

The everyday life information behaviour of visually impaired students at Stellenbosch University

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DECLARATION

I, Annas Jacob Coetzee, declare that the thesis entitled *The everyday life information behaviour of visually impaired students at Stellenbosch University* is my own work and that it has not been submitted before for any other degree or assessment at any other university. The sources used or quoted from have been acknowledged by means of complete references.

Signature: 

Date: November 2016



Dedication

This thesis is dedicated to my family, friends and the visually impaired student community of Stellenbosch University whose encouragement, support and guidance have enabled me to fulfil my potential.



ACKNOWLEDGEMENTS

To my Heavenly Father who loves me for who I am.

I hereby acknowledge and express my gratitude for the assistance, leadership and continuous support from my supervisor, Dr Lizette King. Without your help the research would not have been possible. Your guidance, motivation, supervision and commitment are highly praised. I am truly grateful for your dedication as it would not have been possible without your help and your facilitation during the completion of this dissertation.

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ABSTRACT

The purpose of the study was to investigate the everyday life information seeking behaviour of visually impaired students at Stellenbosch University. The study framed by the Every Day Life information behaviour model of Pamela McKenzie focused on the information behaviour of visually impaired students, how the visually impaired students obtain their information and the role of the Stellenbosch University library. The study was motivated by the vital need to seek out, listen to and act upon the voices of students with disabilities in an attempt to make higher education more inclusive to students with some form of disability or challenge. Twenty-one visually impaired students from various faculties of Stellenbosch University completed a questionnaire consisting of 23 questions administered by Stellenbosch University's Braille Office. Students with visual impairments at Stellenbosch University will consult friends, family members and lecturers for information. They needed both personal and academic information. Students found it both easy and difficult to obtain needed academic information. The Internet was the major information resource used by all students. Students relied mainly on online full text journal articles and e-books obtained via the Internet, SU Library's databases, SunScholar and e-journals for academic information. The main reasons for not using the SU library can be attributed to the inability to use printed resources, lack of facilities for visually impaired students, difficulty in navigating the physical library and lack of training in exploiting the library and its services. All students with visual impairment made use of assistive technology and relied heavily on the support and services of the Braille Office for additional academic information. The everyday behaviour of students with visual impairments at Stellenbosch University conform to McKenzie's Everyday Life Information Behaviour model as these students sought actively to make contact with sources, identified likely sources, made use of serendipitous encounters, were identified as information seekers and made use of people as gatekeepers to be referred to a source.

Keywords: Visually impaired students, Information behaviour, Stellenbosch University, Stellenbosch University Library, Academic libraries, Assistive Technology

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LIST OF ACRONYMS

CSCD	Centre for Student Counselling and Development
JAWS	Job Access with Speed
OSSLN	Office for Students with Special Learning Needs (Disabilities)
SALB	South African Library for the Blind
SANCB	South African Council for the Blind
SU	Stellenbosch University
UWC	University of the Western Cape



CHAPTER 1: INTRODUCTION

1.1 INTRODUCTION

The main aim of this research was to investigate the everyday life information behaviour of visually impaired students at Stellenbosch University (SU). Understanding the information needs and behaviour of visually impaired students are very important to every academic institution, as the institution needs to design services to match those needs and behaviours.

The project aims to investigate the following:

- The information behaviour of visually impaired students at Stellenbosch University and
- The role of Stellenbosch University and specifically the Stellenbosch University Library.

1.2 BACKGROUND AND RATIONALE

The purpose of this study was to investigate the everyday life information behaviour of visually impaired students at Stellenbosch University. The study also focused on how the visually impaired students perceived the services offered by the Stellenbosch University.

According to the South African Council for the Blind (SANCB) (2010), over 45 million people around the world are completely blind and for every one blind person, there are three to four people with low vision. Only five to ten percent people with visual disabilities become Braille literate. Taking into account that currently only one to seven percent of the world's published books are converted into differently accessible formats, the blind, visually impaired or otherwise print disabled face huge book scarcity. Scarcity of accessible information is partly due to copyright laws, something like the Marrakesh Treaty is trying to remove (World Blind Union, 2014). Educators in particular are concerned about this scarcity, as reading and access to information is vital for education.

The blind and visually impaired community consists of people who are blind from birth and those who became blind later on in their lives. The latter is the majority group, including older people – mostly women, as women tend to live longer than men do. Williamson, Schauder and Bow (2000:9) posited that these two groups have vastly different experiences and that life circumstances will significantly influence information behaviour.

The study by Williamson, Schauder and Bow (2000:12) revealed that most blind Australians attended schools for the blind, have learnt Braille and have been taught to lead independent lives. On the other hand, those who became blind had led sighted lives and had already developed sighted ways of carrying out daily activities. Adaptations to non-sighted life are enormous. They commonly go through a grieving period before they begin to accept their condition, re-adjust their lives and relearn their independence. The cause and age at which someone becomes disabled, influence the degree of affection as well as the way in which he/she adapts to life with a visual disability.

Laws have been designed to ensure the protection of the basic needs of people living with visual disabilities. Different countries have developed different laws to protect the rights of the visually impaired. In South Africa information provision to people with visual impairments is guided by the South African White Paper on the Rights of people with disabilities (9 December 2015) as well as the South African Library for the Blind Act (Act 91 of 1998).

The prevalence of sight disability in South Africa is the highest of all disabilities (32%) followed by physical disability (30%), hearing disability (20%), emotional disability (16%), intellectual disability (12%) and communication disability (7%) (SANCB, 2010).

Providing for the needs of the visually impaired is a daunting task. One objective of the South African Council for the Blind (SANCB, 2010) is to ensure awareness and empathy towards the visually impaired. They strive to emphasize the availability, accessibility and distribution of alternative formats of information suitable for people with visual impairments. They also develop and maintain standards for services offered to people visually impaired. To promote the education of visually impaired learners, assistive devices and related technologies are supplied. In general, the council strive to ensure that

visually impaired South Africans enjoy all rights promised by the Constitution of South Africa.

The goal of the Marrakesh Treaty (World Blind Union, 2014) in 2013 was to help end the book scarcity faced by people who are blind, visually impaired or otherwise print disabled. Currently only 1-7% of the world's published books are converted into differently accessible formats due mainly to copyright laws. Educators, especially, were sensitized to the role played by reading in the lives of the visually challenged.

The mission of the South African Library for the Blind (SALB) is partly to render a library and information service to blind and visually impaired people through the production of accessible South African reading material as well as to render advisory services to promote access to information (SALB, 2014a). They provide free of charge reading material including books and magazines in accessible formats as well as specially designed playback equipment to blind and visually impaired South Africans (SALB, 2014a).

As approximately 80% of the visually impaired population in South Africa live in rural areas where the unemployment figure can be as high as 100% (SANCB, 2010), a project was launched during 2010 in the Eastern Cape to create access and awareness to libraries and reading material for the visually impaired in the rural areas (Nassimbeni & De Jager, 2014:247).

1.3 THE CONCEPT OF VISUALLY IMPAIRED

Visual impairment or low vision is a severe reduction in vision that cannot be corrected with standard glasses or contact lenses. The defect reduces a person's ability to function at certain or all tasks (Medical dictionary, 2015). The South African Council for the Blind (2010) defined a person with visual impairment as somebody who has a defect of sight ranging from total blind to partially sighted. Varying terms used include print disability, visually disabled or visually challenged. For the purposes of this study, the term *visually impaired* will be used to indicate a person who is blind or a person who for physical reasons cannot read regular sized words.

1.4 THE CONCEPT OF ASSISTIVE OR ADAPTIVE TECHNOLOGY

Assistive or adaptive technology is technology that is able to convert printed materials into forms that are accessible to people with visual impairment (Saumure & Given 2004a:27). It includes optical scanners, optical magnifiers, note-taking devices and technology that produces large print, Braille or speech (Abner & Lahm 2002:100). Appropriate assistive technology enables people who are visually impaired to access information and to complete tasks efficiently, thereby enabling them to achieve the highest level of independence possible (Smith & Kelly 2011:4). As early as 2002 Kapperman, Sticker and Heinze (2002:106) indicated that 40% of students requiring alternative reading media used assistive technology.

The availability of Microsoft Windows-Eyes, a screen reader which can be downloaded free of charge, provide a means for the visually impaired to use computers (Microsoft Office 2010). Visually impaired students have unique needs and have different ways of coping with their disability. Some may need strong lighting and/or large font sizes in order to read lecture notes while others need Braille, audio formats or computer-generated sound versions to access information.

1.5 STELLENBOSCH UNIVERSITY

Although Greyling (2008) investigated disabilities across the Stellenbosch University, no study investigated the information behaviour and in particular, the information needs of visually impaired students at the university yet.

Because of variation in visual disability, disability occurs in different ways and depends on individual circumstances. Due to these individual differences, collaboration between the individuals and the university is needed in order to ensure the effective planning and implementation of strategies aimed at accommodating the student (Stellenbosch University, 2014c).

At the Stellenbosch University, there are different offices and associations dealing with visual impaired students. The *Division for Academic Counselling and Career Development* at the *Centre for Student Counselling and Development (CSCD)* coordinates all activities for students with special needs.

The *Braille Office* promotes awareness of students who are visually impaired and at HUMARGA (one of the university's computer user areas based in the Faculty of Arts and Social Sciences building) converts lecture notes, prescribed books, journal articles, power point presentations and any other learning material as well as test and examination papers into accessible Braille, audio or electronic formats. The Braille Office also provides all day, all hours' access to a computer room with six computers equipped with assistive technology. The assistive technology includes additional specialized software like text to voice programmes, Braille keyboards and embossers, screen enlargers, additional sound equipment like speakers and headphones. Braille printing and binding of documents are also available (Stellenbosch University, 2011).

The *Association for students with disabilities, Dis-Maties*, serves as a forum for the discussion of campus-related issues and aims to promote disabled students' integration into university life.

The *Office for Students with Special Learning Needs (Disabilities) (OSSLN)* creates an enabling environment that holistically empowers students with special learning needs (disabilities) to realize their full potential. Among many duties in this regard, the OSSLN facilitates the orientation of first-year students with special learning needs, directs the personal therapy and career development of all such students throughout their academic career, regulates examination and test concessions, promotes a positive and accepting campus climate by means of conducting regular awareness initiatives and consults with lecturers when necessary (Stellenbosch University, 2014c). Their aims are to:

- create awareness about diverse learning needs;
- explain the use of appropriate assistive technology;
- create access to the physical environment on campus;
- change mind sets by proactive advocacy;
- research and develop services;
- offer organisational support to Dis-Maties;
- enable the effective integration of students with special learning needs through holistic support (academic, adaptation, social and psychological);
- facilitate the adapted assessment tasks and curricula for optimal learning and

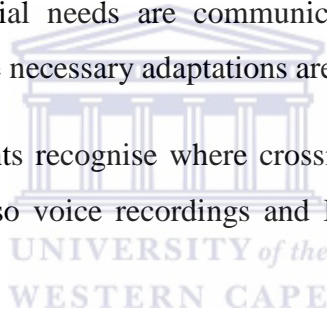
- provide consultative support to lecturers in order to provide effective learning environments for students with special learning needs (Stellenbosch University, 2014a).

At present, there are four undergraduate women's residences (Heemstede, Sonop, Monica and Lydia) and two undergraduate men's residences (Simonsberg and Eendrag) with limited facilities for students with physical disabilities.

Two mixed gender residences (Huis de Villiers and Concordia) for senior students and one mixed gender undergraduate residence (Metanoia) offer limited facilities to accommodate students with physical disabilities (Stellenbosch University, 2014b).

Adaptions and alterations are made proactively and on an ad hoc basis in order to provide students with disabilities with the best possible access to the University's teaching and administration facilities. If special needs are communicated well in advance to the residence head or the OSSLN, the necessary adaptions are, budget permitting, made.

To help visually impaired students recognise where crossings are, the campus contains tactile pavements. There are also voice recordings and Braille panels in some of the elevators.



1.6 STELLENBOSCH UNIVERSITY LIBRARY

The mission of the central SU Library, also known as the J.S. Gericke Library, is to provide an excellent and innovative information service and learning space to the SU community to support the university and its goals. The library's values are client focused in order to exceed the customer expectations. Some of their strategic goals are to create and develop flexible learning spaces (physical, virtual, experimental and creative), to ensure availability, sustainability and discoverability of information sources, to provide world-class, diverse, innovative and client-orientated services and to develop and maintain collaborative relationships with a range of external and internal stockholders to ensure an enriched research and leaning environment. Some of the core services include information and reference services, research support, teaching and learning and information literacy skills. Two uncertainties identified are keeping up with technology and client expectations (Stellenbosch University. Library and Information Services. Strategic directions, 2016-2020).

In order to meet their mission, strategic goals and to support the research and information needs of the academic staff and students, a core collection to support the curriculum is maintained and developed. In addition to the e-books collection, currently the library owns 784 622 printed books and supply access to 193 581 serial publications.

The institutional repository contains amongst others new and retrospective theses, articles, digitized collections and open educational resources (Stellenbosch University. Library and Information Services. Annual report, 2015).

According to the Stellenbosch University Library's 2015 annual report (Stellenbosch University. Library and Information Services. Annual report, 2015) two of their strategic priorities are to repurpose library spaces to promote amongst others self-study as well as to advance information literacy by offering face-to-face information literacy training to students and by providing library guides to enhance self-learning.

1.7 THE CONCEPTUAL FRAMEWORK

Various theoretical frameworks have been used to study information behaviour of a particular user group. The Sense-Making theory (Dervin, 1999:727) was problem-solving orientated and defined as a methodology for studying information seeking behaviour from the perspective of the user, focusing on the process, and examining how users constructed sense and meaning of their experiences. The Sense-Making Theory has been applied in a study at the National Taiwan Library Services for Visually Impaired People (Chang & Chang, 2010:311). The respondents were measured against a basic time-line in a situation and then asked to choose the most important event, question, or contact in relation to an identifiable outcome.

The complicated Savolainen Model (Savolainen, 1995:259-260) examined the ways individuals monitor daily events and seek information to solve specific problems. Information behaviours are determined by the seeker's values, attitudes and interest - as by characteristics of their way of life. The relevance of different information sources and channels was evaluated based on their familiarity and effectiveness in information use situations. Because different information sources and channels were perceived as familiar or unfamiliar in the context of the way of life, their use or disuse became natural or even self-evident in certain problem situations. The Savolainen Model was based on the way of life (order of things) and master of life (keeping things in order).

Every person’s information behaviour is different. According to the Every Day Life Information Behaviour model (McKenzie, 2003:19-21), it may vary from actively seeking from a known source or planning a search strategy, to serendipitously being contacted by a previously unknown source or being given unasked-for advice. A person will first connect with an information source and then interact with it.

The Everyday Life Information Behaviour model was developed as part of a larger qualitative study of the information-seeking accounts of nineteen Canadian women pregnant with twins (McKenzie, 2001). Semi-structured interviews were conducted to identify significant incidents of information seeking, encountering and/or receiving advice. The model as explained in table 1 covered the information behaviour of a person in totality.

Table 1: Everyday Life Information Behaviour model (McKenzie, 2003:26)

Modes	Connecting	Interacting
Active seeking	Actively seeking contact with an identified source in a specific information ground	Asking a pre-planned question; active questioning strategies, e.g., list-making
Active scanning	Identifying a likely source; browsing in a likely information ground	Identifying an opportunity to ask a question; actively observing or listening
Non-directed monitoring	Serendipitous encounters in unexpected places	Observing or overhearing in expected settings, chatting with acquaintances
By proxy	Being identified as an information seeker; being referred to a source through a gatekeeper	Being told

The different modes are as follows:

- Active seeking is the most directed mode of information practice. Accounts (on active seeking) mention practices such as specifically seeking out a previously identified source, conducting a systematic, known-item search, asking a pre-planned question, and planning or employing active questioning strategies.
- Active scanning involves practices such as semi-directed browsing or scanning in likely locations (libraries, bookstores), systematic observation of physical characteristics or behaviour, identification of opportunities to ask questions and active listening to conversations or questions in likely locations.
- Non-directed monitoring involves serendipitously encountering and recognizing a source in an unlikely place (finding a book sale) while not seeking information at

all, or while monitoring information sources (reading a newspaper) with no intent other than to become generally informed.

- By proxy refers to those occasions when people connect with or interact with information sources through the initiative of another agent, either the information source or some other gatekeeper or intermediary (a close friend). They can include such instances as being identified as an information seeker by an acquaintance or stranger, being referred to a source through a gatekeeper or being given advice, information or prescription (McKenzie, 2003: 19-40).

McKenzie's model was applied in a study of perimenopausal women to test the transferability of McKenzie's model of information practices in everyday life information seeking. Results of the study reflected the transferability and flexibility of the model to a different group (Yeoman, 2010).

1.8 PROBLEM STATEMENT

Visually impaired students have unique everyday life information behaviour and experience many challenges to satisfy their information needs. This study will investigate the everyday life information behaviour of visually impaired Stellenbosch University students in order to identify problems they experience in obtaining information and what role the university and particularly the Stellenbosch University Library can play to overcome possible barriers.

1.9 RESEARCH QUESTIONS

The study aimed to answer the following research questions:

- What are the personal information needs of the visually impaired SU students?
- What are the academic information needs of the visually impaired SU students?
- What facilities do the visually impaired students use to find information?
- What roles do other people play?
- What roles does the Stellenbosch University play?
- What role does the Stellenbosch University library play?
- What role does technology play?
- What are the barriers to accessing information?
- How can information provision to visually impaired students be improved?

1.10 RESEARCH DESIGN AND METHODOLOGY

The term ‘qualitative research’ was used in a distinctive way to describe an alternative to ‘quantitative research’ and was coined against the background of a critique of the latter. Qualitative research, developed in the 1960s and 1970s using text instead of numbers as empirical material, starting from the notion of the social construction of realities under study, is interested in the perspectives of participants, in everyday practices and everyday knowledge referring to the issue under study. Methods should be appropriate to that issue and should be open enough to allow an understanding of a process or relation (Flick, 2007:2).

