particularly those with SI as well as school dropout cases in Tanzania's inclusive schools (URT 2009, Mwakyeja 2013; NECTA 2015). The National Strategy on Inclusive Education 2009-2017 Report shows that "drop-out and repetition rates remained high for both disabled learners and other vulnerable learners" (URT 2009, p. 2). Similarly, the presence of academic under-achievement of students with SI is distressing and hinders the government's efforts to achieve the Education for All (EFA) goals much in line with the Millennium Goals. For example, in 2014 only two students with hearing impairment (HI) out of 22, who sat for

the Certificate of Secondary Education National Examination in one of the special schools that enrol students with hearing impairment in Tanzania (Viziwi Njombe Secondary School), passed the examination (NECTA, 2015). Furthermore, the majority of students with HI face difficulties in all areas of academic achievement, particularly in reading and Mathematics (ASHA 2015). Thus, they usually fail to keep pace with their hearing peers in academic achievement and the gap widens as they proceed through education (ASHA 2015).

Academic under-achievement of disabled students and school dropout has been attributed to challenges that have been constraining the Tanzanian education system. Notwithstanding these challenges, some students with SI have managed to cope and reach HE. This feat against the odds inspired me to conduct this study to explore specific barriers these students encountered throughout their schooling and how they managed to cope with these challenges and scale the education height up to and including HE. This study was also inspired by the paucity of knowledge on educational barriers that students with SI faced and their coping strategies (see section 2.6.2).

The Cognitive Motivational Relational Theory of coping by Lazarus (1991) was adopted to answer the four research questions (see subsection 1.6). The theory explains the role of cognitive appraisal in the coping process, that is, coping strategy is determined by the way an individual interprets a stressful condition. This suggests that variance in cognitive appraisal can lead to differences in coping strategies as well as coping resources. The theory is summarised in the conceptual model (see Figure 2.1 section 2.4). Generally, the study findings confirm the applicability of the Cognitive Motivational Relational Theory of Coping (Lazarus 1991) and the adapted Conceptual Model in understanding how students with SI overcome the challenges they face in their educational path. Therefore, the

conceptual model can be adapted by other researchers to explore the coping strategies across a variety of problem settings.

7.2. Strengths of the study and its methodological implications

One of the unique aspects that differentiate this study from other previous similar studies is the inclusion of the learner's voice. This is in line with participatory and emancipatory research whose emphasis is embedded in the exploration and dissemination of research participants' views and experiences on a certain phenomenon based on their own perspectives (Swain and French 1998). The use of the learners' voice strategy was supported by the social constructivist paradigm that guided this study. The paradigm perceives knowledge as an outcome of people's interactions with their environment (Cohen *et al.* 2011). This implies that knowledge about a certain phenomenon can be understood within people as they actively construct meaning out of their daily interactions with their environment.

This learner's voice strategy was useful in this study because educational barriers the students face and their coping strategies revealed in this study constitute outcomes of students with SI experiences in their interaction with their teachers, fellow students and the school environment at large. In this regard, the voice of students with SI allowed me to explore their academic and social barriers from the perspective of the students themselves, who have actual practical experience, rather than from that of their teachers or other professionals. This approach is in line with an old English proverb which says, "only the wearer knows where the shoe pinches." Also, the implication of using the student voice in this study is that it created an awareness that educational stakeholders can make use of regarding grasping the gaps that exist between what was intended to be provided to these students and the actual practice (Richards 2016c).

Another unique aspect of this study is that educational barriers and coping strategies were explored from when a student was in primary school to and including HE. Other studies have explored them at one educational level, either primary, secondary, or HE, hence making it difficult to assess how students perceive educational barriers in different educational levels and how their coping strategies differ across these levels. This study bridged this gap by revealing similarities and differences in educational barriers and coping strategies across educational levels in the Tanzanian education system.

A final unique aspect of this study is associated with the body of literature it has delineated regarding the distinctive knowledge on coping strategies of students with SI. The coping strategies revealed are not only consistent with Cognitive Motivational Relational Theory of coping by Lazarus (1991), but also with other similar studies in the area of coping. Thus, the knowledge is useful not only to Tanzania but also other developing countries with similar characteristics, as well as developed countries due to growing concern on inclusive education which is engendered by limited knowledge in the area of coping strategies.

However, due to the qualitative nature of this study it was difficult to involve many respondents and HEIs for the generalisation of the study findings. Similarly, the study could not confirm whether the differences revealed in coping strategies (in terms of age, gender and onset of impairment) were significant, which is often possible under a quantitative study that is able to use statistical inferences and calculations to establish the level of significance. Also, the study could not examine factors that influence the coping strategies of students with SI. Other limitations of the study were related to the nature of the research instruments and strategies used in collecting data; however, the researcher used appropriate strategies to minimise their effect on the final outcome (see section 1.9)

7.3 Summary of the major findings

7.3.1 Academic barriers of students with Sensory Impairment (SI)

Scarcity of Learning and Teaching (L&T) resources

Findings from the study revealed scarcity of L&T resources as the major barrier identified by students with SI in their education journey. Under this barrier, students with VI reported to be constrained by the scarcity of Braille machines, Braille papers, typewriters, Braille books, large print books, tape recorders for note-taking, as well as assistive devices. Similarly, students with HI reported the absence or poor quality of the few available hearing aids. Although some schools experienced lack or shortage of these special resources, others had some malfunctioning resources.

Despite the scarcity of L&T resources seemingly to affect all educational levels, the findings revealed that, special schools were better off in the provision of special resources, followed by some inclusive primary schools as compared to secondary schools and HE. However, there are differences reported in L&T resources between the two HE institutions involved in the study. Whereas Institution 1 had adequate Braille machines and papers, Institution 2 had an acute shortage of Braille machines and Braille papers (see section 4.2.1). Both Institution 1 and 2 had similar results in terms of the scarcity of assistive devices and lack of knowledge and skills for applying the assistive devices among some students with SI, as well as the absence of large print and Braille books.

Teachers' exclusionary practices

Similar to scarcity of L&T resources, teachers' exclusionary practices were evident in all the educational levels. However, the situation was reported to be worse in secondary schools and HE compared to primary schools. Students with VI reported to be excluded by teachers

whose teaching methods depended much on either chalkboard/multimedia projectors during teaching/lecturing with little oral explanation, whereas students with HI reported to be excluded in the lecture/teaching dominated by oral explanation. Other aspects of exclusion practices reported by the students with SI include hesitancy of the teachers/lecturers to be tape-recorded and to provide them with teaching/lecture notes. In addition, the study found teachers' poor involvement of the students with SI during L&T process.

In this regard, students with SI's participation during the L&T process depended much on their activeness and not the teachers' deliberate effort to reach out to them. Some aspects of teachers' exclusionary practices differed according to the type of impairment. Whereas students with VI reported to be excluded by the kind of language used by their teachers (...*what do you get when you take "this number" plus "this number", ... as you can "see" in this diagram...*), students with HI recounted to be excluded when attending lectures without sign language interpreters and/or when they failed to lip read during teaching/lectures.

Communication barriers

These were reported by students with HI to be the most challenging obstacle throughout their educational journey. These barriers resulted from the scarcity/absence of sign language interpreters, poor quality hearing aids and difficulties faced in learning though lip-reading. It was reported that in some occasions most of the students who used sign language for learning and other communication purposes, attended their lectures without an interpreter because of their scarcity. Similarly, those who could follow instructions using hearing aids failed to do so because of either their absence or the poor quality of the devices available. Moreover, students reported difficulties in reading lips of an English language speaker because of an abrupt change from Kiswahili language, which is used as a medium of

instruction in public primary schools, to English as a medium of instruction in all secondary and HE. In addition, lip reading was reported to pose a challenge in classes or lectures where some teaching styles hindered effective lip reading among students with HI, for example, failing to face the affected students and abrupt twists and turns.

Barriers in curriculum

Lack of an inclusive curriculum was also revealed to be a major barrier. Students with SI reported to be taught using the core curriculum without any modification that could otherwise cater for their interests. For example, content of subject syllabi failed to consider students with SEN because it did not clearly address the strategies to be employed to teach a certain topic for students with varying needs or even suggest the alternative materials that could be deployed for these students. Since a syllabus serves as a guide to teachers, a poorly prepared syllabus can result in poorly taught lessons. Thus, there is a need for a modification or adjustment of learning instructions, methodologies and materials to meet the diverse needs of students (Rose and Meyer 2002; Edyburn 2005). However, curriculum adaptation in this study was found to pose a challenge in inclusive schools which just like other barriers applied to all education levels.

