

**THE ROLE OF THE AUDIO-BRAILLE LIBRARY IN CONTRIBUTING TOWARDS
ACADEMIC PERFORMANCE OF VISUALLY IMPAIRED STUDENTS AT THE
UNIVERSITY OF LIMPOPO**

BY

JUSTICE PHUKUBJE

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Supervisor: Mr. L.A. Makgahlela

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DECLARATION

I, Kolobe Justice Phukubje, declare that **THE ROLE OF THE AUDIO-BRAILLE LIBRARY IN CONTRIBUTING TOWARDS ACADEMIC PERFORMANCE OF VISUALLY IMPAIRED STUDENTS AT THE UNIVERSITY OF LIMPOPO** is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references. I further declare that this work has never been submitted by me anywhere else for any purpose.

Phukubje KJ, Mr

Date

DEDICATION

This research work is dedicated with lots of love, respect and appreciation to all students with disabilities in higher education, whose struggle to access information could be dated back to when our communities used to reject people with disabilities. Too often I get the impression that some people take the students with disabilities for granted and do not really care much about their academic success. These people need to be retold that the failure of the universities to enable students with disabilities proper access to library and information services is a fundamental breach of human rights, the right to be treated fairly, and the right to self-esteem and education.

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ABSTRACT

The contribution of library and information services in general towards academic performance improvement of visually impaired students cannot be emphasised. At the University of Limpopo, visually impaired students, like any other students, are continually exposed to an overwhelming mass of visual materials such as textbooks, course outlines, class timetables, lecture notes, whiteboards, writing, memos etcetera. In addition, the use of videos, computers and Blackboard adds to the volume of visual materials to which they have only limited access. One would content that the University of Limpopo, especially after establishing the Audio-Braille library, has done reasonably well in a bid to improving library services of students living with disabilities, however, this is not the reality to the visually impaired themselves.

The purpose of the study was to evaluate the role of the Audio-Braille library in contributing towards the academic performance of students with visual impairments at the University of Limpopo, South Africa. Both quantitative and qualitative methods were employed in this study. The researcher distributed questionnaires to all visually impaired students registered for the 2017 academic year at the University of Limpopo's Reakgona Disability Centre and conducted interviews with the lecturers who teach these students.

The findings indicate that although many students acknowledged the library's contribution, a greater number of respondents revealed that the library lack relevant up-to-date academic reading material in alternative formats such as braille, large print as well as electronic. The main value of this study is to impart knowledge by pointing out major contributions of the Audio-Braille library with hope that this knowledge will encourage and motivates visually impaired students to make use of the library. Students could improve on their academic performance, abilities and possibilities, and boost their confidence and self-esteem by fully using the Audio-Braille library and its resources. Access to the relevant library facilities and resources ameliorates effects of their disabilities and gives them a chance to be "equal" to the so-called normal students

The findings of this study will also help in enhancing both the quality of education for the visually impaired, as well as the Audio-Braille library services because there is still a lot of inexperience around library services for visually impaired students at the University of Limpopo and maybe in other universities as well. Therefore, the Audio-Braille library must ensure that all visually impaired students receive unsurpassed library and information services like any other students by expanding its collection so that student receive books, information, lecturer notes and other study materials that they need in their academic development process in appropriate formats.

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ABBREVIATIONS

| | |
|---|----|
| ACRL: Association of College & Research Libraries | 27 |
| AIOU: Allama Iqbal Open University | 25 |
| CCTV: Closed-Circuit Television | 35 |
| DAISY: Digital Access Information | 33 |
| HKBU: Hong Kong Baptist University | 28 |
| ICT: Information and Communication Technology | 34 |
| JAWS: Job Access With Speech | 9 |
| LIS: Library and Information Services | 25 |
| Ms Word: Microsoft Word | 4 |
| MTSU: Middle Tennessee State University | 23 |
| NMMU: Nelson Mandela Metropolitan University | 26 |
| NWU: North-West University | 26 |
| RDC: Reakgona Disability Centre | 2 |
| SPSS: Statistical Package for the Social Sciences | 15 |
| UKZN: University of KwaZulu-Natal | 25 |
| UP: University of Pretoria | 33 |
| USB: Universal Serial Bus | 4 |
| UWL: University of Wollongong Library | 28 |

CHAPTER ONE

INTRODUCTION: PUTTING THINGS INTO PERSPECTIVE

1.1 Introduction

The importance of library services to academic performance of visually impaired students cannot be emphasised. The library services are more important to visually impaired students as they require more special attention. Despite the special needs requirements, there is consensus among researchers that access to library services by visually impaired students is not yet fully available, especially in countries in the global periphery, such as South Africa, and thus affecting the performance of such students. In a study by Phukubje and Ngoepe (2017), it is recommended that a further study on academic-progress assessment of students with one group of disability be conducted.

This study focuses on the role of the Audio-Braille library in contributing towards academic performance of visually impaired students at the University of Limpopo in South Africa. The current chapter specifically introduces background to the problem followed by the statement of the problem, the objectives and research questions. The key concepts and terminologies used are defined. Thereafter, significance and contribution of the study is given followed by the scope and limitation of the study. The overview of the research methodology, ethical considerations and dissertation structure are given. The chapter ends by a chapter summary.

1.2 Background to the study

Kantor (1976) contends that a university library exists to benefit the students of the educational institution as individuals. Although libraries have enjoyed an emotional “heart of the campus” status in the past, many students have not realized their full potential in support of institutional missions (Stoffle, Guskin and Boisse, 1984). Academic libraries serving students with disabilities cannot be excluded in articulating their contribution to these students and should not just assume that their contribution will be recognised by the students that they serve.

Payne and Conyers (2005) opine that academic libraries must be able to demonstrate the value of what they are doing and provide evidence of the impact that they are

making towards the students that they serve. In this study, attention is paid on the contribution of the Audio-Braille library of the University of Limpopo as it is the primary source of information queries from students with disabilities. It is one of the main spots where students with disabilities consult to get work done (and sometimes just to hang out), and it is perhaps considered a useful resource of a wide range of information and services. It has a mandate to help students with disabilities to learn and to succeed.

Like many universities all over the world, the University of Limpopo is admitting students living with various disabilities including those with visual impairments to its study programmes. Students with visual impairment are also admitted regardless of their strengths or weaknesses because they have the right to appropriate education, specialized services, books and materials in appropriate media (including braille), including the right to specialized equipment and technology to ensure equal access to information, and to enable them to compete effectively with their peers academically, and ultimately in society (American Foundation for the Blind, 2007).

In order to provide services and an enabling environment for all students including students with disabilities, the University of Limpopo established a support service centre to cater more effectively for the needs of students with disabilities called Reakgona Disability Centre (RDC) in 1997. RDC, as it is affectionately known, is a leading centre of excellence that promotes equal access, positive attitude and acceptance for and among students with disabilities through creating an environment which is convenient for a conducive education.

RDC is equipped with assistive devices and modern adaptive technology for use by students with disabilities and offers services such as:

- **Braille production**

Reading material in print is converted into braille to make information accessible to blind students so that they may participate actively in the academic programme.

- **Low vision reading facilities**

Partially sighted students have access to print by means of reading equipment that enlarges print to an individual's preferred size.

- **Audio-Braille Library services**

Braille and audio books as well as print books are purchased and loaned out to visually impaired students. The Audio-Braille library provides information services and assistive technology to students with visual impairments, hence it is the focal point of this study.

Visually impaired students at the University of Limpopo depend on other formats such as braille, large prints and electronic books for reading purposes. Wright-Howard (2007) identifies two main categories of visual impairments, namely, low vision and blind. Students with low vision generally prefer their reading materials in large print. Large print in this regard is 14 points or above in font size and is one of the simplest ways of increasing accessibility for visually impaired students. In other words, large print materials have enlarged font size that is more visible and readable to a low vision or partially sighted person. The other category involves blind students who are generally braille users. Braille is a system based on sequences of raised dots to represent letters and words used by the blind as a medium of reading and communication. It is much easier for visually impaired people to learn and become fluent in Braille when still young rather than those who lose sight when they are already older or at tertiary level.

Electronic books are recordings on CDs from books which the visual impairment can listen to, thereby providing the visual impaired with the opportunity of reading through listening. It is essential that information provided for visually impaired students be in other formats such as audio, electronic text, large print and braille. These alternative formats, which are generally not available in academic libraries in quantities desired by visually impaired students, provide an opportunity for them to read, communicate and study like any other sighted students. Coetzee's (2016) findings has shown that students with visual impairments at Stellenbosch University did not make use of their library and relied mainly on online full text journal articles and e-books obtained via the Internet, Library's databases, SunScholar and e-journals for academic

information. The main reasons for not using their library was 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 (Coetzee, 2016)

According to Epp (1999), visually impaired students need assistive technologies and services. Kavanagh (1994) argues that students with disabilities need access to the same range of resources as the general student population. For now, the reality is that over 90% of all published materials are inaccessible to blind or low-vision people. The scarcity of published works in accessible formats has been referred to as the “global book famine”. The lack of books in accessible formats has been a true barrier for education and employment opportunities for the blind and the visually impaired in both developing and least-developed countries (Manocha, 2014).

Most blind students at the University of Limpopo use a combination of methods, including readers, recorded lectures and, ever so often, Braille materials. Blind students who read Braille prefer to take their own notes in class using recording devices and others prefer to get copies of notes from classmates and have someone type the notes in Microsoft Word (Ms Word) format and saved in the universal serial bus (USB) device for them. They then plug the device into a computer with speech output to listen to the notes. Other blind students record lectures and later transcribe notes from the recorder into Braille. It is much easier for some blind students to study from tactile copy rather than from recordings. Partially sighted students use large print materials, closed circuit magnifiers or other magnifying devices, as well as ZoomText to read.

The Audio-Braille library plays a crucial role in helping the visually impaired students to perform well in their studies. Phukubje and Ngoepe (2017) concur that library services impact on the academic achievement of students with disabilities and academic libraries should remove barriers to the use of library services by this group of students. In view of this great importance attached to academic libraries serving

students with disabilities, there is a need to evaluate the role of the Audio-Braille library in contributing towards academic performance of these students.

Visually impaired students at the University of Limpopo are continually exposed to an overwhelming mass of visual materials such as textbooks, course outlines, class timetables, lecture notes, whiteboards, writing, memos etc. In addition, the use of videos, computers, Blackboard, and television adds to the volume of visual materials to which they have only limited access. It may seem obvious to librarians and most people that students at tertiary level need the library to complete their academic work and to succeed. However, demonstrating this can be a challenge. Feeling pressed to prove whether the Audio-Braille library plays a role in contributing to student success or not, this study evaluates the role that this type of library plays towards the academic progress of students with visual impairments.

1.3 Problem Statement

Despite the prominent role professed to be played by Audio-Braille library in helping students with disabilities attain academic success, this has not been tested at the University of Limpopo in South Africa. There is neither evidence that the Audio-Braille library resources are helping visually impaired students to complete their educational work, nor that they have overall positive influence over academic performance of students with disabilities, hence Phukubje and Ngoepe (2017) recommend a study to establish the relationship.

It is important to evaluate the contribution that the library makes towards the academic progress of visually impaired students. Academic libraries must not only demonstrate the value of what they are doing, they must also provide evidence of the impact that they are making (Payne and Conyers, 2005). According to Lindauer (1998), academic libraries, as one of the key players in providing and structuring instructional resources and services, are expected to document how their performance contributes to institutional goals and outcomes.

Librarians in all types of libraries work to ensure that their organisations provide high quality service in support of the goals of the library's parent institution. It would be rare indeed to discover an academic library, for example, that does not consider service

quality an important aspect of carrying out its mission to support teaching, learning, and research in the college or university in which it operates (Miller, 2008). Strautz (1992) states that determining the effectiveness of a library is essential because the information gained from this process helps it to prove its accountability, make decisions regarding its services, make resource allocations and, in general, better meet the needs of its users.

1.4 Purpose of the Study

The aim of this study is to evaluate the role of the Audio-Braille library in contributing towards the academic performance of students with visual impairments at the University of Limpopo, South Africa.

The specific objectives of this study are, namely, to:

- Describe the library and information services provided for visually impaired students;
- Measure the contribution of services provided by the Audio Braille library towards academic success of visually impaired students;
- Assess if access to services at the Audio-Braille library enables visually impaired students' progress and performance; and
- Analyse information resources provided for visually impaired students

1.5 Definition of Key Words

This section provides the definition of key terms and concepts that were used in this study. The aim is to give the reader a better understanding of the information discussed in the content in context. These key terms and concepts include the following: Visually impaired, Library services, Information sources, Braille, Large Print, Assistive technologies, Audio-Braille library and Academic performance.

1.5.1 Visually Impaired

Learners with visual impairments include the blind and weak-sighted. These learners experience medical barriers to learning and development (Hugo, 2006). Visual impairment may be a result of various factors such as prenatal defects, retinal infections, cataracts, malnutrition, diabetes and physical accidents (Barraga and Erin,

2001). Learners who are partially sighted or have poor vision show a range of difficulties related to eye functioning. There may be difficulties with eye movement (ocular motility), with the two eyes working together (binocularity), with eye-hand co-ordination and with focusing problems (Hugo, 2006).

The term 'visual impairment' encompasses a broad spectrum of eye conditions and visual acuity levels or clarity of vision (Gray, 2005). Typically, terms such as "*partially sighted*", "*low vision*", "*legally blind*" and "*totally blind*" are used in education contexts (Gray, 2005). According to Friend (2009), 'visually impaired' is a general term used to describe people who are partially-sighted or completely blind. Visual impairment refers to learners with low vision or partial loss of sight to total blindness (Gray, 2005). In the context of this study, the focus is on learners with low vision and who have difficulty in reading and copying information from a board. Categories of visual impairment reflect visual acuity, the ability to use vision and the extent to which the other senses are used for learning (Bishop, 2004).