Denzin and Lincoln (2005:3) offered an ‘initial, generic definition’ stating qualitative research is a situated activity that locates the observer in the world. It consists of a set of interpretive, material practices that make the world visible. These practices transform the world. They turn the world into a series of representations, including field notes, interviews, conversations, photographs, recordings, and memos to the self. At this level, qualitative research involves an interpretive, naturalistic approach to the world. This means that qualitative researchers study things in their natural settings, attempting to make sense of, or interpret, phenomena in terms of the meanings people bring to them.

A mixed research methodology was selected, as it enabled the researcher to gather both quantitative and qualitative data by means of a questionnaire and to verify data using available documents. Quantitative research deals with numbers and uses statistical models to explain data. Qualitative research, on the other hand, pursues understanding of social constructs, such as ideas, beliefs and values and observes what respondents do and say. According to Teddlie and Tashakkori (2010:7) mixed methods research presents an alternative to qualitative and quantitative traditions by advocating the use of any methodological tools required to answer the research question. Mixed method studies combine both qualitative and quantitative approaches allowing the researcher to incorporate the strengths of each method.

1.11 POPULATION AND SAMPLING

“A population is a group of elements or cases, whether individuals, objects, or events that conform to specific criteria and to which we intend to generalize the results of the research” (McMillian & Schumacher, 1997:165). The population for this study was the 26 visually

impaired students enrolled at the Stellenbosch University during the 2015 academic year. As all the students were included, no sampling was used.

1.12 DATA GATHERING METHODOLOGY

The study was initially planned to gather information using questionnaires and to conduct follow-up interviews with willing students. The data gathering part of the study, however, was conducted during the #feesmustfall campaign of 2015 (unrest on South African university campuses with students protesting against increased study fees and demanding free study opportunities to all previously disadvantaged students) and respondents were either unavailable or afraid to participate. For this reason, the researcher decided to gather data by administering questionnaires via e-mails to students at their homes and by analysing documents.

1.13 SIGNIFICANCE OF THE STUDY

It was expected that the study would provide insight into the information need and behaviour of visually impaired students. A potential contribution of the study is that findings could be utilized by SU and SU library to eliminate some of the barriers visually impaired students experience in order to achieve their optimal academic potential.

1.14 LIMITATIONS OF THE STUDY

The study targeted only visually impaired students at Stellenbosch University. Although no generalizations could be made, it was foreseen that results might be used to gain insight into the everyday life of visually impaired students in general. As mentioned already, because of the feesmustfall# unrest, the researcher was unable to conduct the follow-up interviews, which would have provided more in-depth and richer information regarding the information behaviour of visually impaired Stellenbosch University students.

1.15 ETHICS STATEMENT

The researcher adhered at all times to the ethical guidelines of the Research Committee of the University Western Cape and respected the rights of participants . Informed consent from research participants was obtained. Respondents were promised anonymity. Participation in this research project was voluntary and participants were allowed to withdraw at any stage of the research process. Permission to undertake the study was gained from both the University Western Cape and the Stellenbosch University (See

Appendix A and B) as SU was the research site and respondents were registered students at SU.

1.16 CHAPTER OUTLINE

Chapter 1 – Introduction

This chapter outlines the main gist of the study by providing the rationale behind the study, an overview of the research site and an introduction to the research design.

Chapter 2 – Literature review

This chapter conceptualizes and contextualizes information behaviour of visually impaired students, assistive technology and services offered by academic libraries to visually impaired students.

Chapter 3 – Research design and methodology

This chapter explains the entire research design and methodology, which is the mixed method. The chapter evaluates the methodology used in the study, explains data collection methods and data analysis procedures.

Chapter 4 – Data presentation and interpretation

This chapter provides a description and interpretation of the findings of the study, substantiated by figures, tables and narrations.

Chapter 5 – Conclusion

This chapter discusses the findings seeking to answer the research questions by giving evidence relevant to the research questions.

Chapter 6 – Reflections and recommendations

This chapter provides recommendations based on the findings of the study.

1.17 CONCLUSION

This chapter provided an overview of the visually impaired student at Stellenbosch University, the services and facilities for disabled students. The chapter also discussed McKenzie's Everyday Information Behaviour model used to frame the study and introduced the research design used, which is the mixed method to investigate whether the

SU and particularly the SU library can contribute in providing an effective information service to visually impaired students.

The following chapter conceptualizes and contextualizes the world of visually impaired students, their information behaviour, assistive or adaptive technology used and services offered by academic libraries to students with visual impairments by exploring and analysing related studies.



CHAPTER 2: LITERATURE REVIEW

2.1 INTRODUCTION

The chapter presents the review of literature and focusses on the context of students with visual impairments, their information behaviour, the role of assistive or adaptive technologies and the services provided by academic libraries to them.

2.2 THE WORLD OF A VISUALLY IMPAIRED AND DISABLED STUDENT

Students who are visually impaired need different support from the university where they are enrolled. Differentiation amongst students poses challenges for university policies and practices. In general, students with visual impairment need orientation and mobility training in order to locate student services, buildings, classrooms as well as the library on campus. They also need class notes in Braille, large print or in audio formats, alternative arrangements for completing assessment tasks and examinations as well as access to assistive technology like text enlarging software, a voice synthesiser, a text-scanner reader, video magnifiers and zoom text on computers (Middlesex University, 2006:31-32).

Pillay's research paper (2009:37) posited that, in order to prevent inequalities and discrimination, the visually impaired student must not only gain access to a tertiary institution, but must also be provided with adequate lecturing structures, appropriate format of materials, proper accommodation and easy mobility around the institution.

Greyling's study (2008) aimed to obtain an in-depth understanding of how students with disabilities experience support at Stellenbosch University. The study was based upon the assumption that it is important to hear the voices of students with disabilities. For the purpose of the study, fifteen disabled students took part in semi-structured interviews and focus group discussions. The following research findings were recorded:

- Students with disabilities experienced both internal and external support and barriers that impacted on their development;
- Internal support and barriers included emotional, behavioural, physical and cognitive aspects;
- External support and barriers included peers, the department and faculty, university accommodation, the classroom, management and administration of the university.

Four overarching themes, namely attitude and awareness, communication, level of inclusion and advocacy emerged from the study. Greyling (2008) was involved in an active meaning-making process with the participants and used qualitative methods of data collection, for example individual and focus group interviews. The findings of this study had important implications for the support practices and training of academic staff and all role players at Stellenbosch University. The study highlighted an understanding of their experiences in relation to support and barrier factors and practices at Stellenbosch University. The study further determined that there is a vital need to continue to seek out, listen to and act upon the voices of students with disabilities in an attempt to make higher education more inclusive.

2.3 INFORMATION BEHAVIOUR OF VISUALLY IMPAIRED STUDENTS

According to Wilson (1997:551) information behaviour is a highly researched topic within the field of library and information studies and many models and theories have been developed to explain the way individuals seek and use information in a range of contexts. Not many studies on the information behaviour of the visually impaired have been done.

Chang and Chang (2010:312) used the sense-making theory to examine the information behaviour of 23 visually impaired users of the National Taiwan Library along a time baseline. The respondents were observed along a basic time-line in a situation and then asked to choose the most important event, question, or contact in relation to identifiable outcomes. The study used both semi-structured interviews and questionnaires to collect data. A variety of role-playing factors in their daily information seeking were identified. These factors included medical and health related problems, careers, curricula, study demands, social issues, government affairs, and others, such as information for self-improvement, self-assessment, knowledge for specific areas and spiritual growth (Chang & Chang, 2010:283). Barriers that impeded information seeking were summarized into four categories: individual disability, human relations problem(s), deficiency of information media (e.g. audio materials, the Internet and text files) and environmental limitation(s). Chang and Chang (2010:312) found that respondents mainly used libraries to meet their daily life information needs and the deficiency or lack of proper media was identified as the most common obstacle in gaining needed information.

Williamson, Schauder and Bow (2000:5) investigated the information needs of sight-impaired people and how their needs were met. They developed an ecological model,

which allowed people to be conceptualised as both individual and socially constructed entities. Focus groups and individual interviews were used to compare information behaviour -especially information and communication needs for everyday life - of blind or visually impaired people. Findings reflected that the blind or visually impaired expressed greater needs for information on their disability as well as on coping with life activities. They relied more heavily on support of sighted people, technology and other methods to access information. The Internet, although regarded as a solution to undo social problems of any disabled person, was identified as only one way of accessing information. Family and friends as well as the radio were utilized as information sources. Barriers in satisfying information needs included out-of-date information and cost of more accessible formats of information.

As visually impaired students cannot access print resources, Saumure and Given (2002b:222) investigated alternative formats and methods used by six visually impaired first and second year college or university students to access academic literature. The study was based on the assumption that technology has the ability to link students with academic information. While sighted students browsed the shelves or catalogue for relevant materials, the visually impaired students relied on the help of the librarians, volunteers and friends for access. Another barrier was the long time it took for the visually impaired students to explain to the librarians, volunteers and friends what their information needs were. Many misunderstandings also occurred. The study recommended that policies meeting disabled students' needs must be drafted, adaptive technology at library workstations should be provided and collaboration between the library and on-campus units should be established. Information needs of disabled students should be communicated to faculty and publishers should be encouraged to provide materials in adapted formats. Forgave and McKenzie (2001:289-291) who investigated the web site accessibility of thirty Canadian public libraries, observed that only ten percent of the websites met the accessible standards for visually impaired students.

In Poland, visually impaired children and their peers received comparable education with the result that 20% of them manage to gain entrance into tertiary education (Klinkosz, Sekowski and Brambring, 2006).

Klinkosz, Sekowski and Brambring (2006:666) compared academic achievement and personality traits influencing academic grades of sighted and visually impaired students at

Polish universities. A group of 105 visually impaired students (37 blind and 68 with low vision) were selected based on psycho-educational criterion of successful graduation from school. Two short personality questionnaires to measure neuroticism, extraversion, openness, agreeableness and conscientiousness and the Delta Questionnaire for Measuring Locus of Control were administered. The study concluded that, although academic achievements of visually impaired students were equal to those of their sighted fellow students, they demonstrated greater social and emotional maturity and were strongly guided by their beliefs. The study permitted that the level of academic achievement of the blind students and those with low vision were connected in varying degrees. It further showed that all the students with visual disability coped well with their studies and passed their examinations on time. They all viewed a university education, the acquisition of knowledge and vocational skills as forms of self-realization.

The Non-Visual Access to the Digital Library project at Universidade Nova de Lisboa (NOVA) aimed to discover how visually impaired people approached and used technology (Craven & Brophy, 2003:32) by comparing the searching behaviour of twenty each visually impaired and sighted students. The basis of the experiment was that the Internet has the potential of supplying access to resources and communication channels to the visually impaired, but that sighted people in general use very complex searches and difficult web pages, incorporating frames and links in a nonlinear manner. Visually impaired people on the other hand, needed to search in a linear manner using one page at a time. During this experiment, activities were logged by recording key strokes and mouse clicks together with the participant's verbal description of the search. The results revealed that visually impaired students spent more time navigating through web pages, that students using screen magnification had a higher success rate than those using screen readers and that those more experienced in using assistive technology were better able to search within a web page for specific information. One of the recommendations was that libraries should invest in up-to-date technology and provide training in the use of assistive technology (Craven & Brophy, 2003).

Shaver (2011) in describing five ways and techniques to ensure that a website is accessible to the visually impaired, emphasised the inclusion of enlarged text, contrasts, colours for action items, desktop users to browse mobile sites and keyboard shortcuts to aid navigation.

Scneiderman (2014) proposed eight rules to keep in mind when designing a website for people living with visual impairment. It included striving for consistency, enabling frequent users to use shortcuts, offering immediate feedback, designing dialogs to yield closure, offering error prevention, handling simple errors, permitting easy reversal of actions, supporting internal control and reducing short-term memory load.

Oppenheim and Selby (1999:335) assessed the use of search engines of four visually impaired students. They concluded that barriers preventing access to the Internet included the interface design and the interpretation of speech synthesis to convey the content of the page. These obstacles could largely be overcome with a little foresight in the design process. Although guidelines for accessible design and accessibility checkers are freely available, designers generally are more concerned with the look of the page than accessibility to the minority visually impaired users.

The information behaviour and perceptions of their ability to locate and use information, with a particular focus on the role of assertive technology by visually impaired post-graduate students, were explored by Saumure and Given (2004a:27). The study examined visually impaired students' perceptions of their own behaviours, how they perceive their success at finding information, which key resources they accessed and the role of adaptive technology in their information behaviour. The six participants were either totally blind or partially sighted but unable to read print resources. Semi-structured interviews were conducted, using a variety of open-ended questions about demographics, information-searching behaviour, the use of adaptive technology as well as the challenges and successes faced in locating information.

The qualitative thematic analysis revealed that:

- current academic information in already adapted format (e.g. Braille, audio books) was not readily available;
- the intensive adaptation process from text into another format was time consuming;
- due to the delay from when a textbook was bought until it was adapted into another format, visually impaired students often did not have enough reading time to access information inside textbooks resulting in examinations being written without completing preparatory readings;
- information was utilised more effectively when it was already in electronic form (e.g. electronic journals and the Internet);

- visually impaired students perceived themselves to be reasonably successful in locating academic information;
- visually impaired students recognized the importance of a support network in providing them with adapted academic information (e.g. scribes to take notes)
- as information needs were not always understood, the human support network was not always satisfying
- visually impaired students were not independent information users

Saumure and Given (2004b:223) recommended that campus offices for students with disabilities must be established and that academic libraries must work together with these offices to ensure that academic materials were translated into alternative formats. Academic information providers need to lobby with publishing companies to encourage them to provide materials in both printed and electronic form.

From 1970, a growing body of research has focused on everyday life information seeking Bates (2004:15). These studies emphasized the need to understand everyday information behaviour from a person-centred perspective and use of qualitative research methods. Bates (2004:27) opined that narrative and episodic interviews are best suited for qualitative research and in-depth studies involving a small number of participants especially when interviews are conducted in the interviewee's own natural everyday environment (e.g. their own homes).

Agosto and Hughes-Hassell (2005:141) used the everyday life information seeking for their study consisting of 27 urban young adults aged between 14 and 17 years. Quality data was gathered using written activity logs and semi-structured group interviews. The study identified schoolwork as their primary everyday life information need and concluded that friends and family – not books or libraries - were preferred an information source to satisfy their needs. Electronic media (-such as telephones, television, computers and radios) was identified as their preferred media.

Given (2002:17) used in-depth qualitative interviews to explore the information seeking behaviour of 25 mature undergraduate students at a Canadian university. The study explored the complex interweaving of these students' every day and academic information needs. The study concluded that social and cultural capital, the diverse ways every day and academic contexts informed each other and not separating the everyday from life

situations, played important roles in their information seeking. All students indicated that everyday experiences sparked new information needs and provided information solutions for academic work.

For a master's dissertation, Seyama (2009) investigated whether the services provided by the University of KwaZulu-Natal on its Pietermaritzburg campus accommodated the information seeking behaviour of blind and visually impaired students. The researcher used the Model of Information Behaviour by Wilson (1996) to frame the study. Two different populations were targeted. The first was nine blind or visually impaired students interviewed using a semi-structured interview schedule. The second was seven subject librarians assisting blind and visually impaired students in meeting their information seeking needs at the main academic library, answering a self-administrated questionnaire. The study revealed the most common need of the students was related to academic issues. The most pressing issue was where to find relevant information for assignments. The factors influencing the choice of information sources and formats were influenced by four main factors, namely: degree of visual impairment; level of study; resources on offer at University of KwaZulu-Natal and the nature of the task. The study showed that the University of KwaZulu-Natal was aware of the needs of students with disabilities, but that the library services fell short of meeting the information needs of blind and visually impaired students. It was recommended that a detailed access and usability audit of students with visual impairments were undertaken. This audit would enable library staff to gauge the level of service currently provided and to plan future services. It would also give a clear signal that access to information by people with disabilities was a high priority on campus.

2.4 ASSISTIVE OR ADAPTIVE TECHNOLOGY

A wide range of constantly evolving assistive or adaptive technology devices exist to support visual impairment. These devices and tools enable visually impaired students to perform sight-related tasks independently (Tinerella & Dick, 2005:30) and may include screen magnifiers (used to enlarge and change colours on the screen to improve the visual readability of rendered text and images), screen readers (used to read textual information through synthesised speech or Braille displays), voice recognition software (used to simulate the keyboard), alternative pointing devices (used to simulate mouse pointing and

button activation) and Braille readers. Because of diverse impairments, different visually impaired people need different technologies (Kleynhans, 2009:1).

Kleynhans and Fourie (2014:368) conducted accessibility studies of electronic information resources specifically in libraries. According to Kleynhans and Fourie (2014:369), the first step in ensuring accessibility of electronic information is to ensure that people living with visual impairment have access to computers and the necessary assistive technology. Universidade Nova de Lisboa (NOVA) and its ability to connect people with networks have become an important lifeline and crucial educational tool for people living with visual impairment.

Adaptive technology has become critical in the academic lives of visually impaired students. These technologies are used to make inaccessible materials accessible. Students use adaptive technology in a variety of ways. Printed material can for example be scanned into electronic format and then be transformed into audio or tactile forms. Particularly useful is technology assisting students to find and download full-text journal articles. This implies that dedicated library computers should be equipped with software that enable visually impaired students to access the online public access catalogue (OPAC) and other electronic resources (Kleynhans and Fourie, 2014:373.)

Schiff (2007:68) taught information literacy to a group of visually impaired students. Students investigated the assistive technologies JAWS (Job Access with Speed) and Zoom text. Embedded in JAWS was the JAWS voice, which announced links, headings, lists and other features on the page display. Graphics and images were explained using descriptive alternative text.