Examinations and information inaccessibility-based barriers

Five subthemes emerged from this theme: inaccessible examination format and administration procedures; lack of oral and written feedback from teachers; delay in examination time; incompetence of transcribers during marking and inappropriate grading. Moreover, the ways educational institutions deployed information were reported to be inappropriate in meeting the particular needs of students with SI. Whereas students with VI reported difficulties in accessing printed information, students with HI reported difficulties in processing oral information.

All the five examination barriers above were reported by students with VI and only one (delay in examination time) was reported by students with HI. This is because the nature of VI demands special resources/assistive devices in sitting their examinations and/or specialists/special skills in marking which in this study were reported to be scarce. Due to absence of special resources, some students with VI reportedly did their examinations orally and lack of Braille skills among teachers resulted into lack of oral and written feedback from examination written in Braille.

Other barriers (delays in examination time and inappropriate grading system) can also be associated with the following factors: lack of lecturers' awareness of students with SI in the classroom, the government's poor consideration of students identified with SEN, and negative attitudes.

Environment accessibility barriers

Findings from the study revealed three subthemes in relation to inaccessibility of the environment. They include inaccessible buildings and environment infrastructures, reckless driving within the campus and lack of orientation and mobility training. Students with VI were more concerned about the inaccessible buildings and environmental infrastructures as well as reckless driving than lack of orientation and mobility training. It was reported that most of the educational infrastructures such as classrooms, libraries, laboratories, halls of residence, cafeteria, were not accessible to the students with VI and those with reduced mobility due to the presence of broken staircases, ditches, and scattered stones along their pathways. Similarly, some drivers were reported to be inconsiderate to the disabled students because of high-speed at which they drove on the campus roads.

Whereas inaccessible educational infrastructures were reported across educational levels, reckless driving was reported in the HEIs. Moreover, the findings revealed that inaccessible educational infrastructures do not only apply to all educational levels but is also a problem in old and new educational institutions. Indeed, it was revealed that most of the educational infrastructures at both Institution 1 and 2 were not accessible to students with VI.

7.3.2. Social barriers of students with SI

Three subthemes emerged from the analysis of this research question: negative perception that individuals with SI are incapable, social isolation and difficulties inherent in making and keeping friends. Students with SI reported that some of their fellow students, teachers, and other people in society perceived them as “incapable” and thus “burden” to them. The respondents also revealed differences among teachers’ perception of students with SI: primary school teachers being more positive and considerate to these students than secondary school teachers, some of whom would avoid having these students in their classes in an attempt to maintain good class rank.

A similar negative perception was reported to persist among some parents who had a negative attitude towards the education of students with SI with the believe thought that, it constituted a waste of time and resources. The other two subthemes (social isolation and difficulty to make and keep friendship) were reported more by students with HI than students with VI. The findings revealed that students with VI utilised peer support extensively to cope with academic barriers, whereas students with HI used personal effort or close relatives due to lack of friends caused by social isolation.

7.3.3. Coping strategies of students with SI

The analysis of this research question revealed seven coping strategies employed by students with SI to manage academic and social barriers they encountered throughout their educational journey. They reported employing both problem and emotional-focused coping. The seven coping strategies that emerged during the study can be categorised into two major groups: adaptive and non-adaptive coping strategies as illustrated in the following table:

Table 7.1: Adaptive and non-adaptive coping revealed in the study

Adaptive coping strategies	Non-adaptive coping strategies
Social support networks	Distancing
Collective effort of students with SI	Escape avoidance
Personal effort of students with SI	Confrontations
Educating the society	

From the table above, adaptive coping strategies were used to cope with academic barriers more than with social obstacles whereas non-adaptive coping were mainly deployed to cope with social barriers.

Some differences in the use of coping strategies between students with VI and those with HI were revealed in this study. These include among other points; over-reliance on non-adaptive coping strategies by students with HI in coping with social barriers as compared to students with VI. Moreover, differences within HI and VI themselves such as extreme use of parental support in primary as compared to secondary and HE were attributed to cognitive maturity because coping strategies can be influenced by age (Seiffge-Krenke 2004: Gelhaar 2007). Similarly, other differences such as the tendency of female students to be more sensitive to

environmental inaccessibility and the negative attitudes in society than their male counterparts were attributed to gender differences (Seiffge-Krenke 2004).

7.4. Conclusions from the main findings

The findings on academic barriers, specifically scarcity of L&T resources, teachers' exclusionary practices as well as curriculum barriers have shed light on the fact that what is actually taking place in Tanzania's inclusive classrooms is contrary to the stipulations the National Strategy of Inclusive Education 2009-2017 puts forward as well as what other education policy documents such as PEDPII (2006-2011) articulate. Thus, the study findings reveal the inconsistencies between some of the country's education policies and the practices in its inclusive education.

This implies that the successful inclusive education does not only depend on the good strategic actions and/or policy guidelines but also on the effective implementation of what has been stipulated in the policy. The national inclusive education strategy has tried to answer the question of *what* in the implementation of inclusive education by elaborating its strategic actions, which includes ensuring the supply of assistive devices for students identified with SEN; increasing the participation of all students in inclusive classes; and teachers conducting curriculum differentiation to meet the diverse needs of students in inclusive classes (URT 2009). However, from the study findings, it seems that none of these strategic actions are evident in the current practices of inclusive education, possibly because the preparation of these inclusive strategic actions did not effectively integrate the voices of the practitioners who could answer the *how* part of the strategic actions. The involvement of the practitioners, such as classroom teachers who are primary implementers of inclusive education in the classrooms, could assist the process of translating policy into practice.

Therefore, teachers are expected to increase the participation of learners in inclusive classes and conduct curriculum adaptations without necessarily being equipped with means for making thorough preparations, assistive devices and support from school authorities to make this possible, which is a tall order. On the other hand, the lack of assistive devices, special/inclusive education training and support from school authority does not justify teachers' exclusionary practices targeting students with SEN. After all, teachers are supposed to be creative and innovative in looking for alternative materials and resources that could assist these students learn and participate effectively in their inclusive classes.

The findings of the study also revealed how the absence of assistive devices and teachers' support has hindered the effective inclusion of students with SI. The absence of special resources caused not only a communication barrier to students with HI, but also hindered their access to curriculum, teachers' instructions and examinations. Similarly, the study findings provide insight into the importance of teachers' preparation, readiness and provision of requisite support for the effective implementation of inclusive education to become a reality. Their preparation in terms of training improves their practices since teacher training increases their competence and ability to accommodate disabled students in learning activities (Richards 2016a), and their readiness, as well as support from either school authorities or the government enhancing inclusive positive practices and vice-versa (Alothman 2014).

Communication barriers revealed in this study entails that effective inclusion of these students in regular classes requires not only quality hearing aids, appropriate teaching methodologies, but also conducive classrooms with minimal distractions from inside and outside noise (Ainscow 1995; BB93 [DfES] 2003; Alothman 2014). Generally, findings on academic barriers require timely and committed interventions on the part of the government

through its Ministry of Education, Science, Technology and Vocational Training, and other educational stakeholders for these students to benefit effectively from inclusive education. Academic barriers such as scarcity of L&T resources, teachers' exclusionary practices, as well as curriculum barriers can hinder the government's effort to achieve Education for All (EFA) and Universal Primary Education (UPE) goals as they can obstruct students' access to curriculum, teachers' instructions and materials which are not designed to cater for their specific needs (Douglas *et al.* 2011) resulting into school dropout (Hakielimu 2008; URT 2009) and/or academic under-achievement (Mwakyaja 2013).

Inclusive education practices revealed by the study findings also illustrate that what is being practised is inconsistent with the definition of inclusive education given by its National Strategy of Inclusive Education, which emphasises on increasing participation of learners through minimisation of barriers and maximisation of resources. In this regard, what is practised in Tanzania's inclusive classrooms seems to be merely physical placement of disabled students in regular classes.

Similarly, literature has consistently shown that inclusive education is governed by the Social Model of Disability, which associates the learning difficulties experienced by the child, with the existing education system and its environmental factors (Trussler and Robinson 2015; Scruton 2016). Thus, effective inclusion of disabled students requires the transformation of the whole education system to include aspects relating to teachers and students, as well as society's attitudes for it to be responsive to the particular needs of these students. In fact, the teachers' negative attitudes, exclusionary practices and society negative attitudes established in this study appear to reflect a Medical Model of Disability whose practitioners view the learning difficulties of a child with disability as originating from a

child and, thus, the child needs to be changed to fit into the education system rather than changing the education system to fit the child (ibid.).