Peterson and Hittie (2003) distinguish three categories of visual impairment, namely:

- Low vision: a learner with low vision can see objects when they are within a few centimetres away, but has severe limitations with distance vision, even when wearing spectacles;
- Visually limited/partially sighted: a learner with limited vision has poor visual acuity. Therefore, adaptations to educational programmes are required to accommodate these categories of learners during teaching and learning; and
- Blindness: this term is used for individuals who have no vision at all, only light, or shape perception. For this study, all the above-mentioned categories of visual impairment were included.

For consistency, this study uses the term 'blind and visually impaired' to relate to any student with a serious sight problem and to any student who has difficulty in reading an ordinary font size text, whether on screen or on paper, because of a visual impairment.

1.5.2 Library Services

Library services are services provided by the library that draws attention to information possessed in the library in anticipation of demand. More specifically, and in terms of the present study, the term is used to refer to those services with which the visually impaired students have direct contact, namely, the circulation service, literature searches, reference service, availability and quality of library collections, in the Audio-Braille library

1.5.3 Information Sources

Library information resources may be defined as that information bearing materials that are in both printed and electronic formats such as textbooks, journals, indexes, abstracts, newspapers and magazines, reports, CD-ROM databases, videotapes/ cassettes, diskettes, magnetic disk, computers, microforms, etc. These information materials are the raw materials that libraries acquire, catalogue, stock, and make available to their patrons, as well as utilise to provide various other services (Popoola and Haliso, 2009).

1.5.4 Braille

Braille is a system of writing and printing for blind and visually impaired people in which varied arrangements of raised dots representing letters and numerals are identified by touch (TheFreeDictionary.com, 2011). This system of writing or printing using raised dots on a page, allowing users to read by touch, was originally developed for sightless people by Louis Braille (1809–52), a blind French educator who lost his sight at the age of three. Until recently, Braille was the only option for visually impaired students to access the required information.

1.5.5 Large Print

Large print is one of the most common formats of adaptive text and large print books generally have a font size of between 16 to 20 points, although it is possible for even larger sizes to be produced. Large print enables people with varying degrees of sight loss access to a great number of works.

1.5.6 Assistive Technologies

Assistive technologies refer to both hardware and software that enable blind and visually impaired persons to read print, use a computer, take notes, and communicate via paper and email (Schiff, 2010). Visually impaired students can thus gain access to information from library catalogues, databases, and Websites, and therefore participate in the research process in ways never thought possible. Although many available technologies can accomplish these goals in one way or another, for the purpose of this study, the focus of the discussion is on the two programs available at the Audio-Braille library, namely, the acronym JAWS (Job Access With Speech) and ZoomText. JAWS is a screen reader with voice synthesis. ZoomText comprises screen magnification software. Both technologies are compatible with Microsoft Windows applications.

1.5.9 Audio-Braille Library

The Audio-Braille library is the section that facilitates library services for students with disabilities at the Reakgona Disability Centre, which is a formal division within the organizational structure of the University of Limpopo.

1.5.10 Academic Performance

Most of the time people use the term 'academic performance' in the same manner as 'academic achievement'. Leitner (1994) defines academic performance as a student's level of performance in a standardised test and examination. For Nuttall (1995), academic performance means the demonstration of competence in a test or examination. Competence, as defined by Nuttall (1995), refers to what a person knows and can do. Thus, academic performance in a test or examination can be understood to mean the demonstration of what and how much learners know in their academic school work and what they can do. What and how much learners know is usually reflected in their results in standardised tests and examinations. For example, the learners' academic performance in the end-of-year final examinations.

1.6 Theoretical Framework

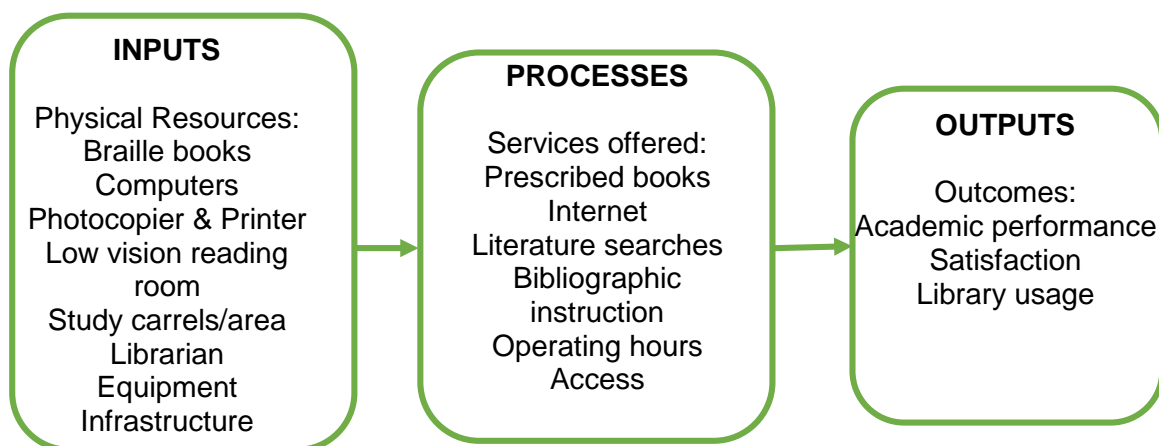
The theoretical framework that is used in the study is the Input-output theoretical model developed by Shavelson, McDonwell and Oakes (1987). The model

distinguishes among inputs (including contents), processes and outputs of education. Scheerens (1991), Porter (1991), Mweu (2013) and Musyoka (2013) have used this model in their studies to evaluate school infrastructure and processes. The model has also been used to monitor how the infrastructure and the processes influenced students' outcomes. Even though this model is based on the field of education, it is utilised in this study with few modifications (see Figure 1).

The inputs in this study include structural features which comprise the library infrastructure, library resources both human and physical, and other resources that libraries are provided with to do their work. The library processes would be the policies and practices, including operational hours. The outputs are also seen as outcomes in this study. This would mean good academic performance, leading to greater satisfaction and positive attitudes towards the use of the library.

This theory is suitable for this study because it establishes the role of the Audio-Braille library in contributing towards academic performance of visually impaired students at the University of Limpopo in terms of infrastructure, resources/services and outcomes and levels of satisfaction. Therefore, the constructs of the model were used to inform the objectives, research questions and literature review of this study.

Figure 1: The Input-output Theoretical Model adapted to be utilised in this study (with few modifications)



The above diagram/model was adopted from an unpublished M. Ed. Project by Musyoka (2013) at the University of Nairobi.

Figure 1 illustrates the adapted Input-Output Theoretical Model for this study. In the Input-Output Theoretical Model, a process is viewed as a series of boxes (processing elements) connected by inputs and outputs. Information or material objects flow through a series of tasks or activities based on a set of rules or decision points (Harris and Taylor, 1997). Flow charts and process diagrams are often used to represent the process (Harris & Taylor, 1997). What goes in is the input – what causes the change is the process; and what comes out is the output (Armstrong, 2001).

It shows that academic performance of visually impaired students depends on the availability of adequate physical resources, the processes of disseminating and accessing information. If resources are made available for enabling the provision of information and reading materials, then academic performance of visually impaired students at the University of Limpopo will improve. Outcomes are regarded as an indication of the effect of services on the users after having used the information offered through the library services, and performance is the relationship between inputs/outputs and how well they perform.

1.7 Scope and Delimitation of the Study

According to Mouton (2001), the scope of the study refers to the parameters in which the study will be operating in the region or place where the research will be taking place. The study comprised a sample of all visually impaired students registered for the 2017 academic year at the University of Limpopo, including both undergraduate and postgraduate visually impaired students who are listed with the Reakgona Disability Centre for special services. Therefore, the results cannot be generalized to the entire population of students with visual impairments in South African universities, since data were collected based on the services available only at the University of Limpopo.

1.8 Research Methodology

This part discusses the research method and procedures used in the study. The research design, target population, sample size, sampling procedure, data collection instruments and procedures, validity and reliability, sampling techniques and methods of data analysis are discussed.

1.8.1 Research Approach

There are three types of research approach namely: quantitative, qualitative and mixed method. According to Barbie (2013), qualitative method is a method for examining social research data without converting them to numerical format. Engel and Schutt (2014) define qualitative method as a method that involves participant observation, intensive interviewing, and focus groups that are designed to capture social life as participants experience it, rather than in categories predetermined by the researcher.

According to D'Cruz and Jones (2014), quantitative method is a method that relate to quantity or number, intensity or frequency. The data sought were numbers that were later analysed in ways that allowed for mathematical calculations and generation of statistical rules about the meaning and the significance of the results. Mixed methods research involves the use of qualitative and quantitative data in a single research project. It represents an alternative methodological approach, combining qualitative and quantitative research approaches, which enables researchers to explore complex phenomena in detail (Halcomb and Hickman, 2015).

Quantitative method augmented with qualitative method was employed in this study. The methods used suited the purpose of the study, namely, to evaluate the role of the Audio-Braille library in contributing towards the academic performance of students with visual impairments at the University of Limpopo. This evaluation in turn would offer insights into the adequacy of the provision of library services for students who are visually impaired. Quantitative research is empirical research where data take the form of numbers. Qualitative research, on the other hand, is empirical research where data are not in the form of numbers (Punch, 2005). According to Maki (2009), quantitative research seeks explanations; qualitative research aims at in-depth description. Quantitative research was employed in this study because it would help to measure the participants' satisfaction levels of services provided by the audio-braille library (Maki, 2009). Qualitative research was also selected because would help elicit the participants' accounts of meaning, experience or perceptions (Fouché and Delport, 2002).

1.8.2 Research Design

According to D'Cruz and Jones (2014), research design is highly theorised and yet extremely practical. It becomes a means of defining what will be done to address the research question, making explicit what is to be studied, why it is to be studied and how it is to be studied. Designing a study helps researchers to plan and implement the study in a way that will help them obtain the intended results (Burns and Grove, 2001). According to Du Plooy-Cilliers, Davis and Bezuidenhout (2014), different types of research include; exploratory, descriptive, correlative, explanatory, predictive, evaluative and pragmatic research.

For this study, evaluative research was appropriate because the study evaluated the role of the Audio-Braille library in contributing to the academic progress of visually impaired students at the University of Limpopo, Limpopo Province, South Africa. Babbie (1990) defines evaluative research as a process of determining whether a social intervention has produced the intended results. Survey research design will be used in this study. Survey design is conducted in many different formats such as interviews, questionnaires, and focus groups (in-person, small group sessions with a facilitator). Different media were used to conduct surveys, including the Internet, mail, and both telephone and in-person interviews.

1.8.3 Population and Sampling

In this part, the population of the study and sampling frames are explained, and the sample size and characteristics of the sample are described.

1.8.3.1 Population

The target population in this study were all visually impaired students registered with Reakgona Disability Centre (RDC), and a minimum of three to a maximum of five lecturers who teach these students. Of the number of students at Reakgona Disability Centre (RDC) who disclosed that they have visual impairment, those who have a total absence of vision are in the minority (at 11); many more students have low vision or partial sight (at 30) and Albinism (at 33). Access requirements for these students with visual impairments therefore vary widely and are not always evident. They may all have a visual problem, but the type of assistance required also varies according to the degree and nature of their visual impairment.

1.8.3.2 Sampling

In this study, the sample comprised all 74 visually impaired students registered with Reakgona Disability Centre (RDC) at the University of Limpopo. The researcher sought quantitative data to measure how visually impaired students perceive the contribution that the Audio-Braille library makes in their studies and statistical analysis will be used to determine the results. There were 30 partially sighted students, 11 totally blind students and 33 students with Albinism registered for the 2017 academic year at the University of Limpopo. Due to the relatively small number (at 74) of visually impaired students registered at this institution, it was felt that this was a manageable number and, as a result, the identified visually impaired students registered at the RDC were surveyed without any need for sampling. In the situation where the total population of the study is less than 100, the researcher should study the whole population (Leedy, 1997). Table 1 below outlines University of Limpopo's Reakgona Disability Centre (RDC) Statistics for 2017 registered students with visual disabilities.

Table 1: Samples for the Study

| DISABILITY | NUMBER OF STUDENTS | FEMALE | MALE |
|-------------------|---------------------------|---------------|-------------|
| Blind | 11 | 04 | 07 |
| Albinism | 33 | 11 | 22 |
| Partially sighted | 30 | 11 | 19 |
| Total | 74 | 26 | 48 |

A maximum of five lecturers with vast experience of teaching these visually impaired students were selected using purposive sampling, which implies intentionally selecting individuals to learn to understand the central phenomenon (McMillan and Schumacher, 1994). The idea was to purposefully select "information-rich" (Patton, 1990) lecturers who can best answer the research questions and provide the researcher with needed information quickly to save time. The rationale for choosing this approach is that the researcher sought qualitative data, that is, knowledge about the lecturers' opinion of the contribution the Audio-Braille library makes towards the academic performance of visually impaired students, which the lecturers would provide by virtue of their experience of teaching and observing the students in a classroom situation.

1.8.4 Data Collection Instruments

In this study, data were collected using interviews and questionnaires as qualitative and quantitative data collection techniques, respectively. Questionnaires were distributed to all visually impaired students registered for the 2017 academic year at the University of Limpopo's Reakgona Disability Centre. The researcher was the sole person administering the survey at the University of Limpopo and all of the visually impaired student users were requested to participate in the study.

The totally blind and short-sighted students were visited at their places of residence and given the questionnaire in electronic format via the USB to complete using a screen reader software programme called JAWS. JAWS (Job Access With Speech) is a computer screen reader program for Microsoft Windows that allows blind and visually impaired users to read the screen either with a text-to-speech output or by a Refreshable Braille display. Though the research's focal point was on visually impaired students at the university, it was also helpful to interview a minimum of three to a maximum of five lecturers with experience to find out their views on how the Audio-Braille library contributes to the visually impaired students' academic prosperity apart from what they are teaching.