Zoom text incorporates screen magnification software that integrates voice synthesis with enlarged text (up to 36 times) and graphics. In Schiff's (2007) study the user controlled reading through keyboard commands or by moving the mouse over the text. The facilitator determined that only some students engaged effortlessly with the technology. Others found adapting to using new technology and then learning what the technology revealed beyond their immediate capabilities. In general, students found the analysing and refining of research topics engaging and that although it was initially difficult to master, JAWS enabled them to interact with web pages in the same way a sighted individual would (Schiff, 2007:68).

The survey by Gerber (2003:536-537) found that individuals with visual impairments were much less likely to use computers than sighted individuals. Internet access was used in a very selective way favouring the following functions: playing games; searching for information on products or services; making online purchases; searching employment databases and gathering information on news, weather and sports. The study also confirmed that the visually impaired used computers at nearly the same rate as sighted people to participate in social and community networks (Gerber, 2003:541).

Saumure and Given (2004a:30) studied the information behaviour of visually impaired post-secondary students. They concluded that visually impaired students had to rely on the help of reference librarians or fellow students to select and retrieve materials on their behalf. Retrieved material must then be transformed into an adapted format, which took time and could delay studying. The additional time needed in this information seeking procedure was forcing visually impaired students to use the Internet as their prime information source. The Internet is easily accessible through speech synthesizers (technologies that adapt Web texts into audio format) and as Internet resources are already in digital form, the materials can be quickly adapted to an accessible format. Visually impaired students were also able to evaluate information and information sources and did not have to rely on others for selection and retrieval.

A study by Armstrong and Murray (2010:504) predicted that accessible e-learning environments could be developed to assist adults with visual impairments. The study described an accessible e-learning environment designed to deliver an advanced information technology skills course to nineteen or twenty blind students in preparation for employment. Industry-standard printed training material, was converted into accessible formats and delivered locally as well as in remote areas via accessible e-learning environments in the form of a virtual classroom. These students completed the same course as undergraduate university students enrolled for the course as part of their degree program.

Armstrong and Murray (2010:508) posited that visually impaired students achieved grades similar to or higher than sighted students. A contributing factor was the availability of converted material in accessible and comprehensible format. Although the students with visual impairments spent more time studying than the sighted students, their understanding of the concepts was more solid and their ability to apply theory to practice exceeded that of the sighted students.

2.5 SERVICES OFFERED BY THE ACADEMIC LIBRARY

Libraries have provided in varying degrees accessible resources to visually impaired students. The literature highlighted that the visually impaired experienced two fundamental barriers, namely physical and attitudinal, preventing them from participating in library activities. This led to students feeling excluded and isolated from the library environment.

Academic institutions typically design library and other information policies and practices to suit a generic “university student” population. However, many students have specialized information needs easily overlooked in traditional approaches to library service and research. These student sub-populations require specialized attention in amongst others developing appropriate information literacy programs, designing accessible websites, or creating reference services that will meet these students’ information needs.

At the University of Malay Library, carrels dedicated to visually impaired students are provided. They also provide student volunteers to assist these students. Bodaghi and Zainab (2013:43) studied the perceptions and experiences of eighteen visually impaired students registered as carrel users. The study adopted a qualitative approach using semi-structured interviews over a period of seven months to understand the feelings and attitudes of these students. The study concluded that students experienced the carrels as quiet, convenient, a comfortable place to interact with the volunteers and to use their adaptive technologies. A number of students described the carrels as their second homes, a place where they feel safe and where they can work on their own. They felt that the library cared about their needs and that they belonged as members of the library. Many students experienced a strong sense of belonging not only in the library but also within the university’s educational setting and were more likely to achieve success in their studies.

According to Adetoro (2011:9) people living in Nigeria with visual impairment will be able to better utilise library materials if they are transcribed into alternative or adaptive formats. Adetoro (2011:7) surveyed information materials available for and the level of use of these alternative formats by people with visual impairment. The study has shown that in Nigeria Braille materials and talking books/audio recordings are either not readily available or not available and that large prints are not available at all.

In-depth qualitative interviews to examine the information behaviour of visually impaired undergraduate students in Canada by Saumure and Given (2004a:40), revealed that

adaptive technology, active support networks and personal determination enhanced their information behaviour. Students struggled, however, with time constraints, feelings of dependence, lack of human understanding and limited access to electronic resources.

According to Williamson, Schauder and Bow (2000:5), because libraries rely heavily on printed sources, they always have problems providing information to people who are blind or seriously sight impaired. Assistance was limited to providing audio material and adaptive equipment to use the Internet.

To address the physical barriers, many academic libraries have created designated space, rooms or carrels for visually disabled students. These areas provided not only space, but also resources dedicated to assist the students (Bodaghi & Zainab, 2013:44; Kaijage, 1993:48 and Wilhelmus, 1996:369). The recent study by Bodaghi and Zainab (2013:51) examined visually impaired students' experiences of library facilities, services and collections at the University of Malay and concluded that students felt at home, a sense of belonging, safe, comfortable and accepted in the carrels. The spaces were also utilised for interaction with peers, volunteer readers and sighted students.

As most libraries are not adequately staffed, academic libraries use student volunteers to assist visually impaired students in searching for information, reading and borrowing library material. The study by Bodaghi, Zainab and Abdullah (2014:42) found that although the University of Malaysia had 79 visually impaired registered students, only twenty were registered library patrons. The study determining the perspectives of eighteen of these patrons concluded that the volunteers enriched their academic, social and emotional lives.

Because of individual needs of visually impaired students, the study by Tinerella and Dick (2005:31) at the Northern Illinois University concluded that a flexible comprehensive reference service was needed and that a dedicated subject specialist should liaise with the university's division that served students with disabilities. This sentiment was expressed by Wilhelmus (1996:369-371) years earlier.

Power and LeBeau (2009) investigated the web sites of 33 academic libraries to determine how they addressed the needs of database users with visual disabilities. The rationale behind the study was that all students find utilizing databases difficult, that the software involved determined interaction with databases, that databases were not easily accessed by

screen readers, that library disability services pages offered varying descriptions of available assistive technology and that libraries offered limited database accessibility assistance. They recommended that academic libraries must provide a list of available assistive technology, online instructions for using assistive technology software, a list of specialized library materials, links to outside resources, bibliographies of library material of interest to students with disabilities, information on future employers, fully usable databases by selecting vendors using tested software, compatible screen readers, database searching training and assistance as well as an informative library web site (Power & LeBeau, 2009:63-67).

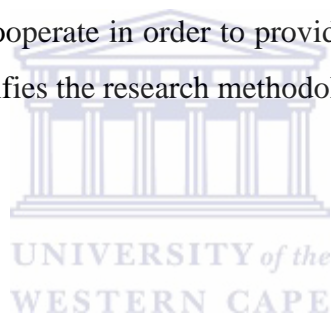
The study by Harris and Oppenheim (2003:243) determined that the provision of library services for visually impaired students at 230 further education libraries in the United Kingdom were influenced by the resources held at the libraries, the attitudes of senior management as well as previous experience in assisting visually impaired students. They concluded that to maximise services to visually impaired students funds should be made available for resources, training of staff as well as physical alterations to library equipment. The role libraries played in the struggle for equity and access for people with disabilities was described by Jaeger, Wentz and Bertot (2015). Their study explored the historical evolution of the library and services to patrons with disabilities and the significance that the now dominant role of the Internet and digital library resources hold in the realm of equal access to information and resources.

The role of the South African Library for the Blind (SALB) is noteworthy. With the exception of the SALB in Grahamstown, there are only a few libraries in Africa providing services to the visually impaired. The SALB provides free of charge reading material including books and magazines in accessible formats as well as specially designed playback equipment to blind and visually impaired South Africans (SALB). As approximately 80% of the visually impaired population in South Africa live in rural areas (SANCB, 2010) a project was launched during 2010 in the Eastern Cape to create access and awareness to libraries and reading material for the visually impaired in the rural areas (Nassimbeni & De Jager, 2014:247). A recently started service, known as Mini-Lib, provides, in cooperation with public libraries, a dedicated corner for the visually impaired (Hess, 2013).

2.6 CONCLUSION

The literature sources investigating the everyday behaviour of students with visual impairment were both primary and secondary sources and voiced findings and conclusions from a variety of international and South African studies framed by different conceptual theories. In this regard, the literature indicated that students with visual challenges:

- have special information needs
- spend more time to find, access and evaluate relevant information
- can cope well with studies
- can access websites more easily if they are designed for people with visual impairments
- need time for text to be converted into accessible formats
- find the use of assistive or adaptive technology critical in an academic environment
- have special expectations from academic libraries
- need university units to cooperate in order to provide for all their need. The next chapter discusses and justifies the research methodology used in the study.



CHAPTER 3:

RESEARCH DESIGN AND METHODOLOGY

3.1 INTRODUCTION

This chapter introduces the research methodology used. The project aimed to investigate the information behaviour of visually impaired students at the Stellenbosch University, how the visually impaired students access and use information and the role of the university - specifically the academic library - in satisfying the information needs of visually impaired students.

The research design and methodology and the reasons why the methodology was considered appropriate for gathering the data required to answer the research questions will be discussed.

3.2 RESEARCH QUESTIONS

As mentioned in Chapter 1, the study aimed to answer the following research questions:

- What are the personal information needs of the visually impaired SU students?
- What are the academic information needs of the visually impaired SU students?
- What facilities do the visually impaired students use to find information?
- What roles do other people play?
- What roles does the Stellenbosch University play?
- What role does the SU library play?
- What role does technology play?
- What are the barriers to accessing information?
- How can information provision to visually impaired students be improved?

3.3 RESEARCH DESIGN

A research design guides research to find answers to research questions as valid, objectively and accurately as possible by using a plan of action that links the philosophical assumptions to specific methods (Creswell 2003:4). Trochim (2006) described the research design as the structure of research, which holds all of the elements in a research

project together. It serves as a brief document that enables the researcher to summarize a complex design structure efficiently.

A mixed method research methodology was selected, as it would enable the researcher to interact with visually impaired students by means of questionnaires. Quantitative research deals with numbers and uses statistical models to explain this data. Qualitative research on the other hand, pursues understanding of social constructs, such as ideas, beliefs and values and observes what respondents do and say. Teddlie and Tashakkori (2010:7) posited that mixed methods research presents an alternative to qualitative and quantitative traditions by advocating the use of any methodological tools required to answer the research question. Mixed method studies are studies that combine both qualitative and quantitative approaches. The use of both approaches allows the researcher to incorporate the strengths of each method.

The composition of the group of participants should provide in-depth knowledge and insight of the phenomenon under study. Although the students formed a homogeneous group in terms of the context and the label of disability they shared at Stellenbosch University, they were individuals with unique experiences and different voices.

Initially it was envisaged that to ensure that all 26 students would be able to answer the questionnaire, different methods of administering the questionnaires would have to be used. Composition of the group of participants should enable the provision of in-dept knowledge and insight of the phenomenon under study. It was planned that the questionnaires would be administered by:

- Using SURvey (Stellenbosch University's own survey software);
- Converting into Braille;
- Reading the questions to the student.

After the cooperation and assistance of the Braille Office at Stellenbosch University was gained, the researcher was assured that all 26 visually impaired students would be able using available assistive technology to answer the questionnaires via SURvey. The study initially was planned in two phases. The first would have been to gather information using questionnaires and the second follow-up semi-structured interviews with willing students to cross-check answers and to gather more in-depth information.

Unfortunately, two factors compelled the researcher to abandon the second phase of the project. Stipulations of the Stellenbosch University's ethical committee prohibited researchers from making direct contact with participants. Even for interviews, an independent intermediary needs to ask the questions and record the responses of the respondents. Another factor, which influenced the research methodology, was the fact that, because of volatile student unrest and demonstrations on the Stellenbosch University campus during the planned period of conducting the interviews (October – December 2015), all students were required to leave the campus. These factors resulted in the follow-up interviews not being realised. Because the questionnaires contained several open-ended questions, which resulted in qualitative data from respondents, the research was still regarded as a mixed method. Some of the information gathered from the participants was verified using available policy documents.

3.4 RESEARCH METHODOLOGY

Research methodology is concerned with the process of the research and the tools and procedures that are utilised during the research process, for example data collection, data analysis and data verification. Mouton (2001:55) describes research methodology as 'the systematic, methodical and accurate execution of the research design where various methods and tools are used to perform different tasks'. Trochim (2006) described the research design as the structure of research, which holds all of the elements in a research project together.

3.5 RESEARCH SITE

The Stellenbosch University was used as the research site. As discussed in Chapter 1, Stellenbosch University has different offices and associations dealing with visually impaired students. They are the *Division for Academic Counselling and Career Development at the Centre for Student Counselling and Development*, the *Braille Office for Students with Special Learning Needs/Disabilities*, and the *Association for students with disabilities (Dis-Maties)*.

During the planning phase of the study, the researcher contacted the managers of all these offices and associations first by e-mail and later by visiting them personally to inform them about the study and to persuade possible assistance with the study.

3.6 POPULATION

This study used as population all the blind or visually impaired students enrolled at the Stellenbosch University during the 2015 academic year. These students were registered for different undergraduate as well as post-graduate programs from different faculties.

Information provided by the Senior Braille Officer for Students with Special Learning Needs/Disabilities indicated that there were 26 registered visually impaired students. Of the 26 registered students, eighteen were undergraduate students of whom four were blind and fourteen were visually impaired while eight students of whom six were blind and two were visually impaired were post-graduate students.

3.7 SAMPLING METHODS AND SAMPLING SIZE

Because of the small size of this unique group, all were included in the study.

3.8 RESEARCH DATA GATHERING

3.8.1 Data gathering tool

The research instrument used was an questionnaire. According to Flick (2007:75) questionnaires can be used to elicit feelings, beliefs, experiences or attitudes of a sample of individuals. It can be a structured or unstructured list of questions, which the respondents must answer. When using a self-administrated questionnaire, the researcher is not present to explain anything to respondents. It is therefore important that questions are clear, structured and easy to understand.

The advantages of questionnaires are that they are economical (not expensive) and save time, human and financial resources. Because each respondent receives the same set of questions, uniformity is achieved. Questionnaires also offer anonymity as there is no face-to-face interaction with respondents (Flick, 2007:75).

The disadvantages of questionnaires are that the application of questionnaires is limited, it targets only groups that can read and write, it might result in low response rates because people fail to return them, some questions might not be clear and lead to misunderstandings if a respondent does not understand a question (Flick, 2007:77).

3.8.2 Questionnaire design

The questionnaire (see Appendix C) developed for this research consisted of both dichotomous (yes or no) and open-ended questions to collect data. Students were requested to provide honest information and to answer openly.

The questionnaire consisted of two sections. For background information, the first section gathered biographical details of the respondents. The second section was dedicated to gathering information regarding the everyday information behaviour of the visually challenged students. These seventeen questions were formulated based on information retrieved from the literature review – especially McKenzie' Everyday Life Information Behaviour model – and the unique situation at Stellenbosch University. The questions were created to ensure that data to answer the research questions were gathered.

The questionnaire consisted of 23 closed and open-ended questions:

- Questions 1-5 provided the researcher with each student's biographical details and the world of a visually impaired student.
- Questions 6-12 provided information on how the visually impaired students retrieved and used information.
- Questions 13-16 highlighted whether visually impaired students were aware of the services offered by the Stellenbosch University and the Stellenbosch University Library and to what extent these services were utilized.
- Questions 17-20 provided information about assistive technology used.
- Questions 21-22 gave the students the opportunity to suggest how to better the services.
- Question 23 determined the students' willingness to partake in follow-up interviews

3.8.3 Pre-testing the questionnaire

Creswell (2003:20) advised that questionnaires must be tested on typical respondents before data collection begins. Pre-testing will ensure validity, reliability and dependability of the questionnaire. It also serves to identify weaknesses and gaps in the instrument and to determine if instructions are clear and that questions are easily understood. For this study a pre-test was conducted using three physically challenged students and three subject

librarians at Stellenbosch University. Minor changes were made to clarify some of the questions and to correct grammar mistakes.

3.8.4 Administering the questionnaire

The study needed ethical clearance from both the University of the Western Cape and Stellenbosch University. In the case of UWC, ethical clearance was gained after the project was accepted and registered. The Ethical Committee of the Stellenbosch University required the completion of prescribed forms, which called for additional information about the study. It was a timeous process and required two visits to the chairperson of the committee to discuss the process and study before the clearance was granted (see Appendix B).

The ethical clearance from the Stellenbosch University stipulated that the researcher was not allowed direct contact with respondents and that the university's SURvey (Stellenbosch University's own survey software) must be used to administer questionnaires. The cooperation and assistance of the Braille Office for Students with Special Learning Needs/Disabilities at Stellenbosch University therefore became a necessity.

Initially it was envisaged, to ensure that all 26 students would be able to answer the questionnaire, that different methods of administering the questionnaires would be used. The composition of the group of participants should enable the provision of in-dept knowledge and insight of the phenomenon under study. It was envisaged that the questionnaires would be administered by:

- Using SURvey;
- Converting into Braille;
- Reading the questions to the student.

After meeting and consulting with the Braille Office for Students with Special Learning Needs/Disabilities three times, consensus on a plan for the administrating of the questionnaires was reached. The researcher was assured that all 26 registered visually impaired students had access to assistive technology and therefore would be able to answer the questionnaire via SURvey. The questionnaire was consequently converted into Word format and in August 2015, the questionnaire was sent to the Braille Office. The Braille Office converted it into an accessible format. To ensure confidentiality and anonymity, the

Braille Office acted as intermediary to send out and receive completed questionnaires using the university's SURvey software.