Findings on coping strategies of students with SI suggest that adjusting from a stressful situation is not necessarily determined by the type of coping strategies selected by an individual, but by how an individual reacts towards that stressful condition. In this regard, the study findings reveal that the interpretations and meaning that students with SI attached to the barriers they encountered played a vital role in their coping process, especially in their choice of an appropriate coping strategy. This implies that the way individuals perceive the problem and their reactions towards it is what matters in the process of adjusting and responding to a stressful condition more than the coping strategy selected. Therefore, changing ways of looking at a problem to both teachers and learners in the L&T process can change their reactions towards it and enhance students' adjustment in difficult situations.

7.5 Recommendations

7.5.1 General recommendations

- i. For the special educational needs of Tanzanian students to be reflected in the education practices, there should be a specific policy on SEN that addresses these needs across all educational levels: pre-primary education, primary education, secondary education, tertiary, vocational and higher education which must be coupled with effective implementation of that policy.
- ii. To ensure that the special educational needs of these students are known, there should be a representation of disabled students in every educational body across all educational levels, as well as the representation of disabled individuals in every sector in the country so that their needs are voiced by disabled students/individuals themselves and not through intermediaries.

7.5.2 Specific recommendations

I. Recommendation for actions

The following recommendations are presented in relation to major findings emerging from this study. They focus on what should be done to improve inclusive educational practices by different educational stakeholders at the level of decision-making, as well as at the implementation stage. Recommendations for action focus on the factors associated with the major academic barriers that hinder the effective inclusion of students with SI. In this regard, the following are recommendations for governmental action, through its Ministry of Education, Science, Technology and Vocational Training, the Tanzania Institute of Education (TIE), school authorities, classroom teachers, school counsellors as well as disabled students.

To the Government

To reduce/eliminate the problem of the scarcity of L&T resources for disabled students, the government needs to prioritise special L&T resources in national budget for students with SEN from primary schools to HE because in the current trends of national budgets from 2011-2015 students with SEN in inclusive schools are overlooked or given cosmetic treatment. In this regard, it will be difficult to meet their needs if they are not budgeted for in the national budget. Similarly, it is unrealistic to attend to their needs using the same budget designed for non-disabled students because of high cost associated with their L&T materials.

Secondly, there is a need to review the capitation fund allocated per pupil per annum to consider and meet the needs of disabled students in inclusive schools as their costs are higher than non-disabled students. The current allocated budget of TShs 10,000 (£3.20) and TShs 25,000 (£8.10) per student per annum in primary schools and secondary school respectively

seems to be inadequate to cater for their individualised needs. Moreover, the monies are often not distributed on time, and sometimes the amounts schools received were even less than the proposed amount (Hakielimu 2014b; URT 2014c). More significantly, the capitation fund allocated does not reflect the actual cost of assistive devices students identified with SEN require.

In this regard, capitation funds should be given on time and should factor in the diverse needs of students in the classroom, and number of students identified with SEN in each school. Also, to ensure adequate supply of special resources for these students, the government should encourage active community participation in financing the education of these students to reduce the government burden. Community participation in financing education was proved to be effective in 2016 during the country's presidential efforts aimed to eliminate the scarcity of classroom desks in Tanzania's primary and secondary schools, whereby every District Commissioner (Governor) involved community members in contributing classroom desks. A similar strategy can be adopted towards eliminating the seemingly intractable problems of the shortage of special resources in inclusive schools. Community participation in funding inclusive school was also reported in Mpulanga Province in South Africa through parental contributions (Rieser 2001).

Moreover, it is suggested the government revive the activities of Tanzanian Braille press as well as opening more doors for non-governmental organisations or other private publishing companies to be involved in the production of materials in accessible formats such as large print books, Braille, audio and electronic forms. This can be done in many ways including exempting Value Added Tax on all imported equipment and material geared towards producing/publishing educational material for students with VI and others identified with SEN.

Finally, governmental and non-governmental organisations should take a responsibility of employing qualified disabled people in different sectors as one of the strategies towards empowering and making them independent, as well as exposing society to their abilities to change its negative mind-set and attitudes and belief that they are “incapable”, “a burden” and “beggars”.

To the Ministry of Education, Science, Technology and Vocational Training and Tanzania Institute of Education (TIE)

With regard to lack of inclusive curriculum and curriculum adaptations, teachers/lecturers’ exclusionary practices and absence of specialists, the Ministry of Education, Science, Technology and Vocational Training in collaboration with the Tanzania Institute of Education, which is responsible for curriculum development, should revise the teacher education curriculum at all levels to include essential knowledge of inclusive and special education in a bid to produce adequate specialists in various areas of special education. Specifically, there should be a compulsory special course designed to prepare pre-service and in-service teachers on how to teach and support students with diverse needs in inclusive classes. In this regard, the country can adapt the UK idea of having a SENCo in each inclusive school for effective implementation of inclusive educational practices (see section 6.1.5, p.280). Similarly, sign language, as well as Braille reading and writing, should be made compulsory courses among all pre-service teachers at the certificate, diploma, and degree levels.

For in-service teachers, there should be ongoing seminars and workshops prepared by the Ministry of Education in collaboration with school authorities, aimed at equipping teachers with current knowledge and skills on how to conduct curriculum adaptations, according to the needs of the learners and for teaching students with diverse needs in inclusive settings.

The seminars and workshops should be preceded by a needs assessment from teachers to identify the areas teachers actually need to know in curriculum adaptations and teaching students with diverse needs, particularly those identified with SEN. Similarly, the idea of Universal Design for Learning (UDL) should be incorporated in the curriculum development and reform process, in-service teachers' seminars and workshops, as well as pre-service teachers' courses on inclusive education to enrich the teachers' competencies in preparing instructions, methodologies and materials that consider the needs of every learner in the classroom and reduce/eliminate teachers' exclusionary practices as revealed by this study. This can be facilitated and co-ordinated by a trained teacher in each inclusive school (SENCo), with support coming from school authorities when preparing seminars/workshop to train other teachers on appropriate teaching strategies in inclusive settings and strategies to conduct curriculum adaptations to meet diverse learner needs. Moreover, there should be active participation of disabled teachers during the curriculum development and reforms to ensure effective representation of the needs of these students in the curriculum.

To enhance assistive technology skills among students with VI and their access to standard print materials, there is a need to introduce specially tailored computer training for students with VI from primary school to HE, which students should master as a liberating tool that will allow them access to various educational materials via the internet as well as electronic books and journals. This is because assistive technology has been reported to be more cost-effective than large print and Braille books not only in terms of time and space but also in reducing dependency of VI students (Corn *et al.* 2003; Douglas *et al.* 2011) on sighted people to access learning materials.

To the school authorities

Effective implementation of inclusive education depends largely on the attitudes and readiness of heads of school to accept a disabled child and provide him/her with the necessary support (Alothman 2014). In this regard, heads of school should serve as role models in transforming the whole school education system, teachers, as well as students' attitudes, to enable the education system to be responsive to the needs of disabled students. This adjustment can increase the students' participation and, possibly, ease some barriers to learning as well as various forms of exclusions (Booth and Ainscow 2002; URT 2009). To accomplish this objective, heads of inclusive schools need to be aware of the disabled students, especially their SEN and to support their diverse needs in an inclusive school. Doing so would assist them in providing requisite support to classroom teachers and other supporting staff in ways that would help make a difference for disabled students.

The appointment of heads of school, where possible, should consider their area of specialisation, especially in inclusive/special education or their experience with disabled people and not general qualification in education alone (Alothman 2014). This seems to be an essential element for the heads of school as it can provide them with basic knowledge on the diverse needs of learners and strategies to meet those needs, in turn the knowledge will assist them to offer effective support to teachers and to disabled students. This suggests a need to have a compulsory special/inclusive education qualification for all heads of inclusive schools, similar to the national SENCo award in English schools (Mackenzie 2007; Qureshi 2014). Those who have been appointed without this essential background knowledge, need to familiarise themselves with how to support disabled students in inclusive classes through collaboration with other teachers within and between schools as well the use of Internet.

Moreover, heads of school should ensure there is effective collaboration with other staff, professionals, and students inside and outside the school as well as the whole community in dealing with the problems of disabled students. This strategy was revealed by students with SI to be effective in overcoming their academic barriers such as shortage of resources and specialists.