1.8.5 Validity and Reliability of Data

The reliability of the study was ensured by asking the respondents clear questions. In order to maintain the validity and reliability of the study, the respondents were asked the same questions. To avoid bias, it was important to avoid asking leading questions, double-barrel questions, suggestive body language and body gestures.

1.8.6 Data Analysis

In this study, quantitative data analysis focused on data collected through questionnaires completed by the visually impaired students who uses the Audio-Braille library at the University of Limpopo. Data were analysed using a special computer programme called Statistical Package for the Social Sciences (SPSS) version 23 software. The data were summarised and presented by making use of descriptive statistics. Tables, charts, graphs and percentages were used in the illustration of results and presentation of the findings. Excel was used to draw the graphs. The

mean, standard deviation, minimum and maximum values for all scaled questions was also computed and used in the explanation of the findings.

On the other hand, qualitative data analysis was done through thematic analysis which was undertaken for data collected from five lecturers, who had the experience of teaching visually impaired students, through face-to-face interviews. Coding was used to help in the interpretation and recording of the data to review and remember important points as well as to see how many positives and negatives occurred.

1.9 Significance of the Study

This study will impart knowledge by pointing out major contributions of the Audio-Braille library. This knowledge will expectantly help students with disabilities to improve on their performance, abilities and possibilities, and to boost their confidence and self-esteem. Access to the relevant facilities removes their disability and gives them a chance to be “equal” to the so called normal people. The findings of this study will also help in enhancing the quality of education for the visually impaired about audio-braille library services. This could lead to increased competence and perhaps greater career advancement. Moreover, it will add to the development of knowledge to assist the librarians at the university, RDC staff and university management on the improvement plan with respect to the previously identified challenges and shortcomings that the Audio-Braille library encounters.

1.10 Ethical Consideration

According to Babbie (2014), being ethical in research means conforming to the research standards. In other words, research ethics is about doing what is right, that is, minimizing or preventing any harm that the research may cause the respondents (Miles & Hubberman, 2006). The following ethical standards were observed to ensure that the study is conducted in a fair and acceptable manner.

1.10.1 Consent

Ethical clearance to conduct the study was obtained from the University of Limpopo Ethics Committee. The participants were informed that participation in the study is voluntary and thus not coercive. To secure consent, the participants were also informed about the objectives of the study.

1.10.2 Approval

A letter of approval from the University was given to the participants. This letter serves to validate the study and was shown to the participants when necessary.

1.10.3 Confidentiality and Anonymity

The participants were assured that their views and inputs are protected. This means that the information that they provide during the research would not in any way used to harm their lives or reputations. This assurance was given to the participants prior to the study.

1.10.4 Identity and Privacy

The participants were assured that their identity will be protected. Ways to achieve this include concealing their real names and personal particulars, that is, not publishing them in the research report, and ensuring that the information that they provide is only used for academic purposes.

1.11 Structure of the Study

The dissertation consists of six chapters organised as follows:

Chapter One: Introduction. This chapter provides an overview of the study. It consists of the introduction and background of the study, problem statement, and purpose of the study, aims and objectives of the study, definition of key terms, theoretical framework, research methodology, and significance of the study, ethical considerations and organization of the study.

Chapter Two: Literature review. This is a review of the relevant literature, which analyses the issues relevant to the contribution of academic libraries towards the academic progress of visually impaired students.

Chapter Three: Research methodology. This chapter focuses on the research methodology of the study, including the research approaches, design, population, sampling, data collection instruments and data analysis.

Chapter Four: Data analysis. This chapter presents the results of the study. The results are presented using tables, figures, charts as well as narrative description

Chapter Five: Interpretation and discussion of the results. This chapter discusses the findings that offer a broad interpretation of the results.

Chapter Six: Conclusion and recommendations. This entails an overview of the research process by clearly formulating the findings and conclusions regarding the research problem.

1.12 Summary

This chapter provides an overview of the study. It also provides the context within which the study was determined. It also presents the problem for the study, the aims and objectives, definitions of key concepts used to simplify the reading and understanding for the reader, and an overview of the research design and methodology used in the study. Finally, the outline of chapters was shown to indicate what the structure of the completed dissertation looks like.

The next chapter discusses the literature related to the study, which includes the contribution of academic libraries towards students' academic performance, library and information services for visually impaired students, and information resources for visually impaired students.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The previous chapter introduced the topic under study. The current chapter discusses the literature related to this study. According to Creswell (2015), literature review provides a framework for establishing the importance of the study as well as a benchmark for comparing the results with other findings. Pathirage, Amaratunga and Haigh (2005), maintained that literature review assists the researcher to understand and identify a problematic area of research through gaining a sound knowledge in the field being studied and helps to determine information relating to the current study. In other words, the literature review affords the researcher an opportunity to look at other studies that have been done and to observe the results that they produced in relation to the current study.

As pointed out by Creswell (2003), a literature review gives the results of other studies that are closely related to the current study, fills in gaps and extends prior studies, while providing a framework for establishing the importance of the study, as well as acting as a benchmark for comparing the results with other findings. Netshakhuma (2017) opines that literature review should establish the need for the research and should indicate that the writer is knowledgeable about the research area. Furthermore, a literature review is aimed at supporting research arguments, as well as summarising and synthesising the ideas that others have already put forward.

This chapter reviews the literature on issues around the role of academic libraries in contributing towards academic performance of visually impaired students under the following sub-topics: The services provided by the Audio-Braille library, The contribution of academic libraries towards students' academic performance, Library and information services for visually impaired students, and Information resources for visually impaired students. Related studies on the contribution of academic libraries towards students' performance and methodologies and findings of these are identified and discussed. The aim is to place this study in a broader perspective in order to understand better what other related studies under the same topic has uncovered previously.

Creswell (2014) recommends that when scholars conduct a computer database literature search, they should consider using both free online databases and the one subscribed to by the library, and they should use several databases. The following databases were used to conduct literature searches and to obtain the articles used in this review: Google Scholar; Emerald Insight; ERIC; Springerlink; Science Direct; Proquest; EbscoHost and the South African National ETD Portal. In order to uncover the contribution of academic libraries towards students' performance in a broader sense, the literature reviewed not only focuses on academic libraries serving students with visual impairments but on all academic libraries serving typical students as well. A conceptual framework is also drawn to demonstrate the contribution of the Audio-Braille library towards academic performance of visually impaired students.

2.2 Library and Information Services provided for Visually Impaired Students

The provision of library resources for visually impaired students in the universities seems to generate a lot of discussion from the existing literature by many scholars. The literature has shown that there is already a large growing number of students in tertiary institutions who are blind, partially sighted and others with print disabilities that prevents them from reading normal printed text/book, magazine, or website effectively. They must rely on alternative formats such as braille, large print, and computer software such as screen readers and ZoomText to access information. According to Marlin (2014), only less than 5% of all published materials and, reportedly, only less than 20% of websites are accessible to people with visual impairments.

Services provided by the Audio-Braille library includes providing academic support for students with disabilities in the form of liaising with academic schools; making material readily available for converting into Braille; providing audio recordings and books; and provides information and library training for students with visual impairment on how to make use of the library resources.

Based on the review of observed literature, Mutula and Majinge (2016) stated that students living with visual impairments in university libraries needed information to write assignments, undertake research, write essays, examination and any other

academic related work, they also need information relating to visual aids, mobility and psychological support. In addition, they revealed that the sources of information for visually impaired students included library staff, classmates, friends, readers employed by disability units to assist them to read, OPAC and databases.

Visually impaired students mostly prefer to access their information both in print and electronic resources in appropriate format and they apply ICTs to access and use information. In this regard, academic libraries should aim to provide information resources and services in the right format for visually impaired students as stated by Majinge and Stilwell (2014). Information is important to all students regardless of their disabilities, therefore, academic libraries should provide information to visually impaired students in the format that is suitable and usable to them. Eskay and Chima (2013) concur that visually impaired students, like their peers, need to have access to a wide variety of reading materials, and to be allowed to choose what they would like to read.

We can all agree that students with visual impairments at universities need to read for tests and examinations, write assignments and research papers and carry out all work related to academic purposes just as other able-bodied students do. For that reason, it is important that academic libraries have at least a browsing collection for the visually impaired students. This is the case because academic libraries exist to support learning, teaching, research and consultancy to all in the university's community of users, including the visually impaired students, as identified by Majinge and Stilwell (2014).

Kavanagh and Skold (2005) emphasised that print-disabled students at the universities have the same need for textbooks and supplementary reading material as those who read print but face the continuous problem of not receiving material in time for course work and exams. This is because of the increasing numbers of visually impaired students who pursue tertiary education, however, they depend more on library services that will be appropriate to support their learning. Visually impaired

students also need access and training in the use of computers with adaptive technologies in libraries in order to perform well academically like other students.

Machell (1996) also asserted that the ideal library service is one where everyone, regardless of the degree of visual impairment, has access to the materials and information at the time they are required, in a format that can be used, in the quantities that are needed, and where the needs of the user are understood by the staff. Bernardi (2004) added that academic libraries are currently providing library resources to visual impaired students mostly in traditional special format material such as books in braille, audio, large print as well as adaptive technologies. This is sometimes accompanied by training activities for visually impaired students on how to use these services and librarians on how to serve this category of students.

Scholars have addressed the broad scope of providing library services for students with visual impairments in the universities. Kaijage (1993) stated that visually impaired university students at the University of Dar-es-Salaam in Tanzania were provided with services such as live reading service whereby the reader reads for visually impaired student until either the time permits no further reading, or the student feels satisfied, the resource rooms for transcribing recommended readings into braille or recording them into audio books; and providing a photocopying service. Additionally, they were also given special equipment such as Perkins braille machine for taking and making notes. This shows that visually impaired students had the freedom to use library services, and just like all registered students, were entitled to use the library.

Library resources are very important in supporting teaching and student learning, and the use of the library services is perceived to have some measure of contribution in general towards academic performance of students (Loope, 1996). Majinge and Stilwell (2014) confirmed that academic libraries provided services to visually impaired students in Tanzania and that the information resources that the libraries provided included, among other things, lending, Internet and photocopying services. In addition, they also noted that disability units under the School of Education were involved in service provision to students with disabilities.

After assessing the provision of library and information services to the visually impaired students at the University of Ghana, Mansa (2007) indicated that visually impaired students make use of sources such as audio recordings, lecture notes and interaction with their lecturers, friends and resource persons when conducting research. In addition, students said that they were not using the library services because in the library there were no information resources in their format and even the layout of the library buildings did not allow them to get access to information resources.

A study on library services to Canadian college students with print disabilities indicated that library and information services to the students in question included alternate formats such as Braille, electronic or digital texts, large print, taped books, and tactile graphics (Epp, 1999). Other library services required for visually impaired students were extended loan periods, the waiving of late return fines, extended reserve periods, volunteer readers in the library, volunteer technology assistants in the library and radio reading services as highlighted by the American Library Association (2001).

Many scholars recommend academic libraries to provide adaptive equipment for visually impaired students which enables them to use Internet, have access to digitalised material, as well as accessible library web page. For example, the MTSU (Middle Tennessee State University) library offers priceless computer equipment to students with vision problems the ability to do what most people take for granted such as software to scan books and newspapers into computers, which in turn reads the text back to them, large 20-inch computer monitors that aid visually impaired students to view the screen (Brooks, 1999).

Anis (2016) also investigated awareness and use of internet resources by visually - impaired students in Maulana azad library at Aligarh Muslim University, and found that apart from the books in Braille script, many documents and devices in electronic format are also provided to the visually impaired students. This included Angel Pro which is a mobile like device along with Memory Chips of 32 GB for recording the classroom

lectures and listening to the already recorded books for the entire duration of the course. As a result, many students have showed excellence result and performed well academically.

Adding to the above findings, it was mentioned that the library also provides a wide range of services to visually impaired students including retrieval of information, orientation, assistance in locating/searching of documents, advisory services, current awareness service, bibliographic service, bibliographic instructions, inter library loan, organization of exhibitions, press clipping, reprographic service, print facility etc. This surely gives visually impaired students enough confidence about their ability in using internet resources and assistive technologies.

Singh and Moirangthem (2010) opined that library service is a critical channel and often the only source of reading material for a visually impaired student. This is the case because a sighted student can access books from a variety of sources, ranging from local book stores, book clubs that provides reading materials to public libraries, but a blind student cannot expect to get recorded or Braille books from these sources. This proves that academic libraries play a great role in fulfilling the information and educational needs of the visually impaired students, and efforts need to be done to improve the library and information services for them.

Abdelrahman (2016) also investigated the existing library and information services, facilities and support available for the visually impaired and blind students at the Audio Library of the University of Khartoum in Sudan. The findings revealed that, apart from the assistance from library staff and student volunteers, all visually impaired students are offered digital voice recorders and a computer laboratory equipped with computers loaded with some assistive technologies. This includes audio recordings of academic material; reading books and journals written in Braille; recordings of written lecture notes (this activity is carried out by volunteers); conducting of training courses in computer skills and Braille; browsing the internet via the Ibsar screen-reader programme; and borrowing services, mainly of cassettes and material written in Braille.

However, in another similar study that explored the existing scenario of library services for visually impaired students by departmental libraries attached to the Delhi University, Singh and Moirangthem (2010) learned that services being provided by these libraries were insufficient. They recommend that steps be taken up to improve and develop library services to fill up the gaps in providing information services to the visually impaired students. And so, serious efforts need to be done by the Delhi University libraries for these neglected visually impaired students in both fulfilling their information needs and bringing awareness to the Library and Information Services (LIS) professionals and others.