Due to students not being on campus because of the ongoing student unrest during the period of data gathering, only 21 students had access off campus to the needed technology. In September 2015 the Braille Office for Students with Special Learning Needs/Disabilities, e-mailed questionnaires to those 21 students. A letter explaining the study and asking the respondents for their cooperation was attached to the questionnaires. A follow-up reminder, requesting students to complete and return the questionnaires was sent later in September 2015. By the end of September 2015, respondents were phoned and asked verbally to complete and return the questionnaire via e-mail to the Braille Office. By the middle October the Braille Office received only five completed questionnaires which were sent to the researcher.

3.8.4.1 Cooperation with Dis-Maties

Before the data gathering phase of the research project, the researcher met with the chairperson of Dis-Maties to discuss the project and to secure their cooperation if needed. Because of the stipulation by the Stellenbosch University Ethical Committee that the Braille Office for Students with Special Learning Needs (Disabilities) must manage the administration of the questionnaires, the chairperson, since she is familiar with all the blind and visually impaired students on campus, initially rendered only her enthusiasm and moral support to the project. When explained to her by the middle of October 2015 that only five completed questionnaires were received, she offered to try persuading the students personally to cooperate. After her intervention, five more questionnaires were received. A total of ten questionnaires, resulting in a response rate of 47.6%, was used for data analysis.

3.9 DATA CAPTURING, ANALYSIS AND PRESENTATION

Once the ten questionnaires were received, the researcher, with the aid of a staff member of the Centre for Statistical Consultation of Stellenbosch University, captured the data using Word Excel spreadsheets. The same software was used to analyse the data. Data was drawn into the Statistica program to create graphs to visually represent the findings.

3.10 VERIFICATION OF DATA

Due to the #feesmustfall resulting in one data gathering tool being used, the researcher consulted various documents to verify data received from the questionnaires. They were

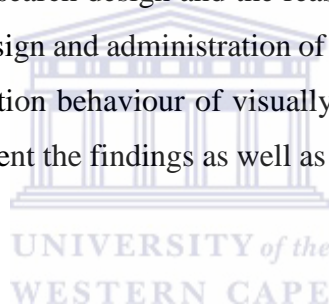
the Stellenbosch University website regarding services to students with visual impairment, the Stellenbosch University library's 2015 annual report as well as the Stellenbosch University library's strategic direction 2016-2020.

3.11 LIMITATIONS OF THE STUDY

The study targeted only visually impaired students at Stellenbosch University. Although no generalizations could be made, it was foreseen that results might be used to gain insight into the everyday life of visually impaired students in general. As mentioned already, because of the fees must fall# unrest, the researcher was unable to conduct the follow-up interviews, which would have provided more in-depth and richer information regarding the information behaviour of visually impaired SU students.

3.12 CONCLUSION

This chapter has explained the research design and the reasons for the choice of research method used. Detail about the design and administration of the questionnaire to collect in-depth data regarding the information behaviour of visually impaired students at SU was given. The next chapter will present the findings as well as the analysis and interpretation thereof.



CHAPTER 4: DATA PRESENTATION AND INTERPRETATION

4.1 INTRODUCTION

Chapter 4 presents the data collected through the methods described in Chapter 3. It analyses the data gathered from the questionnaires received from visually impaired students registered at the Stellenbosch University. Although 21 questionnaires were sent to visually impaired students, only ten were returned resulting in a response rate of 47.6%. The main reason for the low response rate was the data gathering taking place during the #feesmustfall unrest on all South African university campuses resulting in the participants not being on campus with access to assistive technology.

For the data analysis and presentation, Microsoft Excel was used. Data interpretation was supported by McKenzie' Everyday life information behaviour model as well as related literature. The data presentation loosely follows the structure of the questionnaire and presents responses to broad categories of personal information, information needs, information behaviour, library usage, the role of technology and suggestions to better information provision.

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4.2 PERSONAL INFORMATION

Students were requested to complete the questionnaires anonymously. Demographic information about the enrolled respondents was analysed, allowing the researcher to examine the visually impaired students in terms of gender, age, program registration and accommodation.

4.2.1 Gender

The first question requested the students to indicate their gender. Six (60%) of the respondents were female students, while four (40%) were male students. The findings are summarized in Figure 1 below.

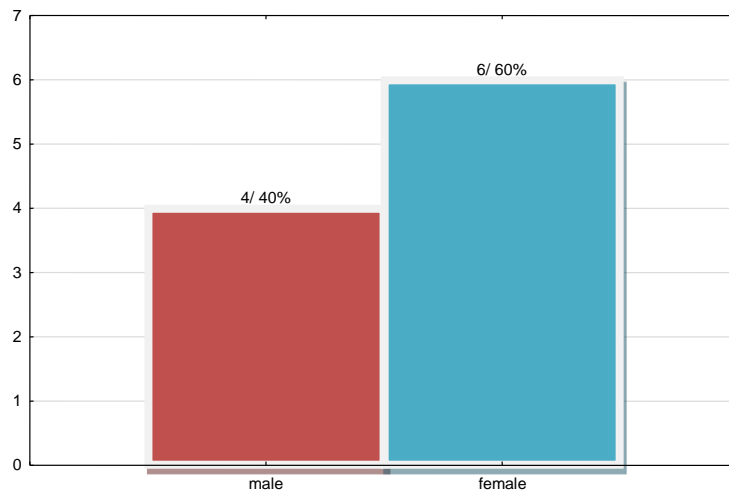
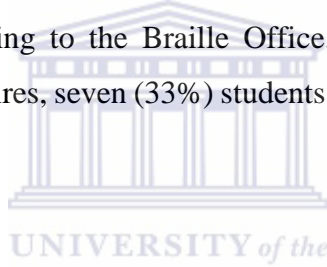


Figure 1: Gender

This ratio did not reflect accurately the overall enrolment of visually impaired students at Stellenbosch University. According to the Braille Office, of the 21 visually impaired students who received questionnaires, seven (33%) students were male and fourteen (67%) female.



4.2.2 Age

From Figure 2 below it can be deduced that the average age of the visually impaired students enrolled during the 2015 academic year at Stellenbosch University ranged from 19 to 27 years old.

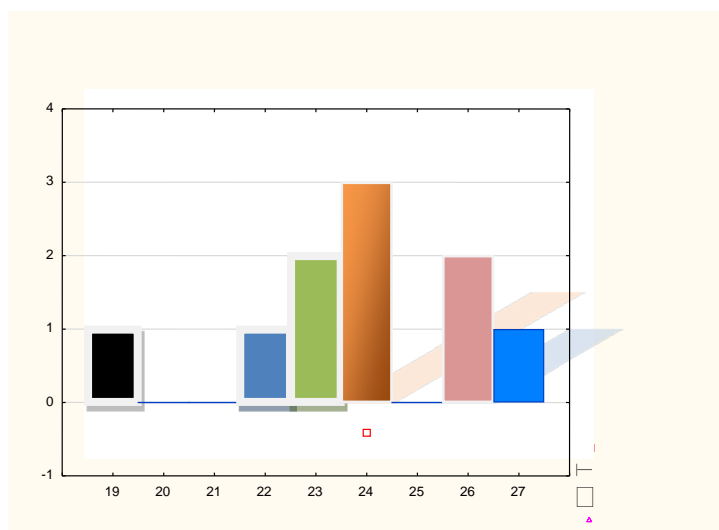


Figure 2: Age

Ages corresponded with the fact that four of the respondents were undergraduate students (average age 18 – 21) and six of the respondents were enrolled for postgraduate studies (average age 22+).

4.2.3 Programs registered

Responses from question 3, where the visually impaired students had to indicate for which program they were registered for, indicated a wide range of degree enrolment: PhD Electrical Engineering (1), MSC Computer Science (1), MA Psychology (1), Honours in Psychology (2), Honours in Political Science (1), BA Social Work (1), BA Language and Culture (1), BA Humanities (1) and BA International Studies (1). The programs are summarized in Table 2 below.

Table 2: Program registration

Undergraduate	Postgraduate			Total
	Hons	Masters	PhD	
BA				
4	3	2	1	10

4.2.4 Accommodation at Stellenbosch University

The fourth question required the students to indicate whether they were staying in a university residence, a private residence in Stellenbosch, a private residence outside Stellenbosch or in other residences. Of the ten respondents eight (80%) students stayed in university residences, while two (20%) made use of private residences in Stellenbosch. This resonated well with the fact that there are four undergraduate women’s residences, two undergraduate men’s residences, two mixed gender residences for senior students and one mixed gender undergraduate residence available at Stellenbosch University (Stellenbosch University, 2014a). Results are summarized in Figure 3 below:

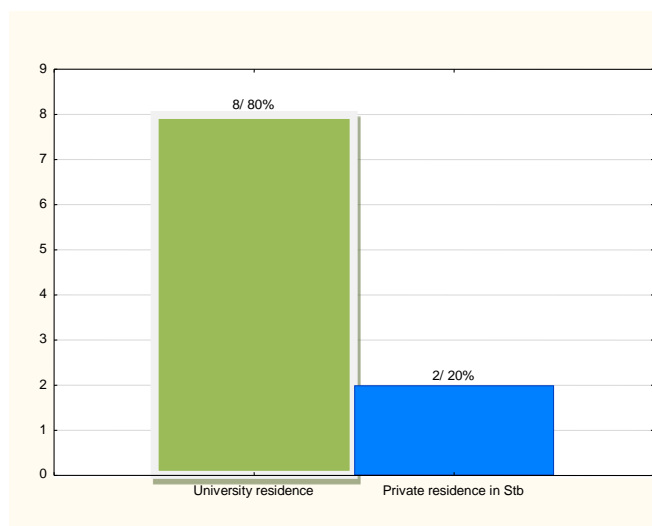


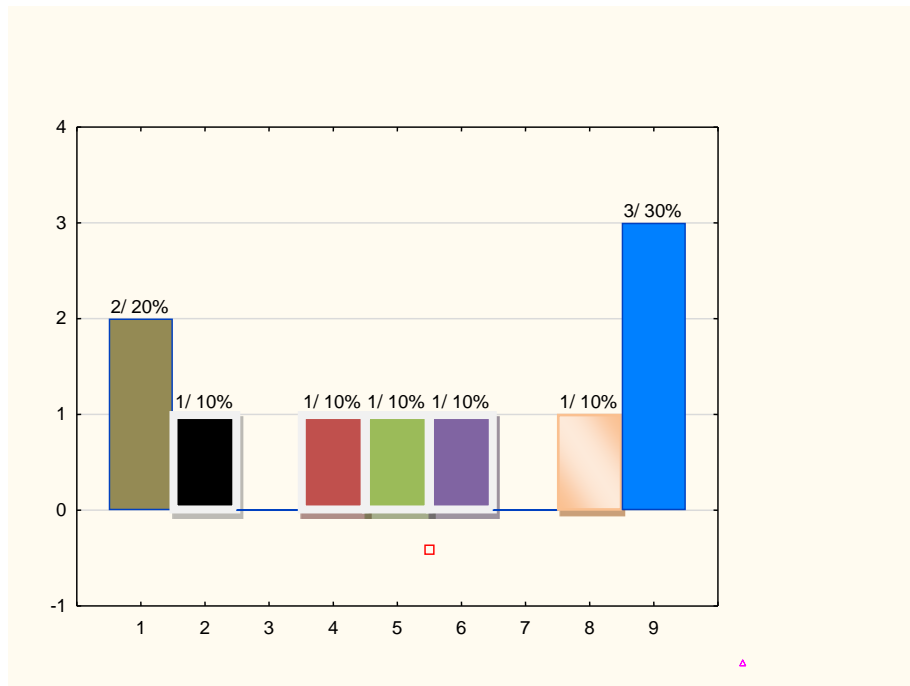
Figure 3: Accommodation

4.2.5 Gender and accommodation

All four male respondents stayed in university residences. Of the six female respondents, four stayed in university residences while two made use of private residences in Stellenbosch. A possible reason for one of the female students to stay in a private residence, was that she was enrolled for a MA program and therefore had been on campus for a few years. She might have needed a less ‘student orientated’ environment.

4.2.6 Severity of visual disability

The fifth question prompted the students to indicate on a scale from 1 (blind) to 10 (can see) the severity of the visual impairment. Of the respondents, two (20%) were blind, while one (10%) has chosen 2 on the scale – implying being almost blind. Three students (30%) have chosen respectively 4, 5 and 6 on the scale – implying 40% to 60% visual disability. One student used an 8 to indicate 80% visual ability, while three students have indicated a 9 on the scale – implying 90% visual ability. Although numbers eight and nine on the scale implied slight visually impairment, all respondents in these categories indicated, when asked about library usage later on, that they could not read normal size fonts used in printed books or on library signs. Results are summarized in Figure 4 below:



Scale: 1 – Blind; 2 –Almost Blind; 4-6 -40%-60% Visual ability; 8-80% Visual ability; 9-90% Visual ability

Figure 4: Severity of visual disability



4.3 INFORMATION NEEDS

The next section of the questionnaire was dedicated to the information needs of the visually impaired students at the Stellenbosch University.

4.3.1 Personal information needs

In response to question 6, eight students (80%) confirmed the need for information of a personal nature from time to time. The other two students (20%) indicated that they did not need personal information. According to McKenzie, every person’s information seeking behaviour is different. Active seeking plays a huge role to find information. To find useful information you need to identify a source and ask questions (McKenzie, 2003:19-21). With visually impaired students, it is more difficult to find information; therefore, they often have to rely on other people to find the right information.

4.3.1.1 *Type of personal information needed*

The open-ended question 7 requesting the eight students - who acknowledged the need for personal information - to indicate what type of personal information they needed, gave rise to numerous and a wide variety of responses. Respondents were allowed to give more than one response. The responses are captured in Table 3 below. Type of personal information identified by respondents could be categorized into four themes, namely health information, financial information, news and leisure time reading:

Table 3: Personal information needs

Theme	Responses
Health information	<i>Health issues; information relating to people with other disabilities; medical aid</i>
Financial information	<i>Financial information; banking; insurance; jobs; medical aid; medical aid plans; official documents from institutions like banks</i>
News	<i>News; topics of interest for conversation</i>
Leisure time reading	<i>Personal interests; fiction books; non-fiction books; leisure time reading material; things of interest</i>

The identified personal information needs corresponded with results from the study by Chang and Chang (2010:283) who concluded that factors including medical and health related problems, career, curriculum, study, social issues, government affairs, and others, such as information for self-improvement, self-assessment, knowledge for specific areas and spiritual growth influenced personal information needs. Findings also reflected as found by Williamson, Schauder and Bow (2000:5) that the blind or visually impaired expressed greater needs for information on their disability. The fact that one respondent of this study mentioned '*information required for daily living*' as a personal information need, corresponded with the need for information on coping with life activities identified by Williamson, Schauder and Bow (2000:5), information needs influenced by life situations as found by Given (2002:17) as well as the foundation of McKenzie's Everyday Life Information Behaviour model (McKenzie, 2003: 19-21).

4.3.2 **Academic information needs**

Question 8 required the respondents to indicate if they needed academic information from time to time. Since the respondents were all students, as expected, 100% indicated that they need academic information from time to time.

4.3.2.1 Academic information needs

In response to the subsequent question, the students indicated that they needed academic information to achieve different academic requirements. The various responses recorded could be categorized into three themes, namely to complete academic work, to find academic information and for academic advice. Responses are summaries in Table 4 below:

Table 4: Academic needs

Theme	Responses
To complete academic work	<i>complete assignments, my thesis and research essays</i>
To find academic information	<i>to find journal articles, papers and books in my field of study, credible journal articles, research data relating to my thesis, study material, non-fiction books, question papers</i>
Academic advice	<i>program advice</i>

These academic needs corresponded with the study done by the Middlesex University where visual impaired students, compared to sighted students, needed different support from the universities where they were enrolled. They needed special class notes (Braille notes), large print or audio formats as well as alternative arrangements for completing assessment tasks and examinations (Middlesex University, 2006:31-32).

4.3.3 Difficulty in obtaining academic information

Question 10 of the questionnaire requested respondents to answer if obtaining needed academic information was easy or difficult. Respondents were invited to select all relevant options. Only nine students responded to the question whether it was easy or difficult to obtain needed academic information. As can be seen from Table 5 below, two (22%) respondents indicated that they regarded finding academic information to be easy whereas two others (22%) experienced difficulties in obtaining academic information. Interesting enough five (56%) students responded that it was both easy and difficult to find academic information.

Table 5: Difficulty in obtaining academic information

Easy	Difficult	Easy & difficult	No response	Total
2	2	5	1	10

Similar difficulties were recorded by Saumure and Given (2004b:222) who found that visually impaired students had to rely on librarians and friends to find academic information. The results also echoed findings by Majinge (2014) as well as Seyama, Morris and Stilwell (2014) indicating visually impaired students' struggle to find relevant information for academic purposes. It can also be compared with McKenzie's use of an agent (by proxy) to find information (McKenzie, 2003:19-21). The barriers and/or support to find needed academic information to motivate their answers will be discussed in the next paragraph.