To the Classroom teachers

Since classroom teachers are key implementers of the inclusive education in the classroom, their support to disabled students is essential. Therefore, classroom teachers should understand that the academic and social barriers encountered by disabled students resulted from the limitations of the Tanzanian education system in addressing their needs. In this regard, teachers should consider these students as victims of the country's education system and thus, should render their support to assist these students to cope with the barriers they encounter in this system that has yet to become more user friendly to disabled students. This requires teachers' readiness to accept and support these students as their sole responsibility whether they have undergone training in inclusive education or not. This attitude will help teachers to facilitate learning of these students by using alternative resources and materials in situations where there is a shortage or absence of assistive devices.

The findings of this study have revealed empirical evidence of teachers who were very supportive of disabled students irrespective of their training in inclusive education and assistive devices. Therefore, lack of training and scarcity of assistive devices should not be used as pretext for being insensitive to meeting the requirements of these students in inclusive schools. This empirical evidence should encourage and motivate teachers to see that supporting disabled students depends more on their readiness to do the job than on the availability of L&T resources and training. Moreover, classroom teachers should effectively

collaborate with school authorities, other teachers inside and outside the school, professionals and non-disabled students to support disabled students.

To the school counsellors

- i. They should facilitate the coping process of disabled students in their school, especially in guiding and nurturing their thinking on how these students interpret the problem, evaluate the coping resources and select coping strategies.
- ii. They should also foster social interactions of disabled students with other people because an individual's attachment style can influence one's cognitive appraisal as well as the coping process (Shaver and Mikulincer 2008).
- iii. They should also collaborate with classroom teachers in monitoring the students' psychological well-being as well as their academic progress.

To the students with SI and other conditions/impairments

- i. They should acknowledge the fact that they have certain conditions/impairments and, thus, should accept their condition and find appropriate ways to cope with the situation.
- ii. They should understand that education is a primary liberating tool for disabled students and thus, should not despair when confronted with barriers in their educational journey. Instead, they should struggle and persevere until they achieve their educational objectives.
- iii. They should set long-term and short-term educational goals and be committed to achieving them.
- iv. They also should consult with their fellow students with similar conditions/impairments in advanced classes or even those at work (good role models) on the possible ways of overcoming certain problems.

- v. They should also be active during the L&T process to allow teachers to increase their involvement in L&T process and change the negative perceptions of some of teachers namely that disabled students are “incapable”.
- vi. They should intensify their interactions with their fellow non-disabled peers for academic and social support, as well as for overcoming social isolation and negative attitudes.
- vii. They should also see their condition/impairment as an opportunity to demonstrate their strengths and abilities to the society at large and, thus, help to transform society by steering it away from negative perception that associates impairment with incapability.

II. Recommendations for further research

This study recommends the following areas for further research:

- i. Since this study was qualitative in nature, it failed to produce statistical measures of factors that can influence coping strategies such as age, gender and onset of impairment. Therefore, there is a need to replicate the present study through quantitative research designs focusing on the coping strategies of students with SI and others with different conditions/impairments.
- ii. There is a need to conduct action research on appropriate teaching strategies tailored towards meeting the varying needs of students in the context of Tanzania’s inclusive schools.
- iii. To conduct research on teachers’ and professionals’ perspectives on how to conduct curriculum adaptation according to diverse needs prevailing in inclusive schools, using the Universal Design for Learning Principles.

- iv. Due to the society's negative attitudes revealed in this study with education being one of adaptive coping strategies to manage negative attitudes, there is a need to conduct a study focusing on the influence of education on changing society's negative attitudes towards disabled people.

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APPENDICES

Appendix 1: Interview Guide for Student's with Sensory Impairment

PART I: Students' background information

Name of University: _____ School/Faculty: _____

Name of Student: _____ Gender: _____

Degree programme: _____ Year of Study: _____ (E.g., Yr1, Yr2, Yr3, And Yr4)

Age group:

18-22 years

23-27 years

over 28 years

Type of Impairment:

Visual

Hearing

Nature of education placement:

Education Level	Name of School	Region	Inclusive (put a √)	Special (put a √)
Primary				
Secondary	O-Level			
	A-Level			

PART II: Questions on barriers and coping strategies at primary/secondary education

1. Can you describe academic barriers that you encountered during your primary/secondary school education?
2. How were these barriers addressed and successfully completed your primary/secondary school education?
3. Can you also describe social barriers that you encountered during your primary/secondary school education?
4. In all social barriers described above explain how were they addressed and successfully completed your primary/secondary school education?
(The researcher may also probe for the following questions if not covered in questions 1 to 4 above).

Academic Barriers

5. How can you describe the **school environment** (infrastructure)?
 - Ø Was it friendly/not friendly?
 - o If yes, how friendly?
 - o If not, how was the situation addressed?
6. How can you describe **teaching methodologies** used by your teachers during primary/secondary school education?
 - Ø Which teaching methodologies were mostly used by teachers?
 - o Questions and answers methods?
 - o Lecture methods?
 - o Group discussion?
 - Ø Were you actively involved during learning and teaching process?
 - o If yes, how? (Or, in what ways?)
 - o If not, why do you think so?
 - § How was the situation addressed?
 - Ø Were you given any special consideration by your teachers? (e.g., remedial classes; teaching notes in accessible format; etc.).
 - o If yes, how? (Or, in what ways?)
 - o If not, why do you think so?
 - § How was the situation addressed?

7. Tell me about the **learning and teaching materials**. Were they available?
 - Ø If yes, can you mention and describe them?
 - § Were they adequate according to your needs?
 - Ø If not, how was the situation addressed?

8. Tell me about your **access to information** in the school environment.
 - Ø Which method did your school used to provide information to students? (Information like school roster, etc.).
 - subject timetables, examination schedules/results, special events,
 - Ø Did your school provide information in the braille format?
 - § If yes, describe the type of materials that were provided in braille format.
 - § If not, how was the situation addressed?
 - Ø Were the learning materials in the library available in accessible format according to your needs?
 - § If yes, describe the type of materials that were accessible to you.
 - § If not, how was the situation addressed?

9. What is your opinion about primary/secondary school education **curriculum** to student with visual/hearing impairment?
 - Ø Does it address your needs?
 - § If yes, how?
 - § If no, give reasons.
 - o How was the situation addressed?
 - Ø Were there any subjects that you were interested in studying but denied access due to your disability?
 - § If yes, can you mention these subjects and give reasons why you were denied access?
 - § In your opinion, what can be done to address such a situation?

10. In your words can you describe how you were assessed during **test and examination** periods?
 - Ø For example, were you given any special consideration like extra time during tests/examinations?
 - § If yes, how long?
 - § If not, how was the situation addressed?
 - Ø Were the tests/examination formats accessible according to your needs?
 - § If yes, can you describe the format?
 - § If not, what was your preferred format and how was the situation addressed?

Social Barriers

11. In your words, can you describe the **attitude of other people** (such as, students, teachers and family members) towards you?
 - Ø For example, how did **students** without (visual/hearing) impairment perceive you?
 - § Did they involve you in their academic and social activities? (e.g., in group exercises, games and any other extra curriculum activities).
 - o If yes, can you describe in which ways?
 - o If not, how was the situation addressed?
 - § Was it easy for you to socialize with fellow peers without (visual/hearing) impairment?
 - o If yes, how easy?
 - o If no, how was the situation addressed?

 - § Did you have friends?
 - o If yes, can you remember how many with (visual/hearing) impairment? And how many without disability?
 - o If not, can you describe why?
 - o How was the situation addressed?

 - Ø How teachers did perceive you?
 - § Did they treat you differently outside the class environment? (that is, in extra curricula activities, including, games, cleaning, disciplinary action)
 - o If not, how did they treat you?
 - o If yes, how was the situation addressed?

 - Ø How did **family members** (such as parents, brothers/sisters), perceive you?
 - § Were you involved in any family activities? (such as washing clothes/dishes, house/room cleaning)
 - o If yes, how were you involved?
 - o If not, how was the situation addressed?

12. In your own words can you describe social supports received in your primary/secondary education that you cannot forget? (e.g., family, students, teachers, non-governmental organizations, religious leaders, etc.).
Ø How did (they) support you in addressing the barriers encountered?

PART III: Questions on barriers and coping strategies at higher education

1. Do you encounter any other barriers in this institution (higher education) that are different from what you explained earlier? If yes, describe them.
2. How are these addressed?