Fatima et al., (2014) also explored difficulties and barriers faced by students with visual impairment who were enrolled in different programmes of the Allama Iqbal Open University (AIOU) in Islamabad. Their findings were that students with visual impairment are encountering great barriers in terms of accessing library services. They found that the library is inaccessible given that reading material such as hand-outs, text books, prospectus and other documents are not available in Braille, soft and recorded form. The students are dependent on others for preparing course assignments in handwritten form as AIOU has not enabled these students to prepare their assignments on computer with the help of JAWS software.

Seyama, Morris and Stilwell (2014), studied the information seeking behaviour of blind and visually impaired students at the University of KwaZulu-Natal (UKZN), Pietermaritzburg Campus. Their study concluded that UKZN was aware of the needs of students with disabilities and had formulated a policy to meet these needs, but that library services fell short of meeting the information needs of blind students and those with visual impairments. The computers in the UKZN Main Library lacked suitable software, such as JAWS and ZoomText, blind and visually impaired students were dependent on the subject librarians to search for and read the results from the screen. Apart from the difficulties accessing and using JAWS, most, if not all of the formats of information needed by the students had some shortcomings.

On a positive note, Konya, Cihan and Bayrak (2014), discovered that the Information Centre for (dis)abilities at the Istanbul University Central Library Konya provides 1.500 printed books, a librarian, a clerk, and two part-time assistant students to serve visually impaired students. It also has ten desktop computers with screen readers and with screen magnifier software for the students with low vision; researchers to convert written materials on digital environment to Braille; Braille monitors; reading cabinets to convert printed books to audio books; and Braille printers for visually impaired students studying basic sciences and social sciences to print images and graphics. Three book-reading machines that allow to audio-capture printed documents and to playback them with a synthesized computer voice.

In South Africa, many universities clearly state on their websites the type of library services that they offer to students with visual impairments. For example, the University of Pretoria library shows that it offers a designated lab that houses computers with ZoomText, JAWS, Open Book and a scanner. The University of Johannesburg library offers a research lab with software programmes such as ZoomText, JAWS and ClaroRead. The Disability Unit at Nelson Mandela Metropolitan University (NMMU) offers adaptive text arrangements, including the conversion of text into Braille, and other accessible formats. The North-West University (NWU), Mafikeng Campus, advertises that it has Online/Off Campus library services available for visually impaired students. Whereas UNISA offers assistive technology at the Muckleneuk Library, which includes Dolphin Pens, Screen reader, Earphones, Wide-screen computer monitors with ZoomText, and large-print keyboards.

2.3 The Contribution of Academic Libraries towards Students' Academic Performance

The reviewed information shows that there has been an established connection between students' use of library services and their academic performance. Miller (2013) declared that a student who uses a library in meaningful ways is more likely to be a successful student than one who never attempts to use library facilities and resources. For that reason, it appears that academic libraries can contribute towards students' performance and can also be helpful, especially when used fully by students.

This is the case because academic libraries offer resources and services that create a conducive environment contributing to students' learning and success as pointed out by Kot and Jone (2015).

A report issued by Association of College & Research Libraries (ACRL) entitled "Documented Library Contributions to Student Learning and Success: Building Evidence with Team-Based Assessment in Action Campus Projects," showed compelling evidence that revealed library's contribution to students' learning and success. This report shows that students who used the library in some way, for example, circulation, attending library instruction training, having access to online databases, and using both study rooms and interlibrary loans, achieved higher levels of academic success than students who did not use the library (Free, 2016).

The literature has shown that academic libraries provide valuable resources of information that encourage students' success such as books, journals, information literacy training, guidance and support regarding using library services. Haddow and Joseph (2010) uphold the importance of academic libraries in providing support and core services to university students because they are generally recognised and appreciated by the institutions in which they operate.

Rodriguez (2011) states that connecting library use with learning outcomes is critical and very important because doing so will show the contribution of the library and its support of student learning. A study by New York Comprehensive Center (2011) reports that students who has increased access to the library perform better by 10% in reading, and 11% in writing in the test as compared to students who has less access to library services. This was supported by Bleidt (2011) when highlighting that investing in academic libraries contributes positively towards students' academic achievement, particularly in terms of reading and writing.

Ying and Alexander (2007) surveyed students to determine whether they felt library resources and services contributed most to their ability to complete their coursework successfully. They found that library services were viewed by students to directly and positively impact their academic success. Goodall and Pattern (2011) also found that using the library for borrowing out books and logging into the library's online resources

contribute positively towards students obtaining the final degree. These results prove that the more students use library resources, the more likely they are to achieve positive academic performance.

Wong and Webb (2010) undertook an experimental project at the Hong Kong Baptist University (HKBU) Library, which intended to establish a mathematical correlation between student library-material usage and their academic performance. Taking 2007 to 2009 graduates as samples, they could establish that loaning books and multimedia resources from the library made a positive contribution towards students' academic performance for most faculties/schools. This result provides strong evidence that the academic libraries plays an important role in student learning and their academic success.

The contribution that academic libraries make towards students' academic performance was further proven when Cherry, Rollins and Evans (2013) conducted a study to determine correlation between library use and student achievement. They used access to electronic resources as a measure of library use and confirmed that the use of library electronic resources contributed to academic performance. Data from their study confirmed that students who performed well used the library's online resources more and with a higher frequency than those who did not perform well. While this may perhaps not prove that the use of online resources leads to academic performance, it does provide persuasive evidence that the two are positively connected.

After finding out the significant correlation between students' academic performance and number of borrowed library books, Çetin and Hüseyin (2011) advocated the value of academic libraries as places from which students can borrow out books and thus increase their academic performance. This revitalizes the important role of libraries and books necessary for the academic performance of many students, irrespective of their circumstances. It is therefore apparent that the more books students borrowed from the library, the higher was their academic performance improving.

The University of Wollongong Library (UWL) developed the Library Cube, a tailored database and reporting function that joins library usage data with student data,

including demographic and academic performance information. Analysis of the resulting data reveals a strong correlation between students' grades and use of information resources the library provides. For example, the average mark for students who never used UWL electronic resources in 2011 was 55%. The average mark for students who spent up to one hour a year accessing UWL electronic resources per year was 61%. Even though some people may choose not to accept it, still, they cannot deny the proven fact that students who perform well academically, use (or like to use) more resources that are provided by the library. The importance of the library in contributing towards academic performance is still soundly proven.

Soria, Fransen and Nackerud (2013) provided evidence of the contribution of the library in first-year students' academic performance and achievement. They stated that first-year students who used the library at least once in the first semester showed higher academic performance as compared to their peers who did not use the library at all during their first semester. They have further revealed that the types of library services that first-year students used; for example, using the library workstations (indicating physical presence in the libraries), accessing online databases, accessing electronic journals, and checking out books, contributed to their academic success.

Kot and Jones (2015) also support the notion that there is a positive relationship between students' use of library resources and academic performance after examining the impact of student use of three library resources (workstations, study rooms, and research clinics) on their academic performance. They stated that the academic performance of an average student who used a given library resource during his/her first term was higher than that of most students who did not use that resource during their first term. It shows that students who do not make use of the library would obviously struggle and find it difficult to perform well in their studies because libraries provide information, guidance and support for students.

Wells (1995) also assessed the contribution of the university library in terms of tangible outcomes to undergraduate students at the University of Western Sydney to establish the influence of library usage on academic success. About two hundred and fifty-one students completed a questionnaire regarding their library usage during one semester, and the data were compared with their academic results. It was found that the use of

a number of different library resources and services has contributed towards students' academic performance and achievement.

In another study concerning academic library usage and performance, Dickenson (2006) provided emphasis on how undergraduate students and instructors at nine Colorado colleges and universities utilized library information resources, and how library materials and services supported learning and teaching activities at those institutions. The findings and conclusions generated by analyses of survey data indicated that the library contributed towards students' performance by helping students in finding appropriate information for assignments and projects, especially, by providing access to specific course materials. Additionally, it was found that the library had provided students with skills to refine their research papers, projects and presentations, and thus enhanced their performance as well.

Cetin and Howard (2015) investigated the relationship between students' academic achievement and book borrowing habits among undergraduate university students at an English-language University in Turkey. Overall, this study supported the important role of an academic library's print book collection in supporting and contributing to students' success and demonstrated a significant positive correlation between undergraduate students' level of academic performance and the number of books they borrowed from the university library. This positive correlation was found for students in all faculties and fields of study.

Lynn Mix (2013) provided a case study that examine the value of library participation in institutional governance in the implementation of a comprehensive model for student success at a research university. Findings revealed that participation in university shared governance enhanced the library's role in contributing to student success, retention, progression and graduation. This study has backed the discussion of the role of academic libraries in contributing to student performance, progression and graduation for university students.

As part of a major investigation into the contribution made by the University of Cape Town library towards academic performance, De Jager (2014) has established objectively that statistical major connection existed between student academic

performance and library use. His findings confirmed that a positive relationship between academic achievement and the use of open shelf library books was established in three of the four classes that were investigated. The best students in all subjects except economics had taken out notably more open shelf books than both the average and the poor students.

Scholars identified a historical correlation between library usage and academic performance. However, it must be pointed out that library usage varies between academic libraries and there are often informative reasons for low usage, for example, students with disabilities at universities have particular needs for reading materials, but sometimes face problems of not receiving materials in appropriate formats. Their needs differ substantially from those of the general student.

2.4 Information Resources for Visually Impaired Students

Popoola and Haliso (2009) defined library information resources as that information-bearing materials that are in both printed and electronic formats such as textbooks, journals, indexes, abstracts, newspapers and magazines, reports, CD-ROM databases, videotapes/cassettes, diskettes, magnetic disk, computers, microforms, etc. Information resources for visually impaired students includes Braille books, e-books/audio books, talking newspapers (audio recordings of news articles in the dailies) and large printed materials (Babalola and Yacob, 2011).

Needham (1977) has previously declared that the library's collection development plan should provide for acquisition of materials in special formats such as braille, large print and recordings that are useful to visually impaired students. This is because totally blind students want access to braille materials and recordings and short-sighted students prefer large print materials or recordings, even though they could also be able to use normal print items with some type of magnifying device. It is sometimes better than having to deal with the bulky size of large print books.

Scholars agrees that visually impaired students need access to the same range of information resources as sighted students as they have the same information needs, however, the information should be in their chosen accessible format. This was

emphasized by Zia and Fatima (2011) that visually impaired people are equally important part of our society and they have equal rights to get all information produced in the world, but they require special services and facilities to get information. For that reason, academic libraries need to build collections in alternative formats and make them available for those students who are unable to browse shelves for example.

Literature has shown that there are significantly fewer academic books available commercially in accessible formats as compared to what is published in print for sighted students. Braille materials, talking books/audio recordings and large prints are not readily available in academic libraries which implies that the use of information materials in alternative formats by the visually impaired students is limited by availability as stated by Adetoro (2011). This shortage of materials and inadequate or insufficient alternative formats makes it more difficult for visually impaired students to achieve good academic results. They endure hardships in their studies because they have limited access to special materials in appropriate format suitable for them.

Generally, there is lack of adequate materials in Braille, audio recordings and large prints in academic libraries that should encourage visually impaired students to read as desired. This inadequate or insufficient alternative formats reduce the chance of guaranteeing visually impaired students access to information and thus narrow the relative gap as indicated by Yoon and Kim (2011). Kavanagh and Skold (2005) stated that just like any other student, visually impaired students also want access to relevant information in their chosen accessible format.

Samson (2011) identified video materials, screen-readable pdf documents as part of electronic reserves and appropriate hardware and software to facilitate access to information resources as alternate formats for visually impaired students. As part of their collection services, academic libraries should therefore, have a policy to ensure that visually impaired students' needs are assessed, and a plan is put together to ensure that information is provided in the required formats. The objective should be to give students independent access to any materials they need (Kavanagh and Skold, 2005).

Tinerella and Dick (2005) indicated that visually impaired students have difficulty reading text in print or on a computer screen, and therefore, must rely on auditory or tactile signals to process information, or are dependent on a variety of adaptive technologies to access resources. For this reason, academic libraries serving students with visual impairments have a duty to provide resources and services in accessible format to support their learning and research needs.

In order for visually impaired students to read without any additional challenges, Majinge and Stilwell (2014) recommended that academic libraries need to acquire information resources which are in Braille and large print. This is supported by the International Federation of Library Associations and Institutions (IFLA), which endorses that information resources for visually impaired persons be available in alternative formats, namely, information in large print, on audio tape, CD/DVD, in digital access information (DAISY) format, in Braille and information on the library's accessible website (Irvall and Nielsen, 2005).

Libraries must provide an appropriate selection of books in formats that are usable by people with visual impairments: large print, audiobooks, talking books, and Braille materials (Gunde, 1991). To support this assertion, Seyama (2009) recommends that textbooks should be in both audio and printed format and both formats should be purchased by the library. On the other hand, libraries are faced with a challenge in this regard because a lot of publishers do not sell books in alternative formats suitable for visually impaired students.

In their report on the current access to academic information at the University of Pretoria for visually impaired students, Cassells and Weber (2018) explored the challenges and opportunities. Their aim was to determine what the best practice guidelines were for making academic reading material available to visually impaired students at the University of Pretoria (UP) easily and efficiently. The visually impaired students felt that local publishers and UP staff needed further insight into these students' academic needs in order to make the acquisition process for their academic material run smoother and more efficiently.

Other researchers provide helpful information on library sources for visually impaired students provided in libraries. Roatch (1993), for example, explained that in response to the growing need for easier access to information, staff at the Phoenix Public Library designed a library Special Needs Center to make the services and resources of the library totally accessible to users with disabilities. The Special Needs Center is a comprehensive library service for people with disabilities, the families and friends of those people, and the professionals serving them. Many library users of the centre are blind or visually impaired and to cater for their information needs, the Centre provides information and library services in a variety of ways using books, large-print books, Braille, audiotapes, videotapes, closed captioned TV, the Talking Book program, and specially adapted computer access to print.