4.3.4 Reasons for difficulty in obtaining academic information

The open-ended question 10.1 requested respondents to specify barriers experienced in obtaining needed academic information. Responses are summarized in Table 6 below:

Table 6: Barriers to finding academic information

Theme	Responses
Information only in printed format	<ul style="list-style-type: none"> - <i>Not all academic book are available in electronic form</i> - <i>If I want to use a good book, I have to ask someone to look for me through the hard copy books in the library</i> - <i>If I want to use the book, I need to scan it first</i> - <i>I cannot access any library books from the library itself</i> - <i>No electronic books in my field available to my knowledge</i> - <i>Some materials are only available in print</i> - <i>Scientific information often not available in an accessible format</i> - <i>I cannot access physical books</i> - <i>I can also not take books from the library, because they are printed</i>
Information not available on time	<ul style="list-style-type: none"> - <i>Sometimes my work isn't available in time</i> - <i>Lecturers don't send textbooks on time</i> - <i>If I want to use the book, I need to scan it first</i>
Time consuming	<ul style="list-style-type: none"> - <i>Some PDFs are inaccessible, however, so it takes me longer to get them in an accessible format</i> - <i>It takes longer, much longer, especially on a computer which burns my eyes</i> - <i>It takes me a bit longer to find relevant articles</i>
Determining relevance	<ul style="list-style-type: none"> - <i>It is also difficult to know whether an inaccessible article will be useful or not, as I can only read it once it is converted into an accessible format</i> - <i>I need to ask somebody to read the book to me to determine if it is relevant to what I am looking for</i> - <i>It takes me a bit longer to find relevant articles</i>
Scientific information not accessible	<ul style="list-style-type: none"> - <i>Mathematical symbols in electronic text are often not read well by screen reading software</i> - <i>Scientific information is often not in an accessible format</i>

	- Limited scientific e-books
Conversion into accessible formats	-Facilities for conversion of such materials are limited in South Africa - Lecturers don't send textbooks on time - If I want to use the book, I need to scan it first

The barriers recorded as reasons for difficulties experienced in finding academic information can be categorized into six categories, namely book information was mostly only in printed format, information in accessible formats was not available on time, it was time consuming to find and access information, it was difficult to determine relevance of information, scientific information was not readily available in accessible formats and conversion into accessible formats was not always possible and/or time consuming. As this is a timely process – especially to make the person assisting understand what was really needed. It can be concluded that visually impaired students must work harder to retrieve needed academic information and have less time to use the available information.

Results corresponded with the studies by Chang and Chang (2010), Craven and Brophy (2003), Saumure and Given (2004b) and Williamson, Schauder and Bow (2000) indicating that libraries relied heavily on printed sources and therefore had problems in providing information for blind or serious sight impaired persons. Assistance was limited to providing audio materials and adaptive equipment to use the Internet. Better collection development to incorporate the needs of the visually impaired was suggested.

Because visually impaired students could not read normal font sized text, they had to rely on other students to find and access academic information. As this is a timely process – especially to make the person assisting understand what was really needed. It can be concluded that visually impaired students must work harder and to retrieve needed academic information and have less time to use the available information.

4.3.5 Reasons why academic information was obtained easily

The subsequent open-ended question 10.2 requested respondents to specify support experienced in obtaining needed academic information. The support recorded as reasons for students finding academic information easily, can be categorized into three categories. The categories were the availability of search engines to retrieve online articles, availability of e-books and the role of the Braille office. Responses are summarized in Table 7 below:

Table 7: Support in obtaining needed academic information

Theme	Responses
Obtaining online articles using search engines and databases	<ul style="list-style-type: none"> - <i>It is easy to find journal articles online</i> - <i>I find valuable articles by using search engines and databases on the internet, including those I can access through the Stellenbosch University library</i> - <i>I find useful articles online</i> - <i>Using Google Scholar which has the link to Stellenbosch University makes it easier</i> - <i>Search engines make it easy to search through material that is accessible</i> - <i>Sites like Google Scholar, JSTOR etc. are also useful, and sometimes accessible depending on the material.</i> - <i>Some accessible articles are available online</i>
Obtaining e-books	<ul style="list-style-type: none"> - <i>A lot of material can be obtained from Book share, online digital library for print-impaired users</i>
Braille office	<ul style="list-style-type: none"> - <i>The Braille office converts academic information for me so that it is accessible with my screen reader</i> - <i>Braille office makes course work accessible</i>

Because academic information in Braille, audio or electronic format was not readily available, visually impaired students had to work harder to obtain needed information. Some of them learnt to use the library's databases and the Internet to find electronic information easily. This corresponded with studies by Klinkosz, Sekowski and Brambring (2006:666) where they compared academic achievement of visually impaired and sighted students at Polish universities. The study showed that all the visually impaired students coped well with their studies and passed their examinations on time. A study by Armstrong and Murray (2010:504) has shown that accessible e-learning environments can be developed to assist adults with visually impairments. The study concluded that the converted material was accessible and comprehensible. According to a study by Adetoro (2011:9) people living with visual impairment will be able to better utilize library materials if it was transcribed into alternative or adaptive formats. At Stellenbosch University, the Braille office transcribes lecture notes and materials, but because it is a timely process, students often did not receive the required information on time. It seems that a higher awareness of special needs by visually impaired students was needed.

4.3.6 People consulted for information

From Figure 5 below (question eleven), it is clear that when asked which people they consulted for information, 80% of the visually impaired students relied on the help of

family members, friends and lecturers. Of the respondents, five (50%) relied on fellow students to find needed academic information.

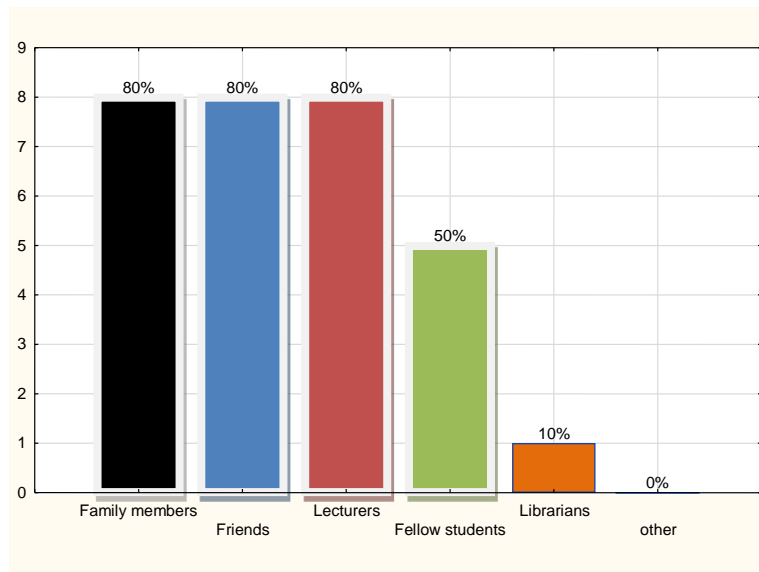


Figure 4: People consulted for information

The fact that only one student (10%) consulted a librarian when academic information was needed, was in contrast with Catalano (2013:263) who concluded that graduate students preferred to consult librarians when assistance with research and finding information were needed.

The rest of the findings corresponded with those of Agosto and Hughes-Hassell (2005), and Given (2004b) who identified friends and family as information sources of choice. It also conformed to the aspect of the Everyday Life Information Behaviour model addressing finding information by proxy when people connect or interact with information sources through the initiative of another agent or gatekeeper (McKenzie, 2003:19-21).

To consult people for information also corresponded to a certain extent with findings of Saumure and Given (2004a:30) who, in studying the information behaviour of visually impaired students, concluded that students had to rely on the help of librarians and fellow students to find academic information.

4.3.7 Facilities used for academic information

Question 12 supplied respondents with a list of facilities normally used for academic information. They had to indicate all the relevant facilities they would use during a normal

academic day. From Figure 6 below, it can be deduced that students found academic information via the Internet (100%), with the help of the Braille Office (70%), via Dis-Maties (20%) and in the Stellenbosch University Library (10%). No student used any public library. Although the Division for Academic Counselling as well as the Office for Students with Special Learning Needs will not supply academic information needed of academic activities, they will supply support and counselling to individual students. The respondents did not utilize both these facilities.

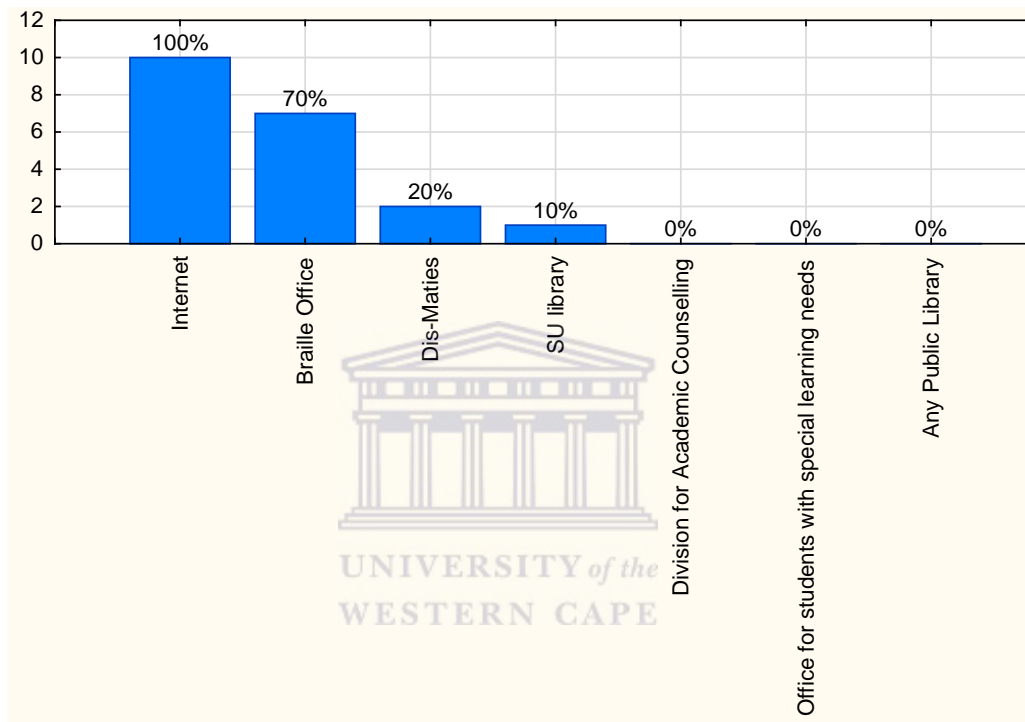


Figure 5: Facilities consulted for academic information

It is noteworthy that one of the visually impaired students indicated a need for academic advice – implying that he or she was not aware of the academic counselling service offered by the university. An objective of the Office for Students with Special Learning Needs is to provide a research service, it can be deduced that the student was not aware of this service offered and that the marketing of this type of service was needed.

That students did not make use of a public library was in line with the personal information need for leisure reading expressed earlier. It seemed that respondents were unaware that public libraries such as Stellenbosch Public Library has as part of their collections, audio books, and offer in cooperation with the National Library for the Blind, a service to visually impaired South Africans (Nassimbeni & De Jager, 2013:252).

The reasons why most (70%) of the visually impaired students made use of the Braille Office can be related to the services the office offers to specifically cater for their needs. As mentioned in Chapter 1, the Braille Office at the Stellenbosch University promotes awareness of students who are visually impaired and transcribes lecture notes and class materials into Braille. They provide 24/7 access to a computer room equipped with six computers with assistive technology - additional specialized software like text to voice programmes, Braille keyboards and embossers, enlargers, additional speakers and sound equipment (e.g. headphones). The services include converting learning material into accessible electronic formats, “translation” into Braille with specialised software, Braille printing and binding of documents (Stellenbosch University, 2011).

The reason for only two (20%) students indicating usage of Dis-Maties, the Association for Students with Disabilities, might be that the association serves as a forum for the discussion of campus-related issues and aims to promote students’ integration into university life - not really providing academic information.

The results, however, corresponded with findings by Shaver (2011) who concluded that visually impaired students used the Internet more often if it was accessible to them by means of enlarged text, contrasts, colours for action items, browsing mobile sites and keyboard shortcuts to aid navigation. Students’ dependence on the Internet as information resource correlated with the tendency by sighted Generation Y students to use the Internet for all their information needs as proven by many scholars (Kleynhans & Fourie, 2014:369). Using the Internet to find information is in line with active seeking as a step to find information as described in the Everyday Information Behaviour model (McKenzie, 2003:19-20).

It can be concluded that visually impaired students, like sighted students, regarded their academic information needs as their primary everyday life need and that they relied heavily on friends, family, lecturers and the Internet for academic information.

4.4 USE OF THE STELLENBOSCH UNIVERSITY LIBRARY

Question 13 prompted the respondents to indicate if they used the Stellenbosch University academic library to find information. Although only one student indicated in question eleven that he/she would find information via the library, nine students (90%) responded positively to this question confirming usage of the academic library to find information.

This corresponded partly with a study by Chang and Chang (2010:312) where visually impaired people (some were students) mainly used the National Taiwan Library Service, but still relied heavily on the Internet to meet their daily information needs. Seyama, Morris and Stilwell (2014:1) and Majinge (2014) also concluded that the University of KwaZulu-Natal and library services in Tanzania respectively were aware of the needs of people with disabilities, but that the library services fell short of meeting the information needs of the blind and visually impaired.

4.4.1 Library services/resources used

The nine students, who indicated that they use the Stellenbosch University Library to find information, were then asked in the consequent question to indicate which services and resources of the library they normally use. A list of fourteen services and resources was provided. Respondents had to choose all the relevant options. From Figure 7 below, it is clear that the majority of students (70%) used Databases A-Z, 50% used Sun Scholar (the link to Google Scholar), 30% each e-journals and Open access and 10% Library guides.

None of the students used SunSearch (the library catalogue), Short loans (reserved books), Research support, Inter library loans and the library commons.

The relatively high use of Databases A-Z (70%), SunScholar (50%), e-journals (30%) and Open access data (30%) can be contributed to the fact that these were all electronic sources. Electronic text can, with the use of assistive technology, be enlarged or converted into audio or tactile format in order to the visually impaired to access it.

The reason why the library commons were not used, can be contributed to its location and the absence of a computer dedicated for visually impaired students. The library commons staffed by two librarians or student assistants are situated some distance from the main entrance of the library. To reach it, students must, after entering the main entrance, pass the circulation desk and enter through glass doors. Currently the library commons have 122 computers and the adjoining e-classroom houses 40 computers. Twenty two more computers for student use are scattered throughout the library. The computer with assistive technology dedicated to visually impaired students is located near the entrance to the library – therefore some distance from the library commons.

It might also be that students were unaware of the dedicated computer for their usage in the Stellenbosch University Library. Saumure and Given (2004b:223) also concluded that,

because lecture notes for the visually impaired students were translated into alternative formats, students did not see the need to visit the library.

It is noteworthy that the services like research support and inter library loans offered by the library were not utilized. The reason might be that students were unaware what it entailed and that they assumed that services offered were limited to printed resources. If the research support to especially postgraduate students were utilized more, the academic information needs of the students involved might change.

The non-usage of the Stellenbosch University Library catalogue might also be attributed to a lack of awareness, orientation and/or information literacy training as the library catalogue offers the option of searching the e-book collection. This phenomenon will be discussed in more detail later.

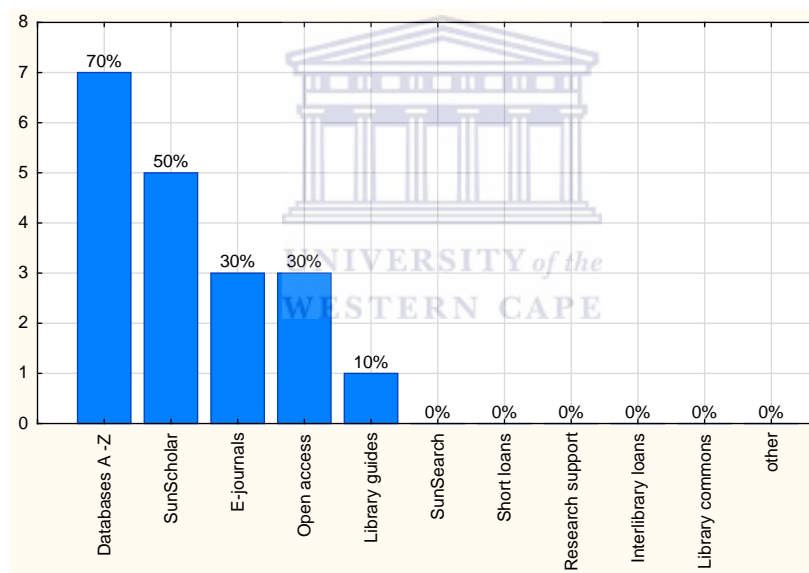


Figure 6: US Library services / resources used

4.4.2 Designated place for disabled students

The question whether there was a dedicated place in the Stellenbosch University Library for disabled students was answered by nine participants. Responses are reflected in Figure 7 below. Four (44%) students indicated that there was not a dedicated place for visually impaired students. Five (56%) of the respondents knew that there was one computer in the Stellenbosch University Library for the use of visually impaired students.

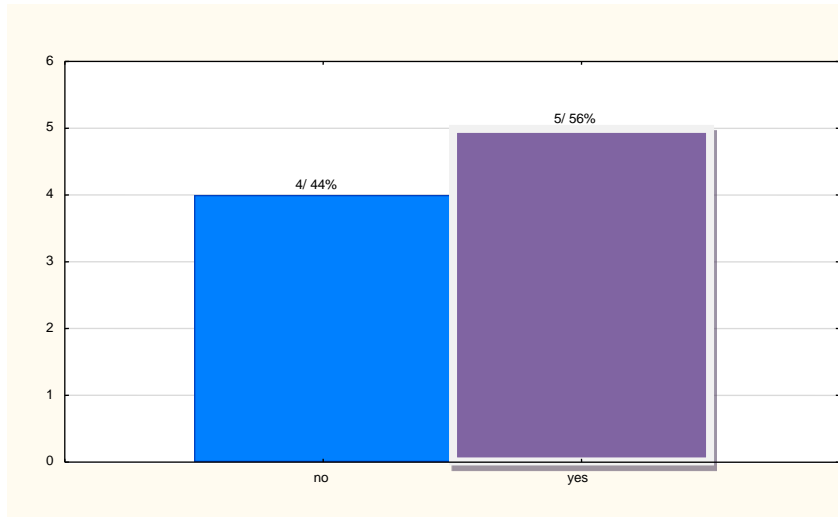


Figure 7: Designated place for disabled students

Although the respondents were not asked to supply reasons for the use or non-use of the dedicated computer in the library, reasons for the use thereof include:

- It is easily accessible - even when guide dogs are used
- It is located on the open floor next to other computers
- The location provides an experience of being with other students
- It supplied an opportunity to experience the library
- The library is nearer to their lecture venues
- The Braille office is located on the third floor of the Arts Building

Reasons for the non-use of the dedicated computer might include:

- Unawareness of the dedicated computer in the library
- A dedicated computer does not equal a dedicated place
- Feelings of being excluded as the library do not promote services for the disabled
- The Braille office is nearer to their lecture venues
- The Braille office offering several computers with assistive technology
- The Braille office offering the assistance of an IT specialist
- Familiarity with the Braille office
- Feelings of safety in a known environment at the Braille office
- Feelings of belonging amongst other disabled students

The need for experiencing a feeling of safety was also noted in a study by Bodaghi and Zainab (2013:43) at the University. The academic library at the University of Malay provided carrels dedicated to visually impaired students as well as student volunteers to assist these students. The study concluded that students described the carrels as their second homes, a place where they felt safe and able to work on their own. They felt that the library cared about their needs and that they belonged as members of the library. This corresponded to Maslow’s hierarchy of needs – especially a sense of safety and belonging – not only in the library but also within the university’s educational setting which were likely to motivate them to achieve academic success.