(The researcher may also probe for more clarification using the format described in Part II above).

PART IV: Additional questions

1. If you were given an opportunity to advise educational stakeholders (e.g., Ministry of Education), on how to improve the education of students with (visual/hearing) impairments, what three major issues would you like to be given high priority in the improvement?
2. If you were given the opportunity to advise your fellow students with visual/hearing impairment in lower level education on how they can excel to higher education, despite the existing barriers, what would you like to say?
3. Are there any other issues that I have missed that you would like to talk about?

Appendix II: Focus Group Discussions Guiding Questions

PART I: Focus group background information+

Name of University: _____ Type of Impairment: _____

PART II: Questions on coping strategies from lower level to higher education

1. Using your experience as a student with visual impairment, describe how the following academic barriers, as identified during the interview conversations, were addressed from primary school through to higher education your primary to higher education.

(NB: In your explanation indicate if there are any differences in ways of addressing the same academic barrier in higher education that was different from those used during your lower level education)

Academic Barriers

- Ø Inaccessible school environment and educational infrastructures;
 - Ø Teachers/lectures exclusionary practices (poor involvement during learning and teaching process etc.);
 - Ø Insufficient learning and teaching resources (for example, Braille machine, braille papers, braille books, hearing aids);
 - Ø Inaccessible information in Braille format (for example, timetables, examination timetables and results, and any other important information);
 - Ø Inappropriate curriculum (for example; issues like denial to learn some of the science subjects due to your impairment);
 - Ø Inaccessible tests/examinations systems (for example, inaccessible examination formats, computerized marking systems that does not address your needs, other barriers in examination) and
 - Ø Any other academic barrier which is not in the list above.
2. Describe how the following social barriers, as identified during the interview conversations, were addressed from primary school through to higher education

(NB: In your explanation indicate if there are any differences in ways of addressing the same social

Social Barriers

- Ø Negative attitudes from your fellow students, teachers, and other people.
 - o To be perceived as incapable, a burden and beggars
 - o Social isolation or being rejected by fellow students;
 - o Difficulty in making and keeping friendship;
- Ø Any other social barrier which is not in the list above.

PART III: Additional questions

3. If you were given an opportunity to advise educational stakeholders (e.g., Ministry of Education), on how to improve the education of students with visual impairment, what three major issues would you like to be given high priority in the improvement.
4. If you were given an opportunity to advise your fellow students with visual impairment in lower level education on how they can excel to higher education despite the existing barriers what would you like to say?

PART III: Questions on barriers and coping strategies at higher education

1. Can you describe other academic/social barriers that you are facing in this institution (higher education), that are different from those you explained earlier and elaborate how each barrier was addressed?

NB. If you have more barriers in HE to discuss turn the page

PART IV: Additional questions

2. If you were given an opportunity to advise educational stakeholders (e.g., Ministry of Education), on how to improve education of students with hearing impairment, what three major issues would you like to be given high priority in the improvement?
3. If you were given the opportunity to advise your fellow students with hearing impairment in lower level education on how they can proceed to higher education despite the existing barriers what would you like to say?

NB. If there is anything that was not covered, concerning education for students with hearing impairment that you would like share you can turn the page.

Appendix IV: Interview Consent Form

My name is Sarah Ezekiel Kisanga, a PhD research student at the Nottingham Trent University in the United Kingdom. I am doing a research titled “*Educational barriers of students with sensory impairment and their coping strategies in Tanzanian higher education institutions*”.

The aim of this research is to explore educational barriers encountered by students with sensory impairment and how they cope and excel to higher education institutions. Your voice in this study will help educational stakeholders understand how you experience education provided, thus rectifying the situation in ways that responds to your actual needs rather than assumed needs. Particularly, the study will bring new knowledge on coping strategies that will empower students with a sensory impairment with strategies that they can use to address the barriers they encounter and hence improve academic performance and reduce school drop-outs.

Instructions

Please read and complete this form carefully.

- If you are willing to participate in this study, put a tick (✓) in the appropriate box.
- Sign and date the declaration at the end.

S/N	Item	Yes	No
1	The researcher has explained the project to me and read the explanatory statement.		
2	I understand that my participation is voluntarily and that I have the right to withdraw from this study at any time without having to give an		
3	I understand that all responses given by me will be made confidential and will be used for this study only.		
4	I understand that the information I provide can be used in further research projects which have ethics approval, as long as my identity is kept		
5	I understand that the interview will involve audio recording and note taking.		
6	I understand that the interview will involve a sign-language interpreter*		
7	I understand that I will be given a transcript of data concerning me for my approval before it is included in the write up of the research.		

**Applicable for deaf respondents only.*

I voluntarily give my consent to participate in this research and confirm to have a copy of this form for my own record.

.....
Signature

.....
Date

Appendix V: Representative quotations from interviewees on academic barriers

Theme 1: Scarcity of learning and teaching resources
"I remember to use hearing aids once but I did not like them because they had a lot of noise. Which prevented me to hear speech. I used for about two weeks and then I stopped completely" (P3, HI, Male, UG)
"every student at Furaha primary school had his own perking braille, enough papers, and his/her own books in braille and these books in braille were in all subjects" (P9, VI, Male, PG)
"in my secondary school, out of 26 typewriters available only 3 were working and we had shortage of braille papers. It reached a time when we would stay without braille papers for the whole term" (P12, VI, Male, UG).
"for equipment like braille machine, papers and typewriters, this University is far better compared to secondary schools. However, many typewriters are not working" (P15, VI, Female, UG).
"I could not be able to write notes during teaching because of my hearing problem, I informed the headmaster but he told me the school was not in a position to support me in anything" (P16, HI, Female, UG)
"my problem is speech recognition however the device given to me was for those who have problems with sound detection as it was detecting sound but not speech" (P17, HI, Female, UG)
"...there were no tools to assist me in learning during my primary and secondary education. For example, there was no even a single piece of hearing aid in those schools" (P20, HI, male, UG)
"The available typewriters were not in good condition and there were no technicians to repair them which necessitate them to be transferred to Dar es Salaam for repair, the process that took a long time and some time we could never see them back" (P21, VI, Male, UG).
"my secondary school had only one perking braille machine which was working. The rest were broken and we were 23 students with VI altogether" (P25, VI, Male, UG)
"the biggest problem in this institutions is braille papers. For example, in first year we are 5 students with visual impairment and we have been provided with only one ream of 200 papers to be shared among the five of us for the whole semester" (P25, VI, Male, UG).
Theme 2: Communication Barrier
"I could follow lessons though lip reading but most of my secondary school teachers rarely look at me when talking even when seated in front desk" (P1, female, UG).
"In my ordinary secondary school, teachers could at least provide teaching notes to students, however in high school the situation was quite opposite. Students had to depend on listening to the teacher during teaching and prepare their own notes. For us it was very difficult to prepare our own notes because of communication barrier" (P2, HI, Male, UG)
"without a sign language interpreter attending classes were just a waste of time because I heard nothing even when seated in a front seat and worse enough teachers could not use sign language" (P23, HI, Male, UG)
"It was so difficulty for me to understand my teachers in secondary school through lip reading because my eyes used to read the lips of Swahili speaker which its pronunciation differs remarkably with English language" (P24, HI, Female, UG)
Theme 3: Teachers/Lecturers'exclusionary practices during learning and teaching process
"I could follow lessons though lip reading but most of my secondary school teachers rarely look at me when talking even when seated in front desk" (P1, HI, Female, UG)
"In this university I have many academic problems compared to my advanced secondary school. Because in high school I used to benefit from the summary written by the teacher on the board during teaching but here some lecturers they don't write anything on the board during teaching and they don't provide their notes to us" (P2, HI, male, UG).
"In Biology, our teacher used to describe a diagram by saying, for example, you see here (while pointing on the diagram drawn on the chalkboard), this is a head, and when you go down here is ..." (P9, VI, Male, PG)
"Other lecturers refuse even to be tape recorded when we asked they would respond "you have no right to record me." This is so because the university has not put any provision, or clause in the documents to ensure that lecturers should be recorded" (P 9, VI, Male, PG)
"Teachers used almost all methods of teaching depending with the nature of the subject. The problem happens when the teacher is using a blackboard or showing a point on a map or a drawing. They describe things as if all students were able to see what was demonstrated. This happened because most of the teachers were not skilled or trained to teach students with VI" (P10, VI, Female, UG).
"despite of our existence in the classroom most of our teachers in secondary school used to teach without writing on the black board and we did not have an interpreter" (P24, HI, Female, UG)
"Most of them are using projectors of which I could not see. So instead I would be listening to the little oral description given" (P14, VI, Male, UG)