Apart from libraries providing information in alternative formats that are usable by students with visual impairments, it must be emphasised that, in recent times, Adaptive/Assistive technology as well as Information and Communication Technology (ICT) are playing a large role in assisting students with visual impairments about making use of the information resources available in the library. Adaptive/Assistive Technology means any item, piece of equipment or product system that is used to increase, maintain or monitor functional capacities of individuals with disabilities. Assistive Technology consists of devices or services that help visually impaired people to achieve greater independence and to enhance the quality of their lives (Venkatesha, Ramasesh and Manjula, 2013).

Technology has made available other aids for blind people, including talking calculators, speech-time compressors, computer terminals with speech output, Braille printers, paperless Braille computer terminals, and paperless Braille machines. Zia and Fatima (2011) also maintained that the blind and visually impaired students have had a very restricted access to information because the production of formats readable to them (such as Braille and audio) is rather slow as well as expensive and thus only a small amount of published works has been made available in the adjusted formats. However, since digital formats have come into being, the situation has significantly been changed for the better, primarily because of the possibility to use text-to-speech software that reads aloud digital text on computer screen. It enables visually impaired

person to access digital information at the same time as anyone else and at no additional cost.

According to Cassells and Weber (2018), the most important reason visually impaired students need access to technology is that it provides them with a sense of independence. However, visually impaired students need to know how to use the information communication technologies available to them or have mentors who will teach them. This is where the higher education system need to play a pivotal role in improving the lives of students with visual disabilities.

Babalola and Yacob (2011) opined that libraries are fully taking advantage of advances in ICTs to increase information access for the visually impaired and a broad range of ICTs otherwise called adaptive or assistive technologies are now available to provide access to information in electronic databases and on the Internet, giving blind users equal opportunity as the sighted. These innovative technologies include: (1) Screen magnifier: this is a software that allows text or graphics on computer screen to be magnified up to sixteen times the original, (2) Screen reader: a software that reads out the content of a document to the reader and (3) Voice recognition software: this allows the user to input data into the computer by voice.

ICT incorporates a broad range of assistive technologies such as Closed-Circuit Television (CCTV), Braille embossers, Screen magnification and JAWS, which are now available to provide access to information in electronic databases and on the internet, thereby giving users with visual impairments opportunities equal to those of the sighted (Majinge and Stilwell, 2014). JAWS is a computer software that enables a visually challenged individual to interact with the computer in the same way a sighted individual would. This is supported by Ali (2008) who revealed that university students with visual impairments are now able to get their course literature as talking books in developed countries because technology has impacted positively on the availability and use of alternative formats for them.

According to Lee (2005), ICT gives visually impaired people two fundamental freedoms, namely, independence and choice in library services. Lee argues that before electronic information and on-line catalogues became available, visually

impaired people required assistance with reading, and had limited choice of reading materials. But now, with the use of ICT, visually impaired people are no longer disabled in terms of searching for and surfing through information on digital libraries. Assistive technology is a boon to the visually challenged users of information resources in the library and all the visually challenged users rely upon assistive technologies to access information resources in the library (Venkatesha, Ramasesh and Manjula, 2013).

Depending on the nature and extent of their sight impairment, all visually impaired people throughout the world need to adjust normal reading methods in order to have access to content. The provision of alternative format reading materials and the exploitation of information technology are the obvious ways of removing the personal and societal barriers imposed by their sensory impairment (Brazier and Owen, 2007). Neville and Datray (1993) added that adaptive technology offers exciting possibilities for visually impaired people to have independent intellectual access to information sources, whether in print or electronic format.

Šehić and Tanacković (2014) shared the same sentiments that the most important thing that facilitates students' searching and using of academic information is adaptive technology. Students use the technology in many ways to locate and access (digital) information and adapt it for use: they scan print materials, enlarge text/magnify screen, translate documents into audio forms, access information on the Internet with the help of speech synthesizers etc. All students interviewed in this study stated that they possess the technology (personal computers with speech synthesizers/screen readers, scanners etc.) and that they could not imagine living/studying without it.

To support this, Lucky and Achebe (2013) investigated the information service delivery to the visually impaired people of Hope for the Blind Foundation in Wusasa, Zaria. Seventy respondents were involved in the data gathering. The questionnaire was used in collecting data from the respondents and all 50 questionnaires distributed out were returned. This study summarizes that, with the help of ICT, the visually impaired have been rendered special attention to fully participate in the world by providing them with best possible support necessary to bridge gaps between accessibility and literacy.

More importantly, careers in the sciences are now within the reach of the visually impaired and some of them have become successful in information service.

However, Onuigbo (2011) investigated the extent to which students with visual impairment access and uses the internet for knowledge generation and dissemination in Nigerian universities and a sample of one hundred and thirty-eight university students with visual impairment was used for the study. It was found out from the study that students with visual impairment can access the internet from the cybercafé to a high extent while internet assessment from either their hostels or classrooms can only be done to a low extent. Students with visual impairment can only access the internet to a low extent due to unavailability of some assistive technology devices. It was suggested that universities in Nigeria should establish resource centres where students with visual impairment will have computers with adequate assistive ICT facilities.

Pillai (2013) also analysed the availability of assistive technology in the university libraries for visually impaired in India. The findings showed that there was a need for separate library centre for blind and visually impaired students with all the facilities such as assistive technologies, online materials, electronic content, sound audio studio, Braille printer, embosser and software's like JAWs and training and that information literacy classes be organized separately for visually impaired students.

2.5 Summary

The literature review from this chapter identified and presented the important aspects of academic libraries serving students with visual impairments. The role that academic libraries play in contributing to academic performance was discussed. The connection between students' library use and academic performance was established. The provision of library and information services to the visually impaired students at universities was also recognised.

Furthermore, an overview of information resources for visually impaired students which includes Braille books, e-books and audio books as well as large printed materials was provided. The chapter also reviewed what previous scholars have

found concerning the use of ICT and adaptive technologies in the provision of library services for visually impaired students. An overall impression in that regard was that visually impaired students rely upon assistive technologies to access information recourses in the library.

The next chapter presents the research methodology used in this study.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The previous chapter discussed the literature review regarding the role of academic libraries in contributing towards academic performance of visually impaired students. This chapter focuses on the selected research methodology which was briefly discussed in Chapter One, section 1.6. According to Leedy and Ormrod (2010), research methodology refers to the researcher's general approach in carrying out the research project. It is a way to find out the result of a given research problem. The purpose of this chapter is to describe the research methodology of this study which covers the research approach and design, explain the sample selection, describe the data collection tools which helped the researcher in answering the research questions, and provide an explanation of the data analysis and ethical issues which were considered when conducting this research.

3.2 Research Approach

Research approaches are plans and procedures for research that span the steps from broad assumptions to detailed methods of data collection, analysis, and interpretation (Creswell, 2009). Selection of a research approach is based on the nature of the research problem or issue being addressed, the researchers' personal experiences, and the audiences for the study (Creswell, 2009). Many researchers identify two major methodological paradigms that have dominated the social research scene as quantitative and qualitative (Teddlie and Tashakkori, 2003). However, the third paradigm is identified by researchers as Mixed-Method Research (MMR) in which researchers combine both qualitative and quantitative (Creswell et al., 2003).

3.2.1 Quantitative Research Approach

Aliaga and Gunderson (2002) describe quantitative research as explaining phenomena by collecting numerical data that are analysed using mathematically based methods (in particular statistics). Quantitative research is an inquiry into an identified problem, based on testing a theory, measured with numbers and analysed using statistical techniques. The goal of quantitative approach is to determine whether the predictive generalizations of a theory hold true. In quantitative research, the main

instrument in data collection is the questionnaire, scales, inventory or tests. Quantitative research approach is a type of research in which the researcher decides what to study; asks specific, narrow questions; collects quantifiable data from participants; analyses these numbers using statistics; and conducts the inquiry in an unbiased, objective manner (Creswell, 2007).

3.2.2 Qualitative Research Approach

Creswell (2007) describes qualitative research as a process of naturalistic inquiry that seeks in-depth understanding of social phenomena within their natural setting. It focuses on the "why" rather than the "what" of social phenomena and relies on the direct experiences of human beings as meaning-making agents in their everyday lives. It involves the studied use and collection of a variety of empirical materials such as case study, personal experience, introspective, life story, interview, observational, historical, interactional and visual texts that describe routine and problematic moments and meaning in individuals lives.

In this approach, the researcher is an instrument of data collection that gathers words or pictures, builds a complex holistic picture, analyses words, and reports detailed views of informants and conducts the study in a natural setting. Qualitative research is multi-method in focus, involving an interpretive, naturalistic approach to its subject matter. 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.

3.2.3 Mixed Research Approach (or Mixed Methods Research)

Mixed methods research is defined as the type of research in which a researcher or a team of researchers, integrates qualitative and quantitative research approaches within a single study or a set of closely related studies (Creswell and Plano, 2007; and Johnson *et al.*, 2007). In mixed research, the researcher uses a mixture or combination of quantitative and qualitative methods, approaches, or concepts in a single research study or in a set of related studies. The qualitative and quantitative parts of a research study might be conducted concurrently (conducting both parts at roughly the same time) or sequentially (conducting one part first and the other second) to address a research question or a set of related questions.

Quantitative method augmented with qualitative method was employed in this study. Quantitative research was used to measure the participants' satisfaction levels of services provided by the Audio-Braille library (Maki, 2009). Qualitative research was selected to elicit the participants' accounts of meaning, experience or perceptions (Fouché and Delport, 2002).

3.3 Research Design

Research design, according to Welman *et al.* (2009), is best described as the plan, according to which the respondents of a study are selected, as well as the means of data collection or generation. Orodho (2005) describes research design as all the procedures selected by a researcher for studying a particular set of questions or hypotheses. Durrheim (2006) adds that a research design is a plan of action that steers the way data are collected and analysed. It is a comprehensive plan that demonstrate how the research is carried out and, moreover, helps to guide researchers in collecting, analysing and interpreting observed facts.

In this study, the researcher adopted an evaluative research using the survey research design to evaluate the role of the Audio-Braille library in contributing to the academic progress of visually impaired students at the University of Limpopo, Limpopo Province, South Africa. Survey research design used was conducted in the form of questionnaires and interviews.

3.4. Population and Sampling

The target population must be an identifiable group of people relevant to the study. According to Mugenda and Mugenda (1999), a population refers to an entire group of Individuals, events or objects having common observable characteristics. Kombo and Tromp (2006) define a population as a group of individuals, objects or items from which samples are taken for measurement.

The study targeted all visually impaired students registered with Reakgona Disability Centre (RDC), and a minimum of three to a maximum of five lecturers who teach these students. Federer (1991) points out that the available resources, including personnel and equipment, must be considered when determining the sample size. A total number of 74 visually impaired students, consisting of 33 students with Albinism, 30

students with low vision or partial sight and a minority of 11 students who have a total absence of vision, formed the target population of the study. In the same vein, the lecturers who teach visually impaired students were included in the study as they are the ones who interact the most with them in a classroom situation, and they are also familiar with the students' academic performance and progress.

3.5 Sample Size and Sampling Procedure

Orodho and Kombo (2002) define a sample as part of large population which is thought to be a representative of the larger population. Sampling is a process of selecting a number of individuals or objects from a population such that the selected group contains elements representative of characteristics found in the entire group. In this study, there was no sample for visually impaired students. The study used a census of all 74 visually impaired students registered with Reakgona Disability Centre (RDC) at the University of Limpopo.

A census is a study of every unit, everyone or everything, in a population. It is known as a complete enumeration, which means a complete count (Abs.gov.au, 2013). In a census, the objective is to collect data in relation to every member of the population under study and the advantage is that data will be truly representative of the whole population (McLennan, 1999). Due to the relatively small number (at 74) of visually impaired students registered at this institution, it was felt that this is a manageable number and, as a result, the identified visually impaired students registered at the RDC were all surveyed without any need for sampling. In the situation where the total population of the study is less than 100, the researcher should study the whole population (Leedy 1997).

A maximum 5 lecturers who teach visually impaired students were selected using purposive sampling, which implies intentionally selecting individuals to learn to understand the central phenomenon (McMillan and Schumacher, 1994). The idea was to purposefully select "information-rich" (Patton, 1990) participants who will best answer the research questions. A small group of three to six people provides a broader spectrum of data for analysis (Saldana, 2011).

The rationale for choosing this approach was that the researcher was seeking the lecturers' opinion of the contribution the Audio-Braille library makes towards the academic performance of visually impaired students, which the lecturers would provide by their experience of teaching and observing the students in a classroom situation. Babbie (2016) concurs that purposive sampling as type of nonprobability sampling in which the units to be observed are selected based on the researcher's judgement about which ones will be the most useful or representative. A lot of time was saved by selecting five lecturers to be interviewed instead of trying to interview all the lectures who has some visually impaired students in their class. Getting information from all the lecturers as well as analysing and interpreting vast amounts of data from 74 visually impaired students would have been impossible to accomplish within the time constraints and with the limited manpower which was available for conducting this research.

3.6 Data Collection Instrument

In this study, data were collected using interviews and questionnaires as qualitative and quantitative data collection instruments. The questionnaires were distributed to all visually impaired students registered for the 2017 academic year at the University of Limpopo's Reakgona Disability Centre, and interview schedules for the lecturers who teach these students.

3.6.1 Questionnaires

According to Mouton (2001), a questionnaire is a research instrument consisting of a series of questions and other prompts for gathering information from respondents. A questionnaire is the basic research tool in the social sciences, capable of being tailored to the demands of almost any research topic and it is the most popular form of surveying the opinions and perceptions of individuals that saves time. Dyer (1995) defines a questionnaire as a list of questions to which answers are being sought. Also, the questionnaire survey method is effective for quantitative data because it is relatively easy to collect and analyse (Cuffe, 2002). Since questions can be closed or open-ended in a questionnaire (Babbie and Mouton 2001), it was important to choose the right format for each question. Closed questions, which provide the backbone of most questionnaires, are questions in which the range of possible responses to a question was completely determined by the researcher: in that case, the respondents

are simply required to select one from a range of possible answers. Open-ended questions are those that do not limit the nature of response in any way. A question is asked, and the respondent is provided with a space in which he or she can answer in his or her own words.