4.4.3 Independent use of the Stellenbosch University Library

In response to question 16 where respondents had to answer whether they were able to use the SU Library independently, six (60%) of the visually impaired students indicated that they were able to use the library while four (40%) of the students indicated that they could not use the services of the library at all. It should be noted that the students who indicated independent use of the library qualified the statement by stating that they used the online resources only and not the physical library. Reasons for non-usage will be discussed in the next paragraph while figure 9 below summarized the responses.

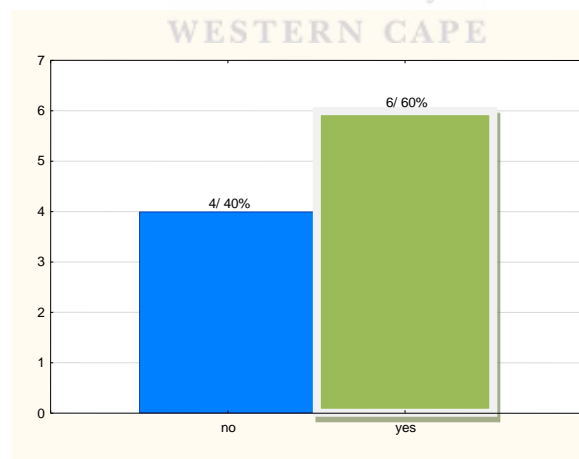


Figure 8: Independent use of the US Library

4.4.4 Reasons for non-use of the SU Library

As a follow up, question 17 prompted respondents to supply reasons as motivation for not using the Stellenbosch University Library. Seven respondents supplies reasons for non-usage. Reasons why the visually impaired students did not use the library correlated with

barriers identified in question 10.1 for obtaining academic information easily. Responses recorded (reflected in Table 8 below) were categorized into four themes, namely non-usage of printed resources, lack of facilities for visually impaired students, difficulty in navigating the physical library and lack of training in exploiting the library and its services.

Table 8: Reasons for non-usage of SU library

Theme	Responses
Printed resources	<ul style="list-style-type: none"> - <i>I make use of the online library but as previously mentioned, it is difficult to use the hard copy books in the library</i> - <i>you are always dependent on someone to read the books to you and tell you what it is about</i> - <i>I do not go there to take out books, as they are inaccessible</i> - <i>Can't always read in the books, because the font[s] are too small</i> - <i>I only use the digital library. Not the physical building</i> - <i>Books that you can get on short loans etc. are not available in an accessible format.</i> - <i>can't read books in library that are in print.</i>
Facilities	<ul style="list-style-type: none"> - <i>It makes no sense to study there, as I would have to carry my laptop around and there is only one computer with a screen reader</i> - <i>I do not want to have to carry my laptop to the library and back every day ,so I work at residence or in the Braille room in the Arts building</i>
Navigation	<ul style="list-style-type: none"> - <i>It is difficult to find the right sections, (orientation within the library is difficult)</i> - <i>It takes long and I feel lost and confused and even if someone helps me, it's always a hassle</i> - <i>I find it hard to go to and navigate around the library, so I never go there alone</i> - <i>Although the online library is user friendly, the physical library is not too friendly</i> - <i>There is only one computer dedicated to students with visual impairment</i> - <i>I find it hard to go to and navigate around in the library, so I never go there alone</i>
Training	<ul style="list-style-type: none"> - <i>Received no training in how to use the online resources</i>

The lack of training was noted in the study done by Craven and Brophy (2003) where they compared the searching behaviour of blind and visually impaired people.

The results revealed that the visually impaired did not use very complex searches or many difficult web pages and spent more time navigating through web pages. One of the recommendations of the project was that libraries should invest in up-to-date technology and should provide training to students in the use of assistive technology.

Chang and Chang (2010: 283) noted that experiences of blind or visually impaired people affected library usage. If they had a positive experience, they would use the library again. Negative experiences will lead on the other hand to non-usage. Noteworthy is that the researchers found that in contrast to SU, these librarians managed to solve many of the

problems experienced by the blind or visually impaired. It correspond with the model of McKenzie where by proxy information seekers get information through a gatekeeper, e.g. the librarians.

4.5 ASSISTIVE TECHNOLOGY

4.5.1 Types of assistive technology

Question 18 prompted the respondents to indicate which assistive technology they used. Responses are summarized in Figure 10 below:

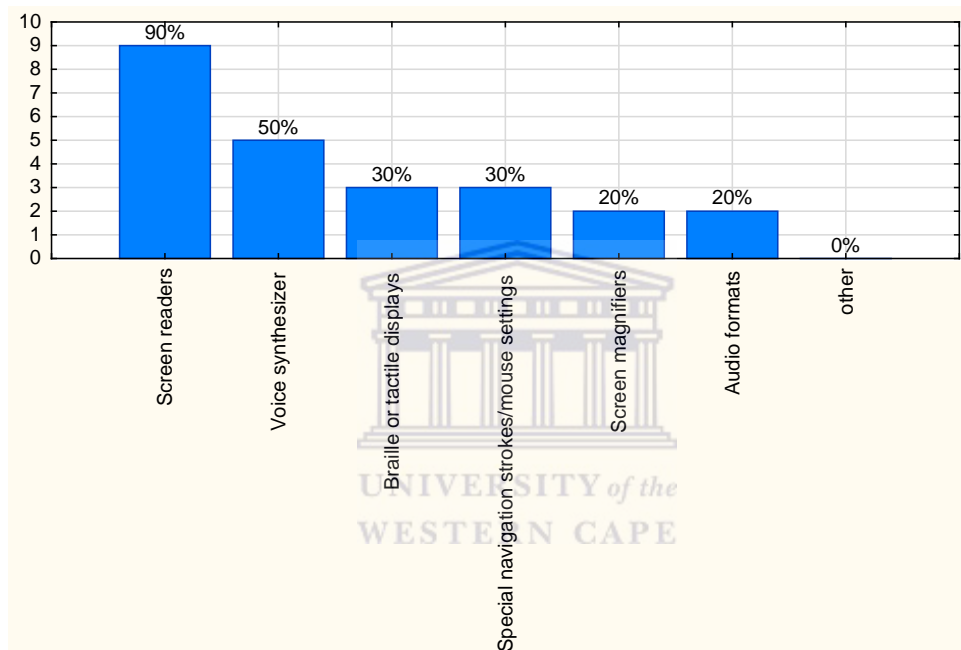


Figure 9: Types of assistive technology

The majority of visually impaired students (90%) made use of screen readers. Fifty percent used voice synthesizers while 30% of students utilized respectively Braille or tactile displays and special navigation strokes or mouse settings. Both screen magnifiers and audio formats were used by 20% of students. No student opted for the “other” option.

The use of assistive technology is in line with the findings of the study by Tinerella and Dick (2005:30) where the majority of students used screen readers and screen magnifiers. Schiff (2007:68), while teaching information literacy to a group of visually impaired students, investigated Job Access with Speed (JAWS), zoom text (screen magnification software that integrates voice synthesis with enlarged text and graphics) and the embedded JAWS voice which announced links, headings, lists and other features on the page display.

The findings determined that only some students engaged effortlessly with the technology and that JAWS enabled them to interact with web pages in the same way a sighted individual would (Schiff, 2007:68).

4.5.2 Assistive technology owned

All of the respondents (100%) supplied an affirmative response to the question (question 19 – See Appendix C) whether they owned assistive technology. According to the study by Kleynhans and Fourie (2014:373) adaptive technology has become critical in the academic lives of visually impaired students. Students used adaptive technology in various ways. Printed material can be converted into electronic, audio or tactile formats. This implied that dedicated library computers should be equipped with software that enables visually impaired students to access the OPAC and other resources.

4.5.3 Access to assistive technology

Question 20 was asked to determine whether the visually impaired students had access to assistive technology on campus. Respondents were allowed to tick all relevant options to indicate places where access could be gained. From Figure 11 below it can be seen that the majority of students (70%) had access to assistive technology in the Braille Office. One student (10%) made use of the assistive technology and services of the Office for Students with Special Learning Needs.

Another student (10%) utilized the computer dedicated to students with visual impairment in the Stellenbosch University Library. The main reasons why students made use of the Braille office might be, as mentioned previously, that they were familiar with the venue, felt safe in the known environment, and if they belonged amongst known students, there were enough computers for all of them as well as the availability of an information technology specialist for assistance.

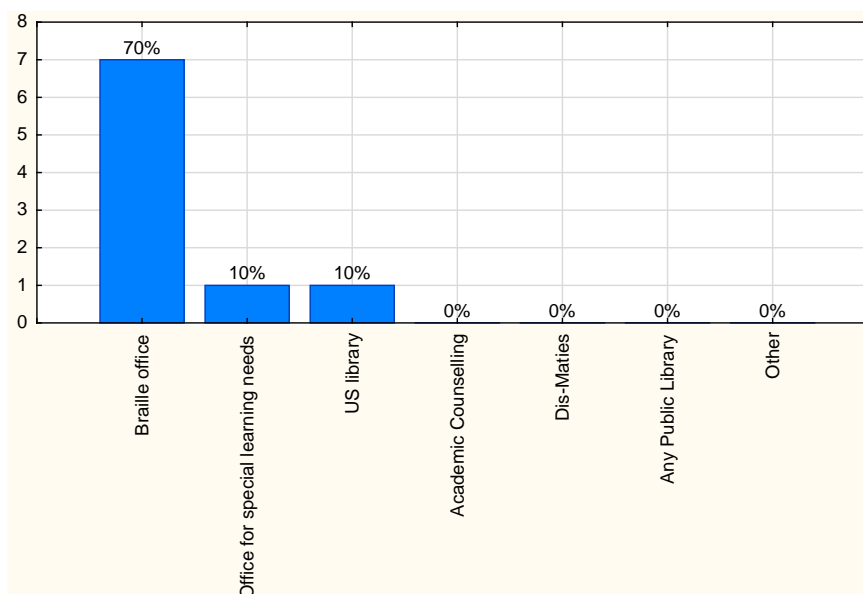


Figure 10: Access to assistive technology

4.6 IMPROVED INFORMATION SERVICES TO THE VISUALLY IMPAIRED

Question 21 was an open-ended question and requested participants to suggest how the information provision to visually impaired students at the Stellenbosch University can be improved. The suggestions made are reflected in Table 9 can be categorized into four main themes, namely availability of alternative book formats, additional library services, training and orientation as well as improved conversion options:

Table 9: Improved information service

Books in alternative formats	<ul style="list-style-type: none"> - Maybe try and get some of the text books in Braille or in audio or electronic format - I also want to read a book from time to time and it is difficult to get those - Library books could be made available in electronic format in categorized folders etc. on computers at the library with assistive technology - Braille books and larger font books - Documents should be available in more accessible formats at the library and online
Additional library services	<ul style="list-style-type: none"> - A section for visually impaired students - Larger signs so that I can at least know where I'm going - Make the route to the library more friendly to blind people - Ways to make orientation in library easier
Orientation and training	<ul style="list-style-type: none"> - I believe that training can play a big role, specifically for disabled students - Make the search for information on the internet more specialized, like when I search for something to do with language, I don't want something to do with how prostate cancer develops - Training in how blind people can access all services

	<ul style="list-style-type: none"> -Visually impaired students should be given training on how to use online resources -Training about library facilities and other information gathering methods are usually presented in a visual way not relevant to visually impaired students - A training course specifically aimed at visually impaired students is needed and will make the lives of these students much easier. - Currently, visually impaired students have to train themselves, and many of them struggle - An all-encompassing course for disabled students might be a good start
Improved conversion	<ul style="list-style-type: none"> - Facilities for converting mathematical and scientific material to accessible formats - There should be more staff working in the Braille office to get the work ready faster - Lecturers need to be made aware of the fact that it is important to send work on time

The suggestions are in line with the barriers experienced finding and accessing academic information by the visually impaired students. The need for a safe place dedicated specifically to the visually impaired to address physical barriers correlated with needs identified by the University of Malay Library and the consequent successful implementation of carrels and assisting student volunteers (Bodaghi and Zainab 2013:43). The provision of transcribed library materials for better utilization by the visually impaired was identified by scholars like Adetoro (2011:9) and Williamson, Schauder and Bow (2000:5) many years ago. Suggestions by respondents also corresponded with time constraints, feelings of dependence, lack of human understanding and limited access to electronic resources identified by Saumure and Given (2004a:40). Flexible comprehensive reference services to students with disabilities were identified by Tinerella and Dick (2005:32) as well as Wilhelmus (1996:370). Power and LeBeau (2009: 63-67) listed many suggestions, amongst others, an informative accessible library website, to made academic libraries more user friendly to the visually impaired. Both studies by Harris and Oppenheim (2003:243) and Power and LeBeau (2009:63-67) concluded that successful library services depended on the training of both visually impaired students and library staff. Recommendations made by respondents for the SU Library in particular will be discussed in detail in the last chapter.

4.7 OTHER COMMENTS

Question 22 invited participants to offer any other comments. No responses were recorded.

4.8 WILLINGNESS TO BE INTERVIEWED

The last question invited the participants to indicate their willingness to partake in follow-up interviews. One respondent refrained to answer, while another respondent indicated that he/she was not prepared to participate in an interview. The rest of the participants (80%) demonstrated willingness to participate in follow-up interviews. As mentioned previously, the #feesmustfall campaign caused during the time when interviews were scheduled, such disruption on campus that students were requested to leave the campus. No follow-up interviews were consequently done.

4.9 CONCLUSION

This chapter presented, summarised and analysed the findings collected through a questionnaire administered by the Dis-Maties office to visually impaired students at the Stellenbosch University to investigate their everyday life information behaviour. The research findings were divided into themes of the questionnaire. The researcher used text, tables and graphs to provide a clear and detailed presentation and interpretation of the findings. The findings of the study were framed by McKenzie's Everyday Life Information Behaviour Model and related literature.

The everyday information behaviour of Stellenbosch University students with visual impairment can be summarized as follow:

- The majority (80%) of students needed personal information from time to time
- Personal information needed included health information, financial information, news and fiction as well as non-fiction books for leisure time reading
- All students with visual impairments needed academic information
- Major academic information needs were to find and evaluate information and to use the information to complete academic work
- Program advice was identified as a minor academic information need
- Family members, friends and lecturers were consulted mostly (80%) for information
- Fellow students were consulted to a lesser extent (50%)
- Librarians were not really (10%) consulted regarding information
- No other people were identified as sources of information
- The Internet was used as an information source by all students (100%)
- The Braille Office was used heavily (70%)

- The Braille Office was used to utilize the services and specially equipped computers they offered
- No student used public libraries
- The Division for Academic Counselling was not utilized
- The Office for students with special learning needs was not utilized
- Some (22%) visually impaired students indicated that it was difficult to obtain needed academic information
- Reasons for difficulty to obtain needed academic information were mainly, because books were only in printed format, information in accessible formats was not available on time. It was time consuming to find and access information, it was difficult to determine relevance of information, scientific information was not readily available in accessible formats and conversion into accessible formats was not always possible and/or too time consuming.
- Some (22%) visually impaired students indicated that it was easy to obtain needed academic information
- Reasons for easiness to obtain needed academic information were availability of search engines to retrieve online articles, availability of e-books and the role of the Braille office
- Some (56%) visually impaired students indicated that it was both easy and difficult to obtain needed academic information
- The reason for experiencing obtaining needed academic information as both easy and difficult was because accessing printed material was difficult and time consuming, but finding and accessing e-resources were easy
- The physical Stellenbosch University Library was not utilized to any great extent
- Sixty percent (60%) of students were able to use the Stellenbosch University Library's online resources independently
- Ninety percent (90%) of the students made use of facilities of the Stellenbosch University Library to find academic information
- Seventy percent (70%) of students used the Stellenbosch University Library's data basis to find full text journal articles
- Fifty percent (50%) of students used the Stellenbosch University Library's SunScholar to find full text journal articles and e-books

- Thirty percent (30%) of students with visual impairment used the Stellenbosch University Library's e-journals to find full text journal articles
- Ten percent (10%) of students with visual impairment used the Stellenbosch University Library's open access directories and library guides to find academic information
- No student with visual impairment used the Stellenbosch University Library's catalogue to find books
- Students were unaware that they can use the library's catalogue as discovering tool for e-books
- No student used the Stellenbosch University Library's short loans, research support, inter library loan and library commons facilities.
- The reasons for not utilizing the physical library were inability to use printed resources, lack of facilities for visually impaired students, difficulty in navigating the physical library and lack of training in exploiting the library and its services
- All students owned assistive technology (100%)
- Assistive technology used was mostly (90%) screen readers and (50%) voice synthesizers
- Braille displays, special navigation mouse settings, screen magnifiers and audio formats were used to a lesser extend
- Students with visual impairments suggested availability of alternative book formats, additional library services, training and orientation as well as improved conversion options to improve information services

Conclusions will be drawn in the next chapter.