Theme 4: Barriers in examinations and information inaccessibility
<i>Sub-Theme 4.1: Inappropriate examination format and procedure</i>
"In secondary school our teachers presented exams in normal printed format... During a test or exam teachers would read for us one question after another. Then we responded using braille. This was very involving and especially in multiple choice questions with 4 to 5 distractors..."(P15, female, UG).
"Sometime I get information concerning test on the same day. I could just go to the lecture and find that it is not a lecture but rather a test. So I normally do tests without preparation" (P 2, HI, Male, UG)
For someone who has been using perking braille throughout and suddenly has to change into typewriter, it was not easy to adjust. This has been very difficult to most of us, we have become very slow in using typewriters resulting into incomplete exams" (P18, male, UG).
"The major challenge of using typewriter is inability to read and edit your work during typing. If given a choice, I would prefer using braille, but who would mark my paper? " (P8, VI, Male, UG)
"Due to lack of equipment in that school, I did my exams orally for both two terms of my Form one Teachers used to read test questions for me and I would respond my answers orally too" (P12, VI, Male, UG)
<i>Sub-Theme 4.2: Lack of examination feedback from teachers</i>
"from Form one up to the end of Form three I don't remember to get any examination results from our continuous assessment and annual examinations. The only examination result that we received was Form two National examinations" (P11, VI, Female, UG)
"whenever we were in need of our examination feedback we had to postpone our holidays so as we could read our answers to our teachers ..." (P15, VI, Female, UG)
<i>Sub-Theme 4.3: Delays in examination time</i>
"whenever, staff in special unit reminded our lecturers to bring our examination paper they would always ask, is there any student with visual impairment in my class"? (P8, VI, Male, UG)
"some lecturers do not send our exams on time in order to prevent examination leakage" (P11, VI, Female, UG)
"Since we have to do our exams at a special unit room, most of the time lecturers will forget to bring our exam to that place. Also they forget to print my exams in large font. This has been happening frequently and in all these incidences I complained but things are not changing" (P14, VI, Male, UG)
<i>Sub-Theme 4.4: Inappropriate grading system</i>
"The curriculum does not address the needs of students with disabilities. it is more theoretical than practical" (P 4, Male, UG)
"when you look at the syllabus there is no any area where the teacher is instructed on how to teach a certain topic to blind students or even alternative materials to assist these students understand certain topic" (P11, Female, UG.)
"I got 17 points which is Division one but it is written Division three because of Mathematics. This is unfair because it was not our fault that we did not learn Mathematics instead it is our education system" (P21, male, UG)
<i>Sub-Theme 4.5: Incompetence of transcribers during marking</i>
"the use of what they call specialist to mark Form Four National examinations written in braille is a problem because most of those specialists are incompetent in braille" (P10, VI, Female, UG)
"Currently we have degree holder teachers who have been specialised in special education for students with visual impairment, however they are not competent at all in braille..."(P12,VI,Male, UG)
"Some transcribers are not competent enough in transcription. They transcribed something which is not written. For example, there was a certain section in one exam where we were supposed to write either True or False (that is, T or F). Very unfortunate all areas where I wrote 'T' for true, it was wrongly transcribed as 'B'; and you can imagine, the level of education of this transcriber was a bachelor degree" (P21, VI, Male, UG)
<i>Sub-Theme 4.6: Barriers in information accessibility</i>
"Most of the time I am not aware of the given assignment. I ended up doing my assignments in a rush to meet deadline thus I produce an assignment which is below standard" (P2,HI, Male, UG).
"during examinations, we sometimes become victims of the situation because we do not have access to the original information; we only depend on what we heard from our fellow students and sometimes they mislead us unintentionally" (P8, VI, Male, UG)

Theme 5: Barriers in curriculum

"we did not learn mathematics and science subjects because our teachers were not prepared to teach those subjects to us but also the school did not have special equipment" (P7, VI, Male, UG)

"when you look at the syllabus there is no any area where the teacher is instructed on how to teach a certain topic to blind students or even alternative materials to assist these students understand certain topic" (P11, VI, female, UG).

"beside mathematics, I was very much interested with commerce but just as in mathematics, I was told we are not allowed. I forced myself in the class but I could not make it" (P12, VI, Male, UG)

"mathematics, chemistry, and physics were not being taught to students with visual impairment in secondary school. We were taught only two science subject biology and agriculture but only in theory we were not allowed to participate in practical session" (P13, VI, Male, PG.)

"Actually the curriculum is not on our favor, because there were subjects which we were denied access due to my impairment. For example, I used to like Mathematics a lot and my first choice of subjects' combination was PCM (that is Physics, Chemistry and Mathematics) but, instead I had to carry on with another combination which was HKL (that is History, Kiswahili and Literature)" (P19, VI, Male, UG)

Theme 6: Barriers in environment accessibility

"In comparison the environment in both secondary schools I attended were not friendly. There were lots of ditches along the pathways which demanded us to cross them. For example in my ordinary secondary school there were big holes and stones along the way which hindered a smooth movement." (P4, VI, Male, UG.)

"I never experienced or heard such a thing as orientation and mobility training to students with visual impairment throughout my studies to date it is our own effort to get used to our environment" (P8, VI, Male, UG)

"In this institution authority are more concerned with keeping the environment clean than the wellbeing of students with disabilities, this is because there is a notice to order people to keep environment clean. However, there is no any sign to alert drivers to slow down along the university area because of the presence of people with disabilities" (P21, VI, Male, UG)

Appendix VI: Representative quotations from interviewees on social barriers

Theme 1: Attitudinal barriers
<i>Sub-Theme 1.1 To be perceived as incapable</i>
"At (name withheld) both teachers and students had negative attitude towards me" (P23, HI, Male, UG)
"one day I was going to the bank which is within the University surprisingly the security guard stopped me. When asked for the reasons he said beggars are not allowed in this bank get out" (P7, VI, Male, UG)
"during my secondary school my fellow students used to ask me <i>do you think you can pass form four examination with your condition? you will end up wasting your time and energy</i> (P8,VI, Male, UG)
"I and my friend were rejected in all four institutions that we applied. The first time I applied for the job and send my letter to the head of department, the following day, I made a follow up of my application letter, but the head of department said "I did not receive a letter from you". I sent another application package, referees recommended positively, but it ended up to the human resource manager who was waiting for a recommendation from the head of department. Head of department delayed until the permit from public service office expired" (P9,VI, Male, UG)
"in primary school teachers involved us in everything that is academic and non-academic activities because they believe on our abilities but in secondary school and HEIs teachers perceived us as burden and incapable" (P10,VI, Female, UG)
"sighted students think that we have been favoured to be admitted at the university. They also believe that we are provided by examination answers before doing our exam. Most of them are puzzled on our good performance" (P10,VI, Female, UG)
"one day I was in a bookshop to buy books for my daughter unfortunately, when the shopkeeper saw me he said can you come later it is still in the morning we have nothing to offer" (P10,VI, Female, UG)
"Our teachers used to perceive us as failures. This is because whenever they talked about form four national examination and if a class had.... let's say three students with disabilities they would always say this year I am going to get three divisions zero in my class (P11,VI, Female, UG)
"my parents never believe on my ability since child hood, first of all since my lower level education they used to discourage me by saying do you think you will pass the form four national exam with your condition you are just wasting you are time and energy. Thanks God I managed to prove them wrong, but it is not yet over as they are not ready to accept me to get married, and if I force them they said they will not take bride price or conduct a send-off part to me as they believe my husband will return me home because of being a burden to him" (P11,VI, Female, UG.)
"even lecturers do not believe on our abilities that is why they don't allow us to answer our examination using braille thinking that transcribers will favor us during marking" (P13, VI, Male, PG)
"when I was taking my master's degree in 1990s I did not experience negative attitude as I am experienced it now in 2015 where I thought people could be more positive because of technology and education. I am thinking may be my old age also contribute to negative attitudes. I think young People are ashamed of old people, you know most of students here are just like my children but they do not have a respect to me. Imagine whenever I fall into a ditch they do nothing and you could hear them saying <i>worry not that is an old man who deserves even to die</i> " (P13,VI, Male, PG)
"some of our fellow blind students had hard time in boarding schools they used to stay in boarding school without going home during school holidays because their parents did not want to see them at home" (P15, VI, Female, UG)
"most secondary school teachers rejected students with HI in their classes fearing to lower down their mean score. Instead of associating massive failures of students with HI in secondary schools with other factors, they associated it with our disability" (P17, HI, Female, PG)
"I faced a lot of difficulties to be enrolled in computer course, the lecturer told me this course is not for blind students you are not going to make it but I told him let my performance judge me" (P21,VI, Male, UG)
"I had a girl whom we agreed one another to get married. We even get blessing from parents but a certain Bishop from one of church in my region where my fiancée used to worship was very bitter about that decision. He went to my mother in law to demand reasons for her to allow her only daughter with high position and respect in the church to get married to a blind person" (P21,VI Male, UG)
"Negative attitudes still exists. A practical example is our president at this university. He is a bind person. However, during campaign a lot of stigmatized words were used to discourage him from contesting for that position. Some students were saying that how can blind person be of any help to us, after election some sighted students said so this year we are going to be leaded by a bind person? So, generally the society accepts people with disabilities only theoretically, but not practically". (P25, VI, Male, UG)
"before this problem, they used to involve me in all family matters but now they do not involve me in anything even going to parties, sometime when I find them talking and happen to pass by they keep quiet" (P26,VI, Male, UG)
"Actually students' perception does not differ much from the society's. My fellow students considered me as a dependent person. A person with no future, who is not capable of doing anything, or unproductive person. But with time and being exposed to people with disability they became aware of our capabilities" (P27,VI, Male, UG)