In terms of the type of questions used in the questionnaire for the present study, open-ended questions were dominant. If a response of "Yes" or "No" was given, the respondent was asked to explain the reason why. While the questionnaire could be considered long, the close-ended questions used were straightforward and quick to answer. Furthermore, the answers were easy to code and analyse and could be readily compared with each other across different respondents.

A single standard form of response was used throughout the questionnaire. This minimized any possibility of inaccurate answering due to the respondent having been confused by the different requirements of different questions. As noted by Huysamen (1994), even if a questionnaire is made up exclusively of multiple-choice items, it may be a good idea to conclude it with an open-ended question with the view to determining whether anything of importance to the respondent has not been omitted. Hence questions 4.4 and 4.5 under section 4 in this study were open-ended questions.

The questionnaire was administered by the researcher at the University of Limpopo. All the visually impaired students were requested to participate in the study. The survey questionnaire had a covering letter whose aim was to introduce both the respondents to the research topic and researcher; to neutralise any doubt or mistrust respondents might have about the study; to motivate them to participate by answering the questions; and to ensure anonymity and confidentiality (Sarantakos, 2005). This was followed by instructions on how to complete the questionnaire, to ensure that the respondents had information on how to fill the questionnaire.

The questionnaire was divided into four (4) sections and was guided by the objectives of this study. In section A, personal details of the population were required; section B asked about the services provided by Audio-Braille library; section C focused on the contribution that the Audio-Braille library made to students' academic performance; and in section D the questionnaire contained specific factual questions that measured

satisfaction with library services offered by the Audio-Braille library. Questions on similar topics were grouped together for better data analysis. Twenty (20) items were closed-ended and twenty-five (25) items were open-ended questions, totalling forty-five (45) question items that were posed to be responded to by the respondents. A total number of 74 questionnaires were distributed and only 45 were subsequently returned and later analysed.

3.6.2 Interviews

According to Mutai (2001), an interview avails information that could otherwise not be availed by a questionnaire or through observation. Interview schedule are more adaptive, and questions can be rephrased to achieve the objective. Structured questions were used to gather information from the lecturers who teach visually impaired students, to find out their views on how the Audio-Braille library contributes to the visually impaired students' academic prosperity apart from what they are teaching in a classroom situation. This instrument was best suited to this category of respondents as the lecturers may lack time to fill in the questionnaires due to their busy teaching schedules. A total of 5 lecturers was interviewed and it took about 5-15 minutes' duration to interview each one of them. The interviews were open-ended. All responses were recorded using a digital recorder, as well as written notes by the researcher.

3.7 Data Collection Procedures

Permission for time off to collect data by the researcher was obtained from the Reakgona Disability Centre through the Directorate. The authority to collect data and permit was then applied from the University's research office. Quantitative data were collected using questionnaires and interviews for qualitative answers after obtaining permission from the University's research office. The time duration to fill the questionnaires and collect them back was four weeks and it took only a day to interview all 5 lecturers who teach visually impaired students.

3.8 Data Analysis

According to Kerlinger (1986), data analysis is categorizing, manipulating and summarizing of data to obtain answers to research questions. The purpose of data analysis is to describe, discuss, evaluate and explain the content and characteristics

of the collected data (Ellison, 2010). Therefore, the researcher relies on data analysis to answer the research questions. Descriptive statistics was used to analyse the data collected. Frequency tables were used to report the descriptive survey. The data collected were analysed both qualitatively and quantitatively, and, where necessary, a computer was used to analyse the data using the Statistical Program for Social Sciences (SPSS).

Quantitative data were analysed with chi-square using the Statistical Package for Social Sciences (SPSS), with basic commands to use when performing statistical analysis such as descriptive analysis, bivariate analysis (tabulations and cross tabulations), and regression analysis (Babbie and Mouton, 2006). The researcher converted data results from SPSS to Ms Word, and Excel spreadsheet was used to present data through tables and charts. Results were interpreted as shown from the data collected from the respondents using the questionnaire. On the presentation of demographic data aspects like gender, age group and level of study, such were channelled into themes that were generated from the data. Since the study adopted mainly a quantitative data analysis method, qualitative data collected through interviews were also statistically computed and analysed through SPSS.

3.9 Validity and Reliability of Data

Validity and reliability are important concepts in research. Validity refers to whether the researchers measured what they wanted to measure. Reliability means that responses to the questionnaire were consistent. To safeguard the validity, trustworthiness, dependability and reliability of the data collected, the researcher used only visually impaired students from the University of Limpopo as participants in this study because they were more likely to provide unbiased answers to the research questions. To avoid misrepresentation of the population or biased generalization, the researcher used a census of all visually impaired students registered at Reakgona Disability Centre.

In order to collect valid and reliable data, the questionnaire for the visually impaired students was pretested by a blind staff member from Reakgona Disability Centre at the University of Limpopo who, as he was not registered as a student, did not meet the requirements for selection. Pre-testing of the interview schedule was undertaken

with a Subject Librarian from the main library on campus. The researcher used closed format questions to avoid ambiguous answers that might be difficult to represent and interpret. To ensure that participants provided honest answers, the researcher constructed the questionnaire such that it was not long, confusing and tiring. The researcher also used simple English to ensure that the participants answered what they understood. The researcher analysed and interpreted the findings of the study objectively and did not allow personal views to influence the results.

3.10 Ethical Issues

This study applied the principles of voluntary participation and the researcher tried to adhere to research ethical consideration and professional guidelines throughout this study. The administration of questionnaire was not based on age or gender but on the fact that the respondents were visually impaired students. Therefore, the names of the respondents did not appear on the questionnaires. All responses and information collected in this study were treated with utmost confidentiality. The information was only used for this research project in which the researcher was involved with the University of Limpopo.

During data collection, the researcher introduced the purpose of the study to respondents in the form of an introduction letter so as to get their consent. The respondents were also reassured that their identification would also be protected by making them anonymous in the final report. The researcher treated the respondents with respect and courtesy. The research procedures were reasonable, non-exploitative, carefully considered and fairly administered.

3.11 Research Evaluation

According to Ngulube (2005), it is mandatory for researchers to evaluate their investigation procedures because all methods are imperfect in his view. Bryman (2008) also share the same sentiments that research methods have strengths, as well as weaknesses. Hence, it is important to evaluate the research method used in the study for collecting and analysing data to establish the limitations of this study. This study used both quantitative and qualitative research methods and the researcher

collected data through questionnaires and interviews. Questionnaires were used to collect data from all visually impaired students as the users of the library, while interviews were used to collect data from the lecturers who teach them.

It needs to be stated that working for the University of Limpopo made it easier for the researcher to collect the data. Apart from the successes of this study, there are some challenges which should be equally considered. Slight problems were experienced with the distribution of the questionnaire and the signing of consent forms by visually impaired students, mostly the totally blind students, during questionnaire distribution. Firstly, blind students who took part in the study received their questionnaires via email to complete using the screen reader called JAWS and were not responding quick enough. Most of the time the researcher could not be present to clarify some of the questions, as a result student just omitted some of the questions they did not understand.

Secondly, other visually impaired students were not coming to the library more often and, as a result, the researcher had to look for them everywhere including their residential area to give them the questionnaire. To solve this problem, the researcher took advantage of his work and student assistants who do scanning, editing and braille for visually impaired students at Reakgona Disability Centre, and gave them the questionnaires and consent forms to distribute to all visually impaired students. Another challenge was that questionnaires were mostly not completed fully as participants did not answer some questions, which was perhaps indicative of the challenges they face about vision. However, their reasons for not answering all questions were that they did not understand some of the questions, even though the questionnaire was tested for validity and reliability through a small sample of the population.

3.12 Strengths of the Study

The researcher, as also part of the Reakgona Disability Centre staff, has acknowledged and appreciated the ability of the study to get feedback about the services provided by the Audio-Braille Library of RDC. The study managed to obtain students' views towards and feelings about both the Audio-Braille library services and the researcher as the service provider in the library.

Therefore, the outcomes of the study have amplified the need for the centre to schedule constant meetings with the end users, to assess the level of services that the centre aims to provide, thus further paving a more conducive environment and relationship between the staff and the students that will hopefully assist in the improvement of the services rendered by the centre. This view is in line with the core motto of the disability movement, viz., “Nothing about us, without us.” The relationship will provide the space for visually impaired students and Reakgona Disability Centre to have meaningful representation, as well as to ensure that the challenges faced by students with disabilities are accounted for and met going forward.

3.13 Limitations of the Study

It is of note to mention that through the process of this study, the researcher identified some shortfalls thus.

- a) The first challenge that the researcher encountered through the process of the study was that he had sampled 74 students who were affiliated with the RDC under the category of visual impairment. From the sample, 45 questionnaires were completed and returned, while 29 were not returned. Therefore, the researcher believes that the total participation could have broadened the outcomes of the study, even though the researcher acknowledges the ethical considerations inclusive of but not limited to voluntary participation.
- b) The second limitation that the researcher has identified was that, due to the nature of the participants visual impairment, most of the participants were either blind or partially sighted, which limited their ability to read and complete the questionnaire independently. Therefore, most of the participants depended on the researcher to read and assist them with the completion of the questionnaire, which in a way might have contributed negatively towards their objectivity and honesty.

3.14 Summary

This chapter discussed the research methodology and explained the rationale for utilising a questionnaire for data collection which was augmented with interviews. All these were informed by the research problem at hand. The study population was clearly presented; and the choice of sampling procedure explained. The chapter also looked at data collection procedures and data analysis techniques, as well as how ethical issues concerning this study were considered.

The next chapter (Chapter Four) focuses on the presentation of results obtained via questionnaires completed by visually impaired students and interviews with selected lectures who teaches visually impaired students.

CHAPTER FOUR

PRESENTATION OF DATA

4.1 Introduction

The previous chapter discussed in what way the research was undertaken. The purpose of this chapter is to present both quantitative and qualitative findings of this research. In presentation, the immediate results are translated into integrated and meaningful statistics and findings. During the data collection process, the researcher utilized quantitative method augmented with qualitative method to obtain the information to evaluate the role of the Audio-Braille library in contributing towards the academic performance of students with visual impairments at the University of Limpopo, South Africa. The findings from the quantitative responses from visually impaired students will be presented first. This is followed by qualitative data from the interviews held with the lectures who teaches them.

4.2 Presentation of Data

In this study, the results are illustrated, using tables, graphs and charts. This section reveals the responses on a question-by-question basis. Results from all sections of the questionnaire and the interviews are also compared to existing empirical evidence to assess consistency. In view of this, the analysis of the data in this study was done in line with the research objectives raised in Section 1.4 of Chapter One to ensure that all the issues and questions raised in the study were addressed adequately. The broad objective of the study was to evaluate the role of the Audio-Braille library in contributing towards the academic performance of students with visual impairments at the University of Limpopo.

The specific objectives were, namely, to:

- Describe the services provided by the Audio-Braille library;
- Measure the contribution of services provided by the Audio Braille library towards academic success of visually impaired students;
- Assess if access to services at the Audio-Braille library enables visually impaired students' progress and performance; and

- Measure the satisfaction level of visually impaired students with services provided by the Audio-Braille library.

4.2 Response Rate and Participant Profile

Response rate means the proportion of the selected sample who complete the questionnaire (Punch, 2003). According to Babbie and Mouton (2001), a questionnaire return rate of 50% is adequate for data analysis and reporting. These authors go on further to mention that a low response rate raises the additional question of whether the responses received are representative of the sample chosen or are in some way biased. A high response rate means that there is less chance of significant response bias than in a low rate.

Table 4. 1: Response Rate

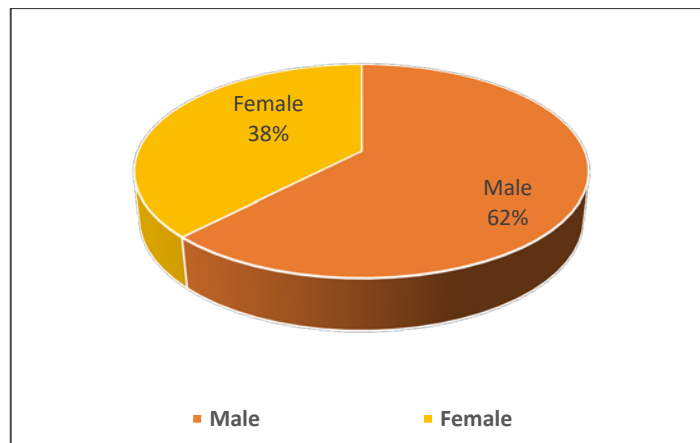
| Sample | Total | Percentages |
|-------------------------|--------------|--------------------|
| Returned questionnaires | 45 | 61 |
| Not Returned | 29 | 39 |
| Total | 74 | 100 |

From Table 4.1 a total of 74 questionnaires were sent out to participants but only forty-five (45) were returned fully completed. This means that only forty-five questionnaires were analysed. This gave a 61% (45) response rate, which is high enough to guarantee accurate results. According to Mugenda and Mugenda (2003), concurred with by Fincham (2008), a 50% response rate is adequate, 60% good and above 70% rated 'very good'.

4.2.1 Biographical Information

This section of the questionnaire asked for the background information of the participants, including participant's gender, nature of disability, age, qualification and the level of study. This information was necessary to determine whether the responses were consistent across the different groups.