CHAPTER 5: CONCLUSION

5.1 INTRODUCTION

The previous chapter presented, summarised, analysed and interpreted the data gathered. Chapter 5 draws conclusions from the study in relation to the research problem at a deeper level and thereby answer the research questions.

5.2 RETURNING TO THE RESEARCH QUESTIONS

Visually impaired students demonstrated unique everyday life information behaviour and experienced many challenges to satisfy their information needs. In Chapter 1 and 3 the research questions were identified as follows:

- What are the personal information needs of the visually impaired SU students?
- What are the academic information needs of the visually impaired SU students?
- What facilities do the visually impaired students use to find information?
- What roles do other people play?
- What roles do the Stellenbosch University play?
- What role does the Stellenbosch University library play?
- What role does technology play?
- What are the barriers to accessing information?
- How can information provision to visually impaired students be improved?

These above mentioned research questions will now be discussed framed by the Every Day Life Information Behaviour model (McKenzie, 2003) as well as relevant findings in the literature.

5.3 PERSONAL NEEDS OF VISUALLY IMPAIRED SU STUDENTS

Stellenbosch University students with visually impairment needed personal information on health and finance. They also expressed the need to receive news in order to stay abreast with what is happening locally and in the world. The need for both fiction and non-fiction books for leisure reading was expressed by all the students.

The identified personal information needs corresponded strongly with results from similar studies (Chang & Chang 2010; Given 2002 and Williamson, Schauder & Bow 2000). The personal information needs of visually impaired students did not differ considerably compared to those of sighted people. Factors including medical and health related problems, careers, studies, social issues, government affairs, information for self-improvement, self-actualization and spiritual growth influenced information needs of all humans.

5.4 ACADEMIC NEEDS OF VISUALLY IMPAIRED SU STUDENTS

For academic purposes, the students needed academic information to complete their assignments, theses and research essays on time – a universal academic need for all students.

5.5 FACILITIES USED TO FIND INFORMATION

Visually impaired students registered at the Stellenbosch University found information in different places. Information seeking to satisfy personal information needs differed from information seeking for academic needs. For personal information, mainly people were consulted to satisfy the needs. To gather academic information different facilities were used to varying degrees. All students used the Internet as information source. They also relied heavily on the services offered by the Braille Office. Dis-Maties was used to a lesser degree and only one student used the Stellenbosch University Library. The preference of the Internet as an information resource is in line with information behaviour by other visually impaired students as well as with sighted students (Kleynhans & Fourie 2014 and Shaver 2011). No visually challenged student used a public library. Both the Division for Academic Counselling and the Office for students with special learning needs (OSSLN) were not utilized by the respondents.

5.6 ROLES PLAYED BY PEOPLE

In order to find relevant information, visually impaired students consulted mostly family members, friends and lecturers. Only one student consulted a librarian. The trend is similar to trends identified by studies like Agosto and Hugh-Hall (2005) and Saumure and Given (2004bF) indicating that young adults preferred consulting family and friends and not books and libraries for academic information.

5.7 ROLE PLAYED BY THE STELLENBOSCH UNIVERSITY

Although Stellenbosch University provides various facilities and services like the Division for Academic Counselling and Career Development coordinating all activities for students with special needs, the Braille Office transcribing lecture notes and class materials into Braille, Dis-Maties, Office for Students with Special Learning Needs (Disabilities), tactile pavements, student residents with limited facilities to accommodate students with physical disabilities and voice recordings or Braille panels in some of the elevators, the students with visual impairment did not make use of all the services offered and made various suggestions to ensure a more effective service.

5.8 ROLE PLAYED BY STELLENBOSCH UNIVERSITY LIBRARY

Although 60% of the students with visual impairment indicated that they could use the Stellenbosch University Library's online resources independently, 40% of the students indicated inability to use the academic library. The majority of students accessed online library resources from their computers and used Databases A-Z to retrieve full text journal articles and SunScholar (the link to Google Scholar) to retrieve full text journal articles and e-books. The databases and open access directories were used to a lesser degree. Only one student accessed the available library guides. None of the students used SunSearch (the library catalogue), Short loans (reserved books), Research support, Inter library loans and the library commons.

The main reasons for not using the Stellenbosch University Library can be attributed to the inability to use printed resources, lack of facilities for visually impaired students, difficulty in navigating the physical library and lack of training in exploiting the library and its services. Seyama, Morris and Stilwell (2014:1) echoed similar findings.

One dedicated computer equipped with software needed to assist visually impaired students, is located on the open floor near the entrance of the Stellenbosch University Library. One or two books in Braille are housed in the Stellenbosch University Library's special collection.

The reason why the library commons was not used can be attributed to its location and the absence of a computer dedicated to visually impaired students. The library commons staffed by two librarians or student assistants is situated some distance from the main

entrance of the library. Only one student with visual impairment indicated that he or she will consult a librarian when academic information is needed.

5.9 ROLE PLAYED BY TECHNOLOGY

Assistive technology has become critical in the lives of visually impaired students. All visually impaired students at Stellenbosch University owned assistive technologies and used the dedicated computers at the Braille's office. Assistive technology is used in a variety of ways. Printed materials are scanned into electronic format and then transformed into audio or tactile forms and electronic information are accessed using screen readers or magnifiers, voice synthesizers, tactile displays and mouse settings. Online resources from the Internet as well as the Stellenbosch University Library are accessed. These trends were also identified in studies like Craven and Brophy (2003), Kleynhans and Fourie (2014), Seyama (2009) and Schiff (2007).

5.10 BARRIERS EXPERIENCED WHEN ACCESSING INFORMATION

Twenty two percent of the respondents indicated that they regarded finding academic information to be easy whereas another 22% had trouble in obtaining academic information. Interestingly enough 56% of students with visual impairment responded that it was both easy and difficult to find academic information. New trends in ICTs and the availability of e-resources made finding and accessing electronic information easy, but traditional printed information was difficult to access.

The barriers to accessing information can be organised into six categories, namely book information was mostly only in printed format, information in accessible formats was not available on time, it was time consuming to find and access information, it was difficult to determine relevance of information, scientific information was not readily available in accessible formats and conversion into accessible formats was not always possible and/or time consuming.

When visually impaired students need information only available in printed format in the library, they need to ask a sighted person to locate the item for them and then determine if it is relevant, suitable, reliable, authoritative, credible, current, appropriate, objective and available before the material can be scanned. The process of locating and evaluating printed material is therefore time consuming. This phenomenon corresponds with studies like Saumure and Given (2004a:30) where the visually impaired students had to rely on

the help of the reference librarians or friends or volunteers (Bodaghi & Zainab, 2013 and Bodaghi, Zainab & Abdullah, 2014) to select and retrieve materials for academic purposes.

As the scanning or transcribing process into an adapted format also takes time, students with visual impairments sometimes need to wait a long time before they can start working with the information. Respondents also indicated that lecturers do not always make learning material available in accessible format therefore because of the delay they do not always enough time to complete assignments and to prepare for examinations.

On the other hand, students also indicated that they also find it easy to obtain academic information. The reasons therefore are the availability of search engines to retrieve online articles, availability of e-books and the role of the Braille office providing them with information in accessible formats.

5.11 IMPROVED INFORMATION PROVISION TO VISUALLY IMPAIRED STUDENTS AT STELLENBOSCH UNIVERSITY

The suggestions made by respondents to improve information provision to students with visual impairments can be categorized into four main themes, namely availability of alternative book formats, additional library services, training and orientation as well as improved conversion options. The suggestions were similar with the barriers experienced finding and accessing academic information as well as with time constraints, feelings of dependence, lack of human understanding and limited access to electronic resources by the visually impaired students.

Many of the suggestions made by the Stellenbosch University students with visual impairments were also identified in the literature. The provision of transcribed library materials for better utilization by the visually impaired was also identified by scholars like Adetoro (2011), Seyama, Morris and Stilwell (2014) and Williamson, Schauder and Bow (2000). Flexible comprehensive reference services to students with disabilities were identified by Tinerella and Dick (2005) and Wilhelmus (1996). Power and LeBeau (2009) listed many suggestions, amongst others an informative accessible library website, to make academic libraries more user friendly to the visually impaired. The need for a safe place to work independently dedicated specifically to the visually impaired to address physical barriers correlated with needs identified by the University of Malay Library and the consequent successful implementation of carrels and assisting student volunteers (Bodaghi

& Zainab 2013). Both studies by Harris and Oppenheim (2003) and Power and LeBeau (2009) concluded that successful library services depend on the training of both visually impaired students and library staff.

There have to be a working relationship between the Braille office and the lecturers. The lecturers have to send the work to the Braille office well in advance, so that the students can get learning material on time. A librarian dedicated to students with special needs acting as an agent between the visually impaired students and the Braille office might be helpful.

Recommendations made by respondents for the Stellenbosch University Library in particular will be discussed in detail in the last chapter.

5.12 CONCLUSION

This chapter was used to answer the research questions of the study. The everyday behaviour of students with visual impairments at SU can be concluded as follows:

Students with visual impairments at Stellenbosch University will consult friends, family members and lecturers for information. They needed both personal and academic information. Students found it both easy and difficult to obtain needed academic information. The Internet was the major information resource used by all students. Students relied mainly on online full text journal articles and e-books obtained via the Internet, Stellenbosch University Library's data basis, SunScholar and e-journals for academic information. All students with visual impairment made use of assistive technology and relied heavily on the support and services of the Braille Office for additional academic information.

The everyday behaviour of students with visual impairments at Stellenbosch University conform to McKenzie's Everyday life information behaviour model as these students sought actively to make contact with sources, identified likely sources, made use of serendipitous encounters, were identified as information seekers and made use of people as gatekeepers to be referred to a source.

The next chapter will provide recommendation of the study.

CHAPTER 6:

REFLECTIONS AND RECOMMENDATIONS

6.1 INTRODUCTION

The final chapter reflects on the research project and based on the findings discussed in Chapter 4 and the conclusions drawn in Chapter 5, provides recommendations for the Stellenbosch University and more specifically the Stellenbosch University Library on improving the services to visually impaired students. It concludes the dissertation with some suggestions for further research.

6.2 REFLECTIONS ON THE RESEARCH PROJECT

The main purpose of the research study was to investigate the everyday living of the visually impaired students of Stellenbosch University. It can be concluded that the purpose of the research was achieved as the everyday information behaviour of students with visual impairments was identified and better understood. A major disappointment of the study was that follow-up interviews with willing students because of the #feesmustfall unrest could not be realised.

6.3 RECOMMENDATIONS

Based on findings and conclusions drawn already, this section makes some recommendations to improve the information service offered by the Stellenbosch University and Stellenbosch University Library to students with visual impairments.

- As part of the orientation program of visually impaired students, they must be introduced to all the units of Stellenbosch University offering services they can utilize. Special attention to introducing the Stellenbosch University Library must be given.
- To ensure that information in accessible format is available timely, lecturers and the Braille office must cooperate and anticipate the need for conversions and to ensure that learning material is already in adapted format. If lecturers supply material in electronic format, the process will be less time consuming.
- Stellenbosch University should provide consultative support to lecturers in order to provide effective learning environments to students with visual challenges.

- Attention to the services offered by public libraries and the South African Library for the Blind must be drawn in order for students with visual impairment to utilize these services to meet amongst others their leisure time reading needs.
- To conform to the mission of the Stellenbosch University Library to provide a world-class and innovative information service to the Stellenbosch University community to support the Stellenbosch University and its goals, it is recommended that the library renders a special service to students with visual impairment. The library needs to identify a librarian or library assistants as well as student volunteers dedicated to assist these students in finding and evaluating relevant information.
- To enhance the library's value to develop and maintain collaborative relationships with a range of external and internal stockholders to ensure an enriched research and learning environment, it is recommended that the dedicated librarian and / or library assistant mentioned above, form liaisons with other university units (particularly the Braille office) to ensure a coordinated and coherent service all visually impaired students.
- To conform to the mission of the Stellenbosch University Library to provide a world-class and innovative learning space to the Stellenbosch University community to support the Stellenbosch University and its goals as well as one of their strategic priorities to repurpose library spaces to promote ,amongst others, create and develop flexible learning spaces (physical, virtual, experimental and creative), it is recommended that a small space in the library be dedicated to students with visual challenges. The space must include computers equipped with the latest assistive and adaptive software and devices. Students must be informed that the space was created in order for them to utilize the physical library and to experience a place where they will feel safe and where they belong.
- Another strategic priority of the Stellenbosch University Library is to advance information literacy by offering face-to-face information literacy training to students and by providing library guides to enhance self-learning. Information literacy training initiatives for students with visually impairment must therefore be offered and students must be made aware of the self-help library guides. Training must also include refining topics and interacting with web pages.

- To promote discoverability of information sources, in cooperation with information literacy training, it is recommended that the library website incorporates features to make it more accessible for students with visual impairments.
- Visually challenged students must be trained to
 - use the library catalogue and other databases to discover and use e-books in the library collection.
 - access the institutional repository in order to use research data and digitized collections it contains.
- The Braille office should approach the Science Faculty for the possible incorporation of scientific symbols in screen reading software in order for them to be recognized in electronic text.
- The Stellenbosch University Library includes in its strategic objectives and actions a client focused service to visually impaired students.
- In order to better the physical access to the Stellenbosch University Library, it is recommended that signage in accessible formats are used along the route to as well as inside the library.

6.4 RECOMMENDATIONS FOR FUTURE RESEARCH

The researcher recommends continuing research in how to better the services to the visually impaired students. A task group can be established to listen to the different opinions of the role players, especially the students. They are the most important asset of any academic institution. The researcher is in agreement with the suggestions by Greyling (2008) as well as Seyama, Morris and Stilwell (2014:1) indicating a vital need to continue to seek out, listen to and act upon the voices of students with disabilities in an attempt to make higher education and in particular library services more inclusive.

REFERENCES

- Abner, G.H. & Lahm, E.A. 2002. Implementation of assistive technology with students who are visually impaired: teacher's readiness. *Journal of visual impairment and blindness*, 92 (2): 98-105.
- Adetoro, Niran. 2011. Availability and use of information materials by persons with visual impairment in Nigeria. *Information, society and justice*, 4(2): 5-18.
- Agosto, Denise E. & Hughes-Hassell, Sandra. 2005. People, places, and questions: an investigation of the everyday life information-seeking behaviours of urban young adults. *Library & information science research*, 27: 141-163.
- Armstrong, H.L. & Murray, I.D. 2010. Adapting advanced information technology network training for adults with visual impairments. *Journal of visual impairment and blindness*, 104 (8): 504-509.
- Bates, Jessica A. 2004. Use of narrative interviewing in everyday information behaviour research. *Library & information science research*, 26: 15-28.
- Bodaghi, N.B. & Zainab, A.N. 2013. My carrel, my second home: inclusion and the sense of belonging among visually impaired students in an academic library. *Malaysian journal of Library and Information Science*, 18 (1): 39-54.
- Bodaghi, N.B.; Zainab, A.N. & Abdullah, N. 2014. Student volunteers as academic saviours and social connectors among the visually impaired in an academic library. *Libri*, 64 (1): 40-48.
- Catalano, A. 2013. Patterns of graduate student's information seeking behaviour: a meta-synthesis of literature. *Journal of documentation*, 69 (2): 243-274.
- Chang, Po-Ya & Chang, Shan-Ju L. 2010. National Taiwan Library Services for visually impaired people: a study using Sense-making approach. *Journal of educational media & library sciences*, 47(3): 283-318.
- Craven, J. & Brophy, P. 2003. *Non-visual access to the digital library: the use of digital library interfaces by blind and visually impaired people*. Library and Information

Commission Research Report No. 145. Manchester: Centre for Research in Library and Information Management.

Creswell, John W. 2003. *Research design: qualitative, quantitative, and mixed methods approaches*, 2nd .ed. Thousand Oaks, CA: Sage.

Denzin, N. & Lincoln, Y. S. 2005. *The Sage handbook of qualitative research*, 3rd. ed. Thousand Oaks, CA: Sage.

Dervin, B. 1999. On studying information seeking methodologically: the implications of connecting meta-theory to method. *Information processing and management*, 35(6): 727-750.

Flick, U. 2007. *Designing qualitative research*. Los Angeles: Sage.

Forgave, Sarah & McKenzie, Lynne. 2001. Online on ramps: a pilot study evaluation of the accessibility of Canadian Public Library Web Sites to visually and hearing challenged users. *Proceedings of the 29th annual Conference of the Canadian Association for Information Science, held in Quebec, 27-29 May 2001*: 289-296, Ontario: University of Western Ontario.

Gerber, Elaine. 2003. The benefits of and barriers to computer use for individuals who are visually impaired. *Journal of visual impairment & blindness*, 97(9): 536-550.

Given, Lisa M. 2002. The academic and the everyday: investigating the overlap in mature undergraduates information-seeking behaviours. *Library & information science research*, 24: 17-29.

Greyling, E. 2008. *Students with disabilities' experiences of support and barriers to their development at Stellenbosch University*. Stellenbosch: Stellenbosch University

Harris, Clare & Oppenheim, Charles. 2003. The provision of library services for visually impaired students in UK Further Education Libraries in response to the Special Educational Needs and Disability Act (SENDA). *Journal of librarianship and information science*, 35(4): 243-257.

Hess, Dale. 2013. *Mbombela establishes library service for visually impaired*. Retrieved from: <http://www.sanews.gov.za/south-africa/mbombela-establishes-library-service-visually>, on 31 January 2015.