<i>Sub-Theme 1.2: Social isolation and Name calling</i>
"I never experienced this isolation and rejections in my primary and secondary schools as it is today. There are few students in this university who are positive towards me and social isolations also exist. For example, I face a very big problem of forming a group for different academic activities, whenever asking a certain group to be a member they will say <i>very sorry we have exceeded the required number</i> . One day I felt very bad when I was rejected by all the group and find myself doing assignment alone" (P2,HI, Male, UG)
"there is a tendency when I am alone in a group without my note-taker other students ignores me a lot, they will make sure that they meet for discussion without my knowledge so as to embarrass me during presentation" (P3,HI, Male, UG)
"I never experienced rejection in group assignment or discussion. They even chose me to be a group leader by the way as far as you are bright they will involve you in everything" (P9, VI, Male, PG)
"in this university when they discover that you are good in academics, they will involve you in their group discussions as they are going to benefit from you. For those who are not good have hard time here" (P12,VI, Male, UG)
I have moved from one group to another because group members never allow me to talk and when I forced them to listen to me they would always reject or oppose everything that I contribute" (P18, HI, Female, UG)
If you try your level best to interact with sighted students, you will never feel rejected. But if you isolate yourself, then no one will be close to you. The important point here is to socialise with them. (P22, HI Female, UG)
"In my secondary school both teachers and students had negative attitude towards me. Students in particular would not involve me in their group discussions. I used to be alone most of the time" (P23,HI, Male, UG)
<i>Sub-Theme 1.3 Difficulties to make friendship</i>
"socialisation is not a problem to me at all since secondary school I used to have lots of friends even here at this university I have uncountable friends I can interact with almost all sighted students without any problem (P4,VI, Male, UG)
"friendliness is contributed by many factors; smartness, being talkative, also your sociability because students differ while others are moderate others are fast learners. So you can be moderate but very social, then you attract everybody therefore you get friends" (P 9,VI, Male, UG)
"it is not very easy to interact with sighted students because negative attitude still exists some sighted students feel shy even walking together with us" (P10,VI Female, UG)
"I have very few friends because of negative attitudes among our fellow students without disabilities. I am very keen in selecting friends, I normally select only those who understand my problem" (P16,HI, Female, UG)
"Negative attitude is my major obstacle. I used to have lots of friends but I lost all of them after this problem. Now I don't have friends at all, my husband is the only friend I have" (P17,HI, Female, PG)
"it is very difficult to make friendship with normal students. For example, during sports say football most of the normal students would choose their fellow normal students to be in the same team" (P20,HI, Male, UG)

Appendix VII: Representative quotations from interviewees on coping strategies

A: Problem-focused coping:(Adaptive Coping strategies)
Theme 1: Social support networks
<i>Sub-Theme :Support from parents/spouses</i>
"If it was not my parents who decided to pay for my extra classes after school, I don't know if I could be able to reach higher education because in the classroom I was just neglected, my teachers did not care for my needs at all. The situation was different in my private classes, those teachers although they were not trained to teach a student with HI, they were very supportive. They would always ask whether or not I have understood and gave me notes for every topic that they taught me" (P3,HI, Male, UG).
"...Thank God my parents were very supportive. My father used to teach me English and Mathematics all the time in my primary and secondary education, whereas my mother used to buy me a lot of books and therefore I developed an attitude to depend on books to compensate on what I missed in the classroom" (P17,HI, Female, PG).
"My parents, has sent me to school, paid for my education and also paid for my extra evening classes. The situation in my secondary school was worse that I could not make it without private evening classes" (P11, female, UG).
"my husband is the reason why I am here in HE, he encouraged and motivated me to continue with tertiary studies. In fact, he personally applied for higher education on my behalf and took me to the University because he believes on my ability..." (P17, HI, Female, PG).
<i>Sub-Theme : Support from sibling/other relatives</i>
"...when the situation was worse, I could not follow teachers even when sited in the front desk. I had to use my twin brother who was in the same class with me to assist me. We used to have a spare time after classes where he assisted me by explaining what I missed in the class" (P2,HI, Male, UG).
"... I remember my brother told other members in the family that, if I will not be able to educate all of you, then I will choose only one person because of his condition, and that person was me and he promised not to get married until I become independent of which he did so..." (P25, VI, Male, UG).
<i>Sub-Theme : Extra support from teachers</i>
"I had a teacher in secondary school who was very concerned with the problems I faced in the classrooms, she decided to prepare various tape records of different teachers teaching different subjects and gave them to me" (P11,VI, Female, UG).
"As the problem slowly became known to teachers, some of them would voluntarily ask me to sit in the front desk, and some would go further to give me extra classes at their offices so as to catch up with my fellow students" (P1,HI, Female, UG).
"... I was so lucky that one teacher from (one of the) schools who believed on my ability decided to support me by borrowing all equipment and material I needed from a nearby school which had students with VI. This included, adequate braille papers and a good working perking braille machine. (P15,VI, Female, UG).
<i>Sub-Theme :Support from readers and note-takers</i>
"...In the first three weeks of my university studies it was very difficult until when I was provided with my note taker. This student is the one who supports me with lecture notes and private study particularly a point in the lecture where I did not understand..." (P3,HI, Male, UG).
"... The big challenge are vehicles which pass within the university. Most drivers do not take precaution of people like us. So my readers assist me in this" (P4,VI, Male, UG).
<i>Sub-theme: Support from fellow students and friends</i>
"...I thank God that later on I got two of my fellow students who were in-service teachers, they discovered my problem, and decided to assist me in all academic matters..." (P17, HI, Female, PG).
"group discussions with sighted students assisted us a lot in answering examination questions because sometimes we did not have our own notes written in braille due to shortage of Perkins braille machines" (P15,VI, Female, UG).
<i>Sub-Theme :Support from Non-governmental and religious organisations</i>
"I used different means to secure funds for my education like churches, ordinary people and government through local councils"(P21,VI Male, UG).
"I learnt computer and the software through Tanzania league for blind in collaboration with Open University of Tanzania, Sight Savers international and freedom scientific" (P9, male, PG).