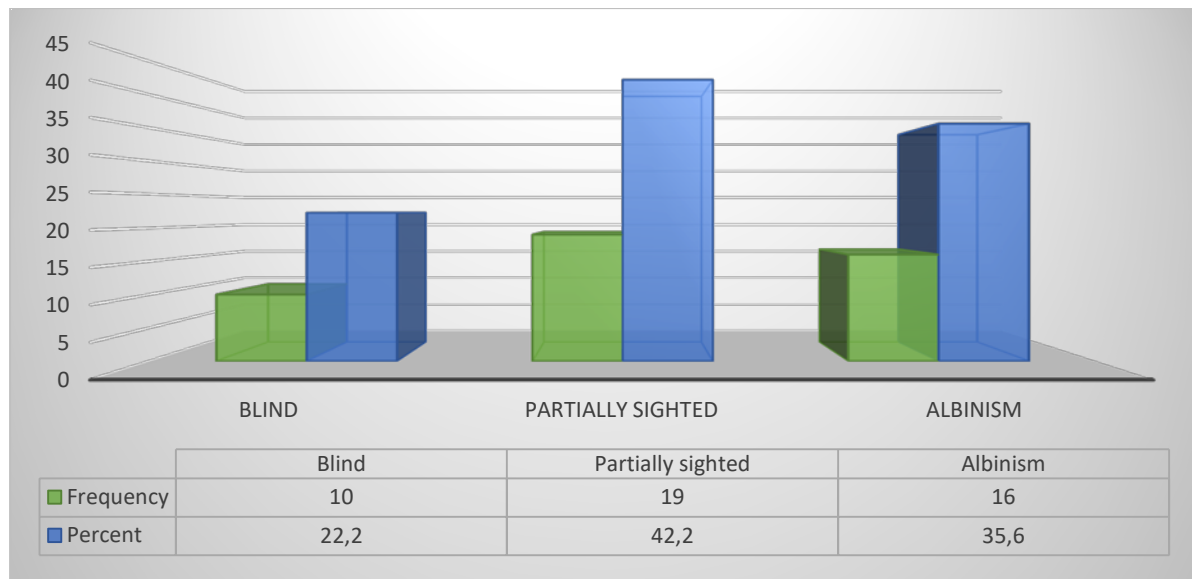
Figure 4. 1: Gender of Respondents (N=45)



It was important to know the gender to allow the researcher to establish which gender is much engaged in the Audio-Braille activities. It has been observed that at the University of Limpopo the enrolment of male visually impaired students are more than females. The gender of participants who took part in the study was immensely unbalanced. The pie chart above shows that male students formed a large part of participants which summed up to twenty-eight (62%) and while their female counterparts constituted the remaining seventeen (38%).

This is in contrast with Higher Education Council (CHE, 2013), South Africa Statistics and MacGregor's (2009) report that the significant change from 2003 to 2013 in South African higher education that reported the shift to favour women. Furthermore, Stats SA (2014) illustrates that disability is more widespread among female students (at 8,3%) as compared to the male students (at 6,5%). The results thus indicate that male visually impaired students are more involved in Audio-Braille library activities as compared to their female counterparts. The gender gap could be noteworthy when examining study results.

Figure 4. 2: Nature of Disability (N=45)



It is important to understand the nature of disability before considering the role of Audio-Braille library in contributing towards the academic performance of students with visual impairments. This study concentrated decisively on three categories of disability that is blind, partially sighted and albinism. However, most of the students with albinism were also partially sighted. In this regard, Figure 4.2 shows that partially sighted students formed the largest number of participants (42%/n=19) followed by albinism (36%/n=16) and the least number of participants was the category of the blind with 22% (n=10).

Table 4. 2 : Age Group (N=45)

| Age | Frequency | Percent |
|--------------------|-----------|------------|
| 18-25 years | 39 | 87 |
| 26-35 years | 4 | 9 |
| 36 years and above | 2 | 4 |
| Total | 45 | 100 |

Table 4.2 shows the age categories of the participants and reveals that the 18 to 25 years age group formed the largest group of participants (at 87%) followed by the 26 to 35 years (at 9%) and 36+ years (at 4%). These findings imply that many students who participated in the study were young and not at their maturity stage; therefore, might not be able to handle their study affairs responsibly. Visually impaired students were asked to indicate their age because age affects the fluency and performance of

an individual. Young students sometimes take time to settle in an academic environment and therefore might not be taking their responsibilities and duties to study seriously. They are still used to being followed by their high school teachers.

Table 4. 3: Degree Currently Enrolled (N=45)

| Degree | Frequency | Percent |
|---|-----------|------------|
| BA - Bachelor of Arts in Accounting | 1 | 2 |
| BA - Bachelor of Arts in Communication studies | 3 | 7 |
| BA - Bachelor of Arts in Information Studies | 2 | 4 |
| BA - Bachelor of Arts in Languages | 1 | 2 |
| BA - Bachelor of Arts in Media Studies | 9 | 20 |
| BA - Bachelor of Arts in Psychology | 1 | 2 |
| BA - Bachelor of Arts in Criminology and Psychology | 1 | 2 |
| B Admin – Bachelor of Administration | 10 | 22 |
| BCom- Bachelor of Commerce (Accounting Stream) | 4 | 9 |
| BDev – Bachelor of Development in Planning & Management | 2 | 4 |
| BED (SPF) – Bachelor of Education Senior Phase & FET | 1 | 2 |
| BSc- Bachelor of Science in Agricultural Economics | 1 | 2 |
| BSc- Bachelor of Science in Agricultural Plant Production | 1 | 2 |
| BSc- Bachelor of Science in Mathematical Science | 1 | 2 |
| LLB – Bachelor of Laws | 7 | 16 |
| Total | 45 | 100 |

Table 4.3 shows that students who enrolled for Bachelor of Administration formed the largest number of participants at 22% (n=10) followed by Media and Information studies at 20% (n=9) and LLB at 15%. However, the number of students registered for other degree programs, including B.com Accounting (at 9%/n=4) and BA Communication Studies (at 7%/n=3), also formed a significant number of participants. The knowledge of the degree registered for by the students helped the researcher to understand the challenges faced by students in acquiring information and work load associated with different degree programs. Hence, the role of Audio-Braille library is significantly impacted by the nature of the degree program one is registered for.

Figure 4. 3: Level of Study (N=45)

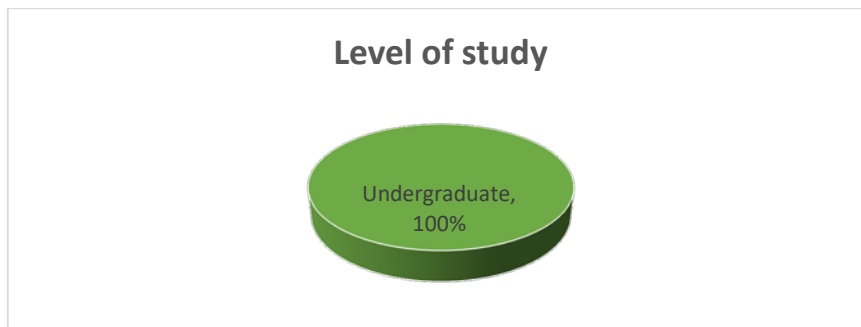


Figure 4.3 shows the participants' level of study. All participants were undergraduate students. It was important to determine the participants' level of study to ascertain if they were well equipped with the necessary knowledge and skills of using the library and the overall management of their studies.

4.3.1 Services Offered by Audio-Braille Library

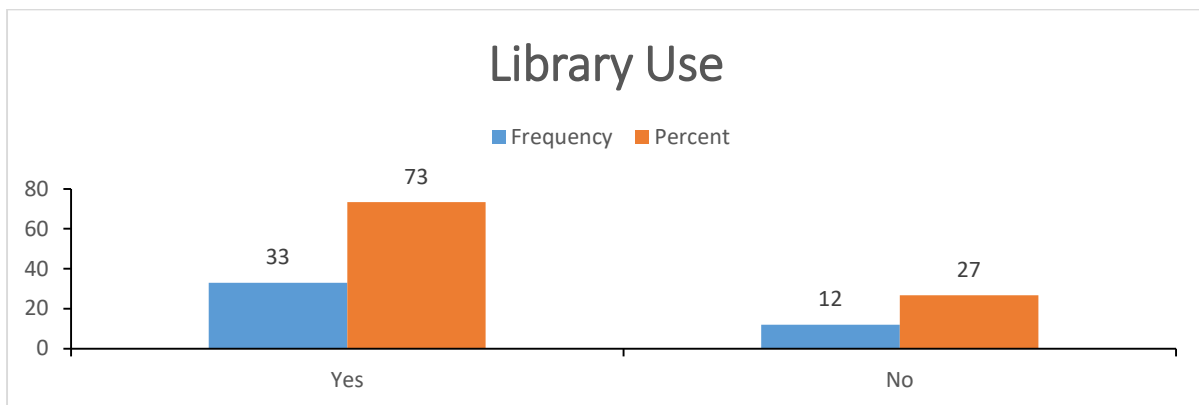


Figure 4. 4: Making Use of the Audio-Braille Library (N=45)

Participants were asked if they made use of the Audio-Braille library. The data presented in Figure 4.4 show that 73% (n=33) of the respondents made use the Audio-Braille library. It was interesting to note that there were 27% (n=12) participants who do not make use of the Audio-Braille library resources. The research instrument was designed to probe reasons for non-use of the Audio-Braille library by some of the visually impaired students, and the responses are indicated in the Table 4.4 below.

Table 4. 4: Reasons Why some of the Visually Impaired Students are Not Making Use of the Audio-Braille Library (N=45)

| | Frequency | Percent |
|--|-----------|------------|
| Not indicated | 33 | 73 |
| Because there are no enough material and relevant books for reading | 5 | 11 |
| I can read using large printed documents | 1 | 2 |
| Because I get most of books from the main library | 1 | 2 |
| It does not have important material for my degree. It is not useful to blind people either | 1 | 2 |
| Because I can read and write on my own | 1 | 2 |
| Lack of knowledge about its benefits to partially sighted | 1 | 2 |
| My sight is not so bad, it allows me to read written stuff and write with a pen | 1 | 2 |
| Technology has improved but cassettes here? | 1 | 2 |
| Total | 45 | 100 |

Participants were asked to explain why they were not making use of the Audio-Braille library that is provided specifically for them. Table 4.4 shows that most students (at 73%/n=33) did not indicate their reasons for not using the library and 11% said they are not making use of the Audio-Braille library because there are no enough material and relevant books for reading. The reasons for undergraduate students not using the library is thought to be that university library can be an intimidating place indeed. Jolley (2013) shares the same view that it is probably the case that some students have yet to find their way to the Audio-Braille library, with its intimidating edifice, complicated catalogue and knowledgeable librarians.

Table 4. 5: Main Purpose of Using the Audio-Braille Library (N=45)

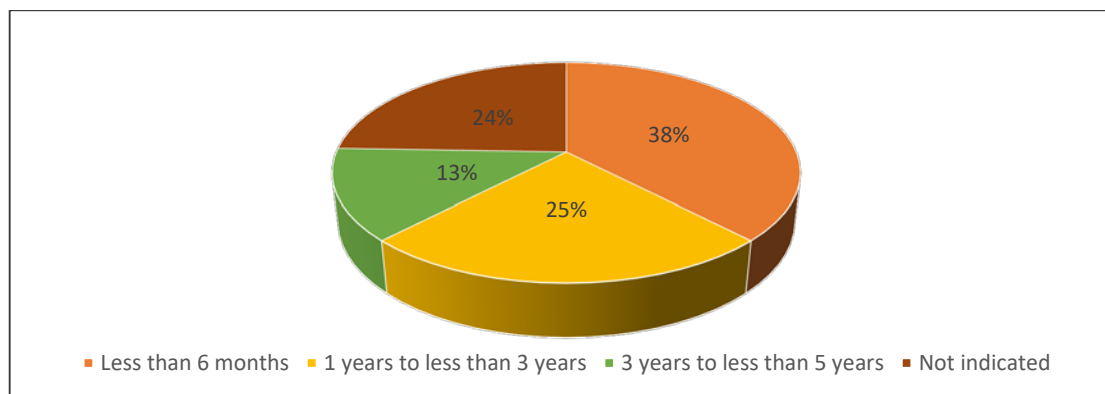
| | Frequency | Percent |
|--|-----------|------------|
| Not indicated | 11 | 24 |
| Planning and preparing for class | 4 | 9 |
| For writing paper and presenting paper | 1 | 2 |
| For updating my knowledge | 3 | 7 |
| Preparing for test or exams | 13 | 29 |
| For doing research work | 11 | 24 |
| For a quiet space | 1 | 2 |
| Reading newspapers | 1 | 2 |
| Total | 45 | 100 |

There are various reasons for which a visually impaired student uses the library and therefore, participants were asked to indicate their purpose of using the Audio-Braille

to access the information sources available. The findings in Table 4.5 show combined totals for the various responses of visually impaired students regarding the various activities or services they use the Audio-Braille library for. The highest responses from users was preparing for test or exams (at 29%/n=13) and for doing research work (at 24%/n=11) respectively, followed by a lesser number who uses the library for planning and preparing for class (at 9%/n=4), updating knowledge (at 7%/n=3) and writing paper and presenting paper (2%/n=1). A few (at 2%/n=1) students sometimes use the library for reading newspapers and as a quiet space to study.

Preparing for test or exams and doing research work are clearly the two main purposes for many students with visual impairments when visiting the Audio-Braille library. The reason for not using the library to borrow books is because the library does not have enough books that are relevant to their studies as already mentioned in Table 4.4.