Jaeger, Paul; Wentz, T., Brian & Bertot, John, Carlo. 2015. Accessibility, inclusion, and the role of libraries : accessibility for persons with disabilities and the inclusive future of libraries. *Advances in librarianship*, 46: 1-8.

Kaijage, Jackson, J.L. 1993. Provision of library and information services to visually impaired university students in Tanzania. *Library review*, 42(4): 45-52.

Kapperman, G.; Sticker, J. & Heinze, T. 2002. Survey of the use of technology by Illinois students who are visually impaired. *Journal of visual impairment and blindness*, 96 (2): 106-108.

Kleynhans, Andreas. 2009. *An accessibility evaluation of Vista learning system for visually impaired learners*, Mini-dissertation, Pretoria: University of Pretoria.

Kleynhans, Andreas & Fourie, Ina. 2014. Ensuring accessibility of electronic information resources for visually impaired people. *Library hi tech*, 32(2): 368-379.

Klinkosz, W., Sekowski, A & Brambring, M. 2006. Academic achievement and personality in university students who are visually impaired. *Journal of visual impairment and blindness*, 100 (11): 666-675.

Majinge, Rebecca. 2014. Library services' provision for people with visual impairments and in wheelchairs in academic libraries in Tanzania. Doctor of Philosophy. Pietermaritzburg: University KwaZulu Natal.

McKenzie, P.J. 2001. *Negotiating authoritative knowledge: information practices across a life transition*, unpublished doctoral dissertation, London: The University of Western Ontario.

McKenzie, P.J. 2003. A model of information practices in accounts of everyday life information seeking. *Journal of documentation*, 59(1), 19-40.

McMillian, James H. & Schumacher, Sally. 1997. *Research in education: a conceptual introduction*. New York: Longman.

Medical dictionary. 2015. *Visual impairment*. Retrieved from: <http://medical-dictionary.thefreedictionary.com/Visual+Impairment>, on 5 September 2016.

Microsoft Office. 2010. *Window-Eyes : offer for users of Microsoft Office*. Retrieved from: <http://www.windoweyesforoffice.com>, on 4 May 2015.

Middlesex University, 2006. *Provision for students with disabilities and learning difficulties*. Retrieved from: <http://www.mdx.ac.uk/dss> on 18 April 2015.

Mouton, J. 2001. *How to succeed in your master's and doctoral studies: a South African guide and resource book*. Pretoria: Van Schaik.

Nassimbeni, Mary & De Jager, Karin. 2014. Even we can read: Evaluating the impact of a project to expand library services to visually impaired users in rural South Africa. *Libri*. 64(3): 247-253.

Oppenheim, Charles & Selby, Karen. 1999. Access to information on the World Wide Web for blind and visually impaired people. *Aslib proceedings*, 51(10): 335-345.

Pillay, Justin. 2009. *Equality and non-discrimination in tertiary education for the visually impaired*. Bellville: UWC Research paper.

Power, R. & LeBeau, C. 2009. How well do academic library web sites address the needs of database users with visual disabilities? *The reference librarian*, 50(1): 55-72.

Saumure, K. & Given, L.M. 2004a. Digitally exchanged? An examination of the information behaviours of visually impaired post-secondary students. *The Canadian journal of Information and Library Science*, 28 (2): 25-42.

Saumure, K. & Given, L.M. 2004b. Facilitating information access for visually impaired postsecondary students. *Faciliter*, 5:222-224.

Savolainen, R. 1995. Everyday life information seeking: approaching information seeking in the context of way of life. *Library and Information Science research*, 17(3), 259-294.

Schiff, Rebecca Adler. 2007. *Information literacy and blind and visually impaired students*. New York: City University of New York.

Scneiderman, Ben. 2014. *The Eight golden rules of interface design*. Retrieved from: <https://www.cs.umd.edu/users/ben/goldenrules.html>, on 2 February 2015.

Seyama, Lungile Goodness. 2009. *Information seeking behaviour of students with visual impairments: a case study of the University of KwaZulu-Natal, Pietermaritzburg Campus*. MIS. Pietermaritzburg: UKZN.

Seyama, L.; Morris, C. & Stilwell, C. 2014. Information seeking behaviour of blind and visually impaired students: a case study of the University of KwaZulu-Natal, Pietermaritzburg Campus. *Mousaion*, 32(1): 1-22.

Shaver, Kelly. 2011. *5 Ways to ensure your site is accessible to visually impaired*. Retrieved from: <http://mashable.com/2011/04/20/design-for-visually-impaired/>, on 2 February 2015.

Smith, D.W. & Kelly, P. 2011. A survey of assistive technology and teacher preparation programs for individuals with visual impairment. *Journal of visual impairment and blindness*, 101 (7): 1-5.

South Africa. 2015. *South African White Paper on the rights of people with disabilities*. Pretoria: Government Printers.

South African Council for the Blind 2010. *Vision*. Retrieved from: www.sancb.org.za/article/councils-vision on June 2016.

South African Library for the Blind nd. *Our services*. Retrieved from: www.sancb.org.za/our-services on June 2016.

South African Library for the Blind. 1998. *South African Library for the Blind Act (Act 91 of 1998)*. Retrieved from: <http://www.salb.org.za/wp-content/uploads/2010/04/salb.pdf>, on 4 January 2016.

South African Library for the Blind. 2014a. *Strategic plan for the fiscal years 2014/2015 – 2018/2019*. Retrieved from: <http://www.salb.org.za>, on 31 January 2016.

South African Library for the Blind. 2014b. *We are all on the same page*. Retrieved from: <http://www.salb.org.za>, on 31 January 2015.

Stellenbosch University. 2011. *SU expands Braille facilities for visually impaired students*. Retrieved from: <http://blogs.sun.ac.za/news/2011/06/21/su-expands-braille-facilities-for-visually-impaired-students/>, on 4 November 2014.

Stellenbosch University. 2014a. *Living on campus*. Retrieved from: <http://www0.sun.ac.za/cscdnew/lang/en/academic-counseling-and-career-developmentakademiese-voorligting-en-loopbaanontwikkeling/special-learning-needsbesondere-leerbehoeftes/living-on-campusverblyf-op-kampus>, on 4 November 2014.

Stellenbosch University. 2014b. *Special learning needs*. Retrieved from: <http://www0.sun.ac.za/cscdnew/lang/en/academic-counseling-and-career-developmentakademiese-voorligting-en-loopbaanontwikkeling/special-learning-needsbesondere-leerbehoeftes>, on 26 September 2014.

Stellenbosch University. 2014c. *Teaching students with special learning needs (disabilities)*. Retrieved from: <http://blogs.sun.ac.za/teaching/files/2011/12/Teaching-students-with-special-learning-needs-Jun07.pdf>, on 4 November 2014.

Stellenbosch University. *Library and information services. [2015] Strategic directions, 2016-2020*.

Stellenbosch University. *Library and information services. 2015 Annual report*.

Teddle, Charles and Tashokkori, Abbas. 2010. *Handbook of mixed methods in social & behavioural research*. Thousand Oaks: Sage.

Tinerella, Vincent P. and Dick, Marcai A. 2005. Academic reference service for the visually impaired: a guide for the non-specialist. *College and research libraries news*, 66 (1): 29-32.

Trochim, William M.K. 2006. *Research methods knowledge base*. Retrieved from: <http://www.socialresearchmethods.net/kb/desintro.htm>, on 3 August 2015.

University of the Western Cape. 2002. *UWC research project registration and ethical clearance*. Retrieved from: <http://lib.uwc.ac.za/research/images/SR-1PROJECTREGISTRATION.pdf>, on 3 August 2015.

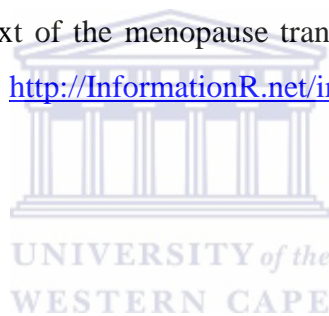
Wilhelmus, David W. 1996. Perspectives on the Americans with disabilities act: accessibility of academic libraries to visually impaired patrons. *The journal of academic librarianship*, Sep: 366-370.

Williamson, Kirsty, Schauder, Don & Bow, Amanda. 2000. Information seeking by blind and sight impaired citizens: an ecological study. *Information research*, 5(4): 1-28.

Wilson, Thomas D. 1997. Information behaviour: an interdisciplinary perspective. *Information processing & management*, 33(4): 551-572.

World Blind Union. 2014. *The Treaty of Marrakesh explained*. Retrieved from: <http://www.worldblindunion.org/english/news/Pages/The-Treaty-of-Marrakesh.aspx> on 17 August 2014.

Yeoman, A. 2010. Applying McKenzie's model of information practices in everyday life information seeking in the context of the menopause transition. *Information research*, 15(4) paper 444. Retrieved from: <http://InformationR.net/ir/15-4/paper444.html> on 2 Feb 2015.



Appendix A: Ethical approval from UWC



UNIVERSITY of the
WESTERN CAPE

OFFICE OF THE DEAN
DEPARTMENT OF RESEARCH DEVELOPMENT

03 June 2015

To Whom It May Concern

I hereby certify that the Senate Research Committee of the University of the Western Cape approved the methodology and ethics of the following research project by:
Mr AJ Coetzee (Library and Information Studies)

Research Project:

The everyday life information behaviour of visually impaired students at Stellenbosch University.

Registration no:

15/4/7

Any amendments, extension or other modifications to the protocol must be submitted to the Ethics Committee for approval.

The Committee must be informed of any serious adverse event and/or termination of the study.

A handwritten signature in cursive script, appearing to read 'Josias'.

*Ms Patricia Josias
Research Ethics Committee Officer
University of the Western Cape*

Appendix B: Institutional permission from Stellenbosch University



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jou kennisvenoot • your knowledge partner

14 August 2015

Mr Annas Coetzee
Department of Library and Information Science
University of the Western Cape
Cape Town

Dear Mr Coetzee

Concerning research project: *The everyday life information behaviour of visually impaired students at Stellenbosch University*

The researcher has institutional permission to proceed with this project as stipulated in the institutional permission application. This permission is granted on the following conditions:

- Only the *SURvey* software of Stellenbosch University (SU) may be used to solicit SU researchers' participation in the survey. The IT Division of the University can be contacted for support in the use of the *SURvey* software.
- The e-mail addresses of students cannot be provided directly to the researcher, but will be inserted into the survey tool (*SURvey*) by an authorised person from the SU IT office.
- Participation is voluntary.
- Persons may not be coerced into participation.
- Persons who choose to participate must be informed of the purpose of the research, all the aspects of their participation, their role in the research and their rights as participants. Participants must consent to participation. The researcher may not proceed until he is confident that all the before mentioned has been established and recorded.
- Persons who choose not to participate may not be penalized as a result of non-participation.
- Participants may withdraw their participation at any time, and without consequence.
- Data must be processed in a way that ensures the anonymity of all participants.
- Data must be treated as strictly confidential.
- The use of the data collected may not be extended beyond the purpose of this study.
- The use of SU student e-mail addresses, student numbers, including all other information by which an individual may be identified is limited to the purpose of this study and may not be shared with third parties.
- All the data related to this study must be responsibly and suitably protected.
- Individuals may not be identified in the report(s) or publication(s) of the results of the study.
- The privacy of individuals must be respected and protected.
- The researcher must conduct his research within the provisions of the Protection of Personal Information Act, 2013.

Best wishes,

A handwritten signature in black ink, appearing to read 'I. Cloete'.

Prof Ian Cloete
Senior Director: Institutional Research and Planning

Appendix C: Questionnaire

Dear Student

My name is Annas Coetzee, a Masters student in the Department of Library and Information Science at University of the Western Cape, South Africa.

I am conducting a study on the everyday life information behaviour of visually impaired students at Stellenbosch University. The objective of this study is to determine the information behaviour and use of assistive technology by visually impaired students. The study also aims to determine the role played by the Stellenbosch University (specifically the Stellenbosch University Library) to assist visually challenged students.

I will appreciate it if you can please complete the attached questionnaire.

1. Gender

Please indicate your gender

Male Female Other Option



2. Age

Please indicate how old you are at this moment

3. Course registered at SU

Please indicate for which degree your are currently registered for

4. Accommodation at SU

Please indicate where you are currently staying

- 4.1 University residence
- 4.2 Private residence in Stellenbosch
- 4.3 Private residence outside Stellenbosch
- Other:

5. Please indicate the severity of your visual disability on a scale from 0 (blind) to 10 (can see)

1 2 3 4 5 6 7 8 9 10

--	--	--	--	--	--	--	--	--	--	--

6. Do you need personal information from time to time?

Please click relevant option

- Yes
- No

7. If yes, what type of personal information do you need?

Please specify

8. Do you need academic information from time to time?

Please click relevant option

- Yes
- No

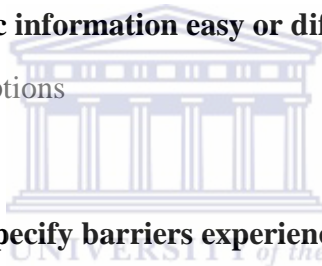
9. If yes, what type of academic information do you need?

Please specify

10. Is obtaining academic information easy or difficult?

Please click all relevant options

- Yes
- No



10.1. If difficult, please specify barriers experienced in finding information

10.2. If easy, please specify support used in finding information

11. Who do you normally consult for information?

Please click all relevant options

- 11.1 Family members
- 11.2 Friends
- 11.3 Fellow students
- 11.4 Lecturers
- 11.5 Librarians
- Other:

12. Which facilities do you normally consult for information?

Please click all relevant options

- 12.1 Division for Academic Counselling
- 12.2 Braille Office
- 12.3 Dis-Maties
- 12.4 Office for students with special learning needs
- 12.5 SU library
- 12.6 Stellenbosch public library
- 12.7 Internet
- Other:

13. Do you use the SU Library to find information?

Please click relevant option

- Yes
- No

14. If yes, please indicate which library services/resources you use often

Please click all relevant options

- 14.1 SunSearch
- 14.2 SunScholar
- 14.3 Short loans
- 14.4 Databases A -Z
- 14.5 e-journals
- 14.6 Library guides
- 14.7 Research support
- 14.8 Inter library loans
- 14.9 Open access
- 14.10 Library commons
- Other:



15. Is there a dedicated place in the library for disabled students?

Please click relevant option

- Yes
- No

16. Are you able to use the library and its resources independently?

Please click relevant option

- Yes
- No

17. If you not using the library, please supply reasons for not using the library

18. Please indicate assistive technology you use

Please click all relevant options

- 18.1 Screen magnifiers
- 18.2 Screen readers
- 18.3 Braille or tactile displays
- 18.4 Special navigation strokes/mouse settings
- 18.5 Voice synthesizer
- 18.6 Audio formats
- Other:

19. Do you own assistive technology?

Please click relevant option

- Yes
- No

20. Where do you have access to assistive technology?

Please click all relevant options

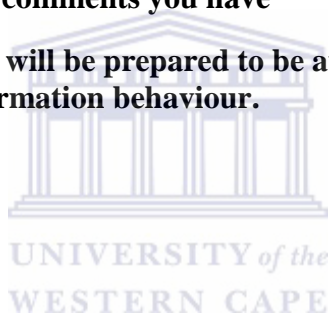
- 20.1 Division for Academic Counselling
- 20.2 Braille office
- 20.3 Dis-Maties
- 20.4 Office for students with special learning needs
- 20.5 US library
- 20.6 Stellenbosch Public library
- Other:

21. In your opinion, how can information provision to visually impaired students at US be improved?

22. Please add any other comments you have

23. Please indicate if you will be prepared to be available for a follow-up interview regarding information behaviour.

- Yes
- No





Appendix D: Information sheet

Dear participant,

My name is Annas Coetzee a Masters student in the Department of Library and Information Science at University of the Western Cape, in Cape Town, South Africa.

I am conducting a study on the everyday life information behaviour of visually impaired students at Stellenbosch University. The objective of this study is to determine the information behaviour, the use of assistive technology and the role of the Stellenbosch University Library in the lives of visually impaired students at Stellenbosch University.

Your assistance in partaking in the interviews will be highly appreciated.

If you have any questions or concerns or wish to know more about this study, please contact me, annas.coetzee@gmail.com or my supervisor, Dr. Lizette King, a lecturer in the Department of Library and Information Science at University of the Western Cape at lizetking@gmail.com.

Annas Coetzee



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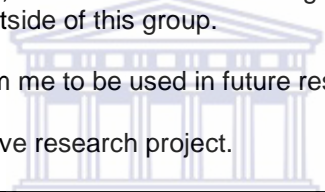
Appendix E: Consent form

Everyday life information behaviour visually impaired students at US

Researcher: Annas Coetzee

Please initial box

1. I confirm that I have read and understand the information sheet explaining the above research project and I have had the opportunity to ask questions about the project.
2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason and without there being any negative consequences. In addition, should I not wish to answer any particular question or questions, I am free to decline. (If I wish to withdraw I may contact the lead research at anytime)
3. I understand my responses and personal data will be kept strictly confidential. I give permission for members of the research team to have access to my anonymised responses. I understand that my name will not be linked with the research materials, and I will not be identified or identifiable in the reports or publications that result for the research.
4. As a participant of the discussion, I will not discuss or divulge information shared by others in the group or the researcher outside of this group.
5. I agree for the data collected from me to be used in future research.
6. I agree for to take part in the above research project.



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Name of Participant (or legal representative) Date Signature

Name of person taking consent (If different from lead researcher) Date Signature

Lead Researcher (To be signed and dated in presence of the participant) Date Signature

Copies: All participants will receive a copy of the signed and dated version of the consent form and information sheet for themselves. A copy of this will be filed and kept in a secure location for research purposes only.

Researcher:
Annas Coetzee

Supervisor:
Dr Lizette King

HOD:
Dr Sandy Zinn