Theme 2:Collective efforts of students with SI
Sub-theme: Sharing the available resources
“The biggest problem in this institution is braille papers. For example, in first year we are 5 students with visual impairment and we have been provided with only one ream of 200 papers to be shared among the five of us for the whole semester” (P25, VI, Male, UG).
Sub-theme: Division of labour
“it was difficulty for each student to write all the notes alone...we did not have enough resources, so each student was given his/her subject to write notes on behalf of the group” (P4,VI, Male, UG).
Theme 3: Personal efforts of students with SI
Sub-theme: Determination and persistence
“I wanted to have an independent life as well as a family and there was no any way that I could be independent and marry someone without having a good employment. This inspired me to work very hard” (P21,VI, Male, UG).
“I never gave up in any difficult condition I faced in life. I would make sure that I struggled until I get the solutions to my problems” (P17,HI, Female, PG).
Sub-theme:Positive reappraisal
“The moment I managed to accept my disability (as an HI) I was able to focus on my studies and fight for whatever difficulties faced” (P17,HI, Female, PG).
"... being blind is not a problem to me at all as far as I can accomplish my goals in life. If there is something that I could ask God is to live a comfortable life but not to be able to see" (P21,VI, Male, UG).
“Rejections and negative attitudes gave me confidence to work hard so that to prove them wrong on what they believe on my ability” (P17, HI, Female, PG).
Theme 4:Educating the Tanzanian society
“I have decided to be open to my fellow students that I have a problem and educate them on how to communicate with me; that is to speak loud, with pauses and looking me face to face. This has assisted me a lot to communicate with my fellow students” (P1,HI, Female, UG).
“my fellow students used to reject me in group discussions, thinking that I have nothing to contribute until when I decided to educate them that being HI does not mean low Intelligent Quotient as there is no association between HI and intelligence” (P22, HI,Female, UG).
B: Emotional-focused coping:Non adaptive coping strategies)
Theme 1: Distancing
“I used to ignore a lot of negative statements from peers, teachers and other members of the family. [I can remember some] statements like <i>do you think you can reach far with that condition ; I think you are wasting your time; and how come a blind person get high score than you?</i> ” (P8, VI, Male, UG).
“I used to be affected by social rejections but now I am trying my level best to ignore them” (P3,HI, Male, UG).
Theme2: Escape-avoidance strategy
“I tried my level best to avoid all debate, being in groups or to ask any thing in the class because of hearing problem” (P2, HI, Male, UG).
“...they labelled me with stigmatized names and due to this I lost all of my friends. It affected me a lot during my primary and secondary education. But now I do not care anymore, I am used to be alone” (P17, HI, Female, PG).
Theme 3: Confrontative coping strategy
“My fellow students used to criticise every point that I contributed in the group discussion but I managed that behaviour by confronting them until they understand and accept my decision or assist me” (P22, HI, Female, UG).
“Some time we had to quarrel with our fellow students in order to be accepted in group discussions. If you accept every rejection you may end up doing assignment alone. Being aggressive assisted me to manage social rejections” (P20, HI, Male, UG).
"some of our lecturers here are very harsh, and inconsiderate... one day one of our lecturers decided not to bring the exam in the usual place, instead he asked us to carry our braille machine and go to another campus to do the exam. We confronted the lecturer and refused to go because we could not carry our machine in such a long distance..." (P21,VI, Male, UG).

Appendix VIII: Ethical clearance approval letter

NOTTINGHAM
TRENT UNIVERSITY

STRICTLY PRIVATE & CONFIDENTIAL
Ms Sarah Kisanga
CELS Building,
Research Student Office No 211
Nottingham Trent University
Clifton Lane
Nottingham
NG11 8NS

Professor Michael White
Chair of the JICEC Committee
College of Art & Design and Built
Environment/Arts and Science
Nottingham Trent University,
Burton Street,
Nottingham
NG1 4BU

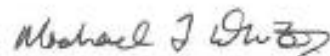
24 March 2015

Dear Sarah,

I am writing to confirm that your Ethical Clearance Checklist entitled 'Educational Barriers of Students with Sensory Impairment and their Coping Strategies in Tanzanian Higher Learning Institutions. A Tracer Study' was seen by Professor Michael White, chair for the Joint Inter-College Ethics Committee (JICEC) in Art & Design and Built Environment/Arts and Science on 20th March 2015, and was signed off clear on that same day.

If you have any further queries regarding the JICEC, its methods and procedures, then please do not hesitate to contact me.

Yours sincerely



Professor Michael White
Chair of the JICEC Committee
College of Art & Design and Built Environment/Arts and Science.

Appendix IX: Research approval letter

NOTTINGHAM
TRENT UNIVERSITY
Katy Walters
Nottingham Trent University Graduate School
Burton Street
Nottingham
NG1 4BU

Tel: +44 (0) 115 848 83170
Fax: +44 (0) 115 848 8700
E-mail: CASPhDAdmin@ntu.ac.uk

Our Ref: NO456038

Vice Chancellor
University of Dar es Salaam
P. O. Box 35091
Dar es Salaam
Tanzania.

24th March 2015

Dear Sir/Madam

RE: Mrs Sarah Ezekiel Kisanga

This letter is to confirm that Mrs Sarah E. Kisanga is registered as a full-time PhD Research Student in the School of Education at Nottingham Trent University. Her supervisory team consists of Professor Gren Ireson, Professor Gill Richards and Mrs Jacqueline Scruton from the School of Education. Mrs Kisanga started her studies on 01 November 2014 and is expected to submit a completed thesis no later than 31 October 2018, which is the maximum time of 4 years allowed for full-time study as stipulated in the University Research Degree Regulations.

As part of her research titled, "Educational barriers of students with sensory impairment and their coping strategies in Tanzanian higher learning institutions: A tracer study", Mrs Kisanga requires to carry out some fieldwork in Tanzania between the dates of 20 April 2015 and 20 October 2015. Institutions that have been identified to be involved in her fieldwork are:

1. Dar es Salaam University College of Education (for Pilot study),
2. University of Dar es Salaam,
3. Sebastian Kolowa Memorial University, and
4. University of Dodoma.

Nottingham Trent University would like to express their gratitude and appreciation to you for accommodating her research and provide her a full support.

Please do not hesitate to contact me if you require any further information.

Yours faithfully,

K Walters

K. Walters
Graduate School Administrator

Nottingham Trent University Graduate School
Nottingham Trent University
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Appendix X: Research Clearance-University of Dar es Salaam

UNIVERSITY OF DAR-ES-SALAAM

OFFICE OF THE VICE CHANCELLOR

P.O. BOX 35091 ♦ DAR ES SALAAM ♦ TANZANIA

General: +255 22 2410500-8 ext. 2001
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Telegraphic Address: UNIVERSITY OF DAR ES SALAAM
E-mail: vc@admin.udsm.ac.tz
Website address: www.udsm.ac.tz

Ref. No: AB3/12(B)

Date: 27th April, 2015

To: The Regional Administrative Secretary,
Tanga Region.

UNIVERSITY STAFF AND STUDENTS RESEARCH CLEARANCE

The purpose of this letter is to introduce to you **Ms. Sarah Ezekiel Kisanga** who is bonafide member of staff of the University of Dar es Salaam and who is at the moment conducting research. Our staff members and students undertake research activities every year especially during the long vacation.

In accordance with a government circular letter Ref. No.MPEC/R/10/1 dated 4th July, 1980 the Vice-Chancellor was empowered to issue research clearances to the staff and students of the University of Dar es Salaam on behalf of the government and the Tanzania Commission for Science and Technology, a successor organization to UTAFITI.

I therefore request you to grant the above-mentioned member of our University community any help that may facilitate her to achieve research objectives. What is required is your permission for her to see and talk to the leaders and members of your institutions in connection with her research.

The title of the research in question is "**Education Barriers of Students with Sensory Impairment and their Coping Strategies in Tanzanian Higher Learning Institutions: A Tracer Study**".

The period for which this permission has been granted is from **May to October, 2015** and will cover the following area: **Sebastian Kolowa Memorial University (SEKOMU).**

Should the area be restricted, you are requested to kindly advise her as to which alternative areas could be visited. In case you may require further information, please contact the Directorate of Research Tel. 2410500-8 Ext. 2087 or 2410743.


Prof. Rwekaza S. Mukanahama
VICE-CHANCELLOR

VICE CHANCELLOR
UNIVERSITY OF DAR-ES-SALAAM
P.O. Box 35091
DAR-ES-SALAAM

Appendix XI: Research Clearance- Sebastian Kolowa Memorial University



**Sebastian Kolowa
Memorial University**
SEKOMU

08/06/2015

Ms. SARAH EZEKIEL KISANGA
P.OBOX 35048
DAR ES SALAAM.

Dear Madam,

RE: **EDUCATION BARRIERS OF STUDENTS WITH SENSORY IMPAIRMENT
AND THEIR COPYING STRATEGIES IN TANZANIA HIGHER LEARNING
INSTITUTIONS**

Kindly refer to the above mentioned subject.

I would like to inform you that your request to conduct research on the above mentioned heading has been granted. You are free to talk with leaders and any academic staff that you think may be helpful in your research.

Thank you for your cooperation.

Yours faithfully,

SEBASTIAN KOLOWA MEMORIAL UNIVERSITY

Dr. Wilson N. William
Ag. DVC-ARC

CC Dean Faculty of Education

Appendix XII: Research Sites