Figure 4. 5: Period of Using the Audio-Braille Library/Service (N=45)



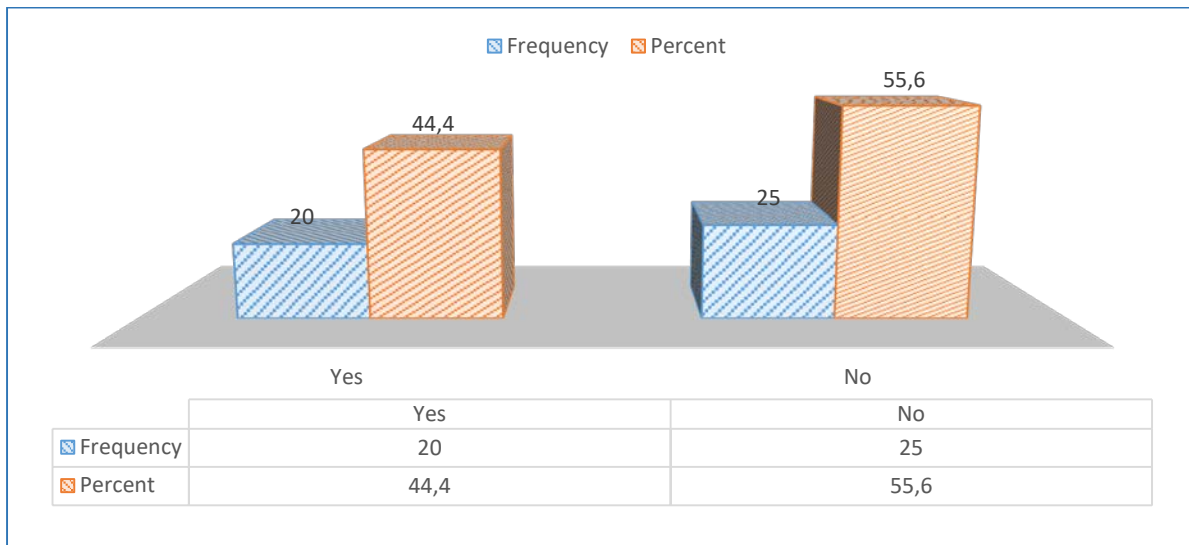
The study sought to establish how long the students had used the Audio-Braille library and its services. The aim was to establish whether the duration of using the library has any meaningful contribution towards students' academic performance. Figure 4.5 shows that many students with visual impairments (at 38%) used the Audio-Braille library for less than 6 months, followed by those who used it for 1 year to less than 3 years at 25% and then the minority (at 13%) used the Audio-Braille library for 3 years to less than 5 years. However, an astounding 24% did not indicate on the questionnaire as to how long they've used the Audio-Braille library services. This shows that many students with visual impairments have not used the library for more than three years, they are relatively new and have not used the library for long.

Table 4. 6: Services that the Audio-Braille Library Offer to Students with Disabilities (N=45)

| | Frequency | Percent |
|---|-----------|--------------|
| No respond | 1 | 2 |
| It provides a quiet place to study and quite place to prepare for classes and exams | 9 | 20 |
| Books in braille Audio cassettes, printed books | 9 | 20 |
| Computers with Job Access with Speech (JAWS) and ZoomText | 8 | 18 |
| Librarian who does literature search and find information for students | 1 | 2 |
| Provide literature searches for students | 11 | 24 |
| Provides Student Assistants to help visually impaired students | 1 | 2 |
| Newspapers for current news | 3 | 7 |
| I don't know | 2 | 4 |
| Total | 45 | 100.0 |

The students were asked to indicate the type of services which they receive from their Audio-Braille library. Most of the participants (at 24%/n=11) indicated that the Audio-Braille library provides literature searches for them, others (at 20%/n=9) have equally said it provides a quiet place to study in preparing for classes and exams, and books in braille, audio cassettes and print books. Another high number (at 18%/n=8) of participants indicated that the library has computers with JAWS and ZoomText. Interestingly, 4% (n=2) of the participants indicated that they do not know the services that the Audio-Braille library offers. From the interviews, one of the lecturers mentioned that visually impaired students do give him relevant information when he asked them questions, but he never asked how and where they got such information. The lecturer added that RDC should conduct workshops to make lecturers aware of information services required for visually impaired students.

Figure 4. 6: The Adequacy of Library Services Offered to Students with Disabilities (N=45)



Students were asked to indicate if the services offered by the Audio-Braille library were adequate. In general, Figure 4.6 shows that participants either agreed or disagreed in response to the question of adequacy of library services offered to students with disabilities by the Audio-Braille library. The larger number of participants (at 56%/n=25) revealed that the services offered were not adequate. It is attention-grabbing to see that 44% (n=20) of the participants agreed to adequate library services offered to students with disabilities. This shows that services offered to students with disabilities by the Audio-Braille library was not adequate to be able to make a positive contribution to their academic performance.

The inference drawn from the above data shows that the book collection available to participants in the library under study is very poor. This explains why the majority of the participants (at 29%) uses the library as a space to read for tests and exams as it has study carrels, and 24% of the participants uses its computers for searching articles as shown in Table 4.5. The participants are not adequately catered for in terms of book collection. Thus, the conclusion drawn is that the library collection is disaffecting students with disabilities. The main issue here is that the books that are currently available in the library are poor, irrelevant, outdated and not suitable for academic purposes.

Table 4. 7: Services that the Audio-Braille Library is not Offering to Students with Disabilities but Supposed to Offer (N=45)

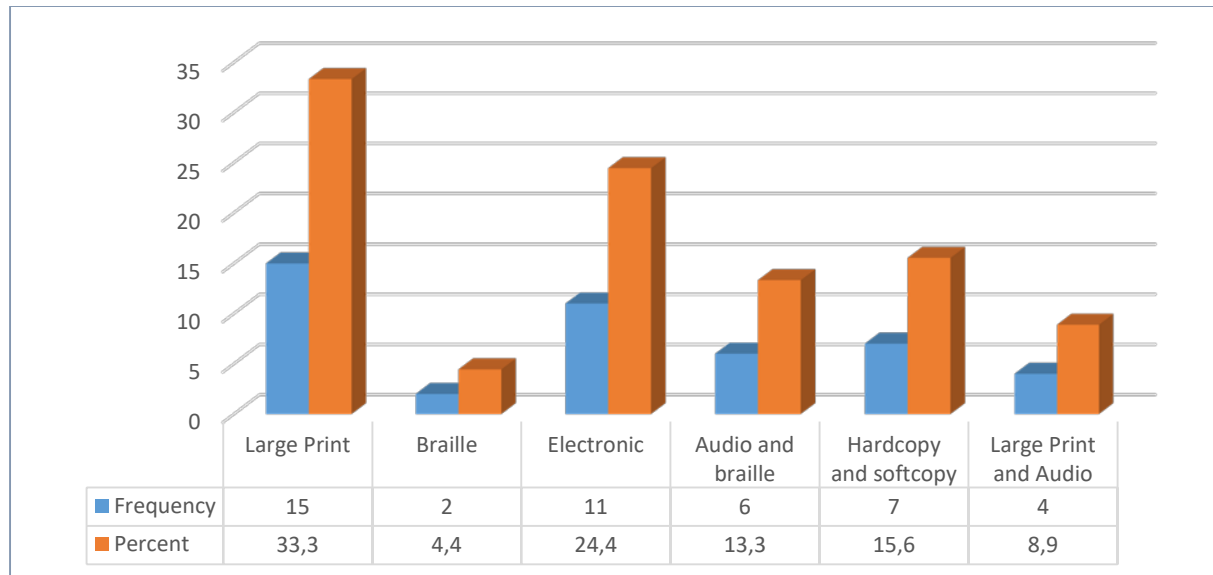
| | Frequency | Percent |
|---|-----------|------------|
| No response | 21 | 47 |
| Relevant course Braille books and Audio books | 6 | 13 |
| Enough prescribed books in large print for partially sighted students | 3 | 7 |
| Buy current academic books in appropriate format | 1 | 2 |
| Electronic textbooks study materials and Digital/eBooks for easy zooming on computers | 3 | 7 |
| Reading material | 5 | 11 |
| Prescribed textbooks | 1 | 2 |
| Provide new course material that contains up-to-date information | 3 | 7 |
| Sufficient support in relation to access and training | 1 | 2 |
| The library is not functioning | 1 | 2 |
| Total | 45 | 100 |

Participants were asked to describe services that the Audio-Braille library was supposed to offer. The responses in Table 4.7 demonstrate the various opinions students have regarding the services that the Audio-Braille library is not offering to visually impaired students but supposed to offer. Many students feel the libraries should offer relevant course material in Braille as well as in audio (at 13%) and another large number (at 11%) wants the library to offer reading materials. The findings also show many students (at 47%) did not respond to the question. The provision of enough prescribed books in large print for partially sighted students and new course material that contains up-to-date information are also pointed out as the missing service within the library. These findings in services provided by the Audio-Braille library show that although the library is providing a good service for visually impaired students, there is still a lot of room for improvement.

Results of the interviews also show that some of the library facilities and reading resources required improvement. A lecturer who knew the Audio-Braille library very well, after visiting it several times, shared his thoughts that some of the computers that students are using needed to be replaced because they were old models. Another respondent added that blind students need course material in braille because they always come to class with recorders to record the lecture notes and then later

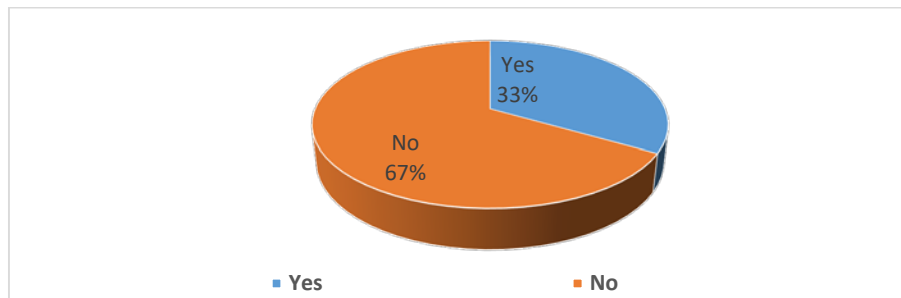
transcribe the recordings into braille. She also felt that they need assistance from other students as well.

Figure 4. 7: The Format that Visually Impaired Students Like to Access Their Information Materials (N=45)



The students were asked to specify the reading material they are looking from the Audio-Braille library. This question was asked to find out the preferred formats of reading material by visually impaired students at the University of Limpopo. The data about the formats people can use and prefer to use are helpful to librarians, as it assists decisions concerning the purchase of documents and equipment for visually impaired persons. Figure 4.7 shows that most visually impaired students prefer to read large print (at 15 or 33%) and electronic (at 24%/n=11) over the traditional Braille. A combination of hardcopy and softcopy was also highly recommended (at 16%/n=7), while audio and braille (at 13.3%/n=6) and large print and audio (at 8.9%/n=4) were less preferred. Two visually impaired students (at 4%/n=2) wanted the library to provide information for them only in braille. According to these findings, 99.9% of the visually impaired students prefer to use basically five different types of resources: large print, braille, hardcopy, electronic/softcopy and audio books. Hence any book can be converted into large print, electronic format or audio and Braille format.

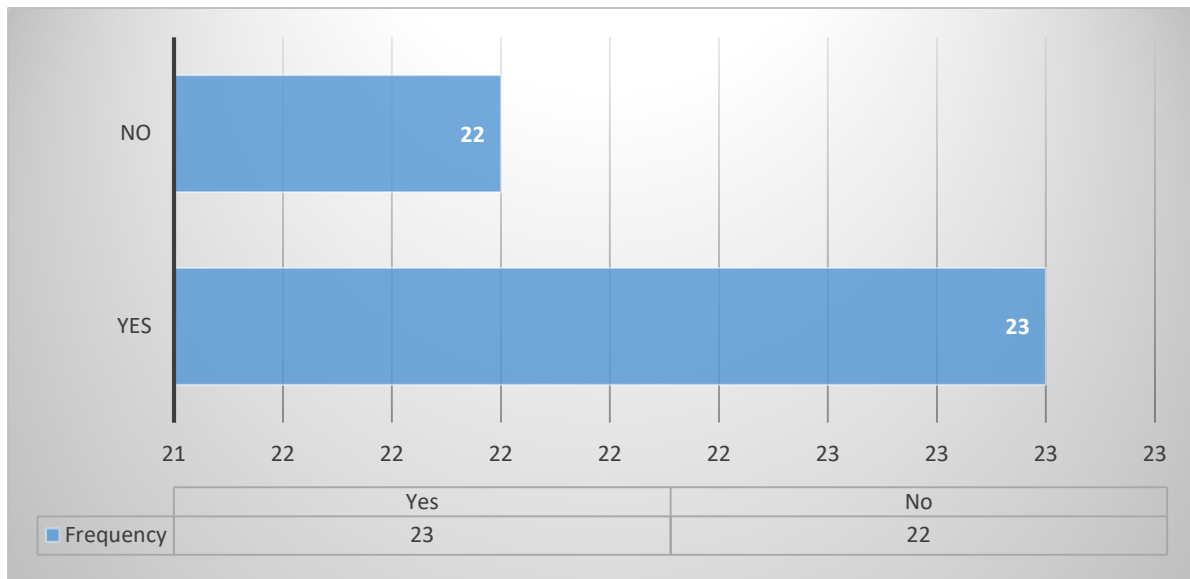
Figure 4. 8: The Provision of Information Materials in the Required Format by the Audio-Braille Library (N=45)



Participants were asked if the Audio-Braille library provided information materials in appropriate format. The question aimed to find out whether the users can access reading materials in the required format on a regular basis. Figure 4.8 presents responses given by visually impaired students on the provision of required materials by the Audio-Braille library. Most respondents (at 67%/n=30) indicated that the Audio-Braille library does not provide information material in the format that they require. The other smaller proportion (at 33%/n=15) confirmed that the library does provide information materials in required formats. This may be due to the frustration encountered in using the library and its resources.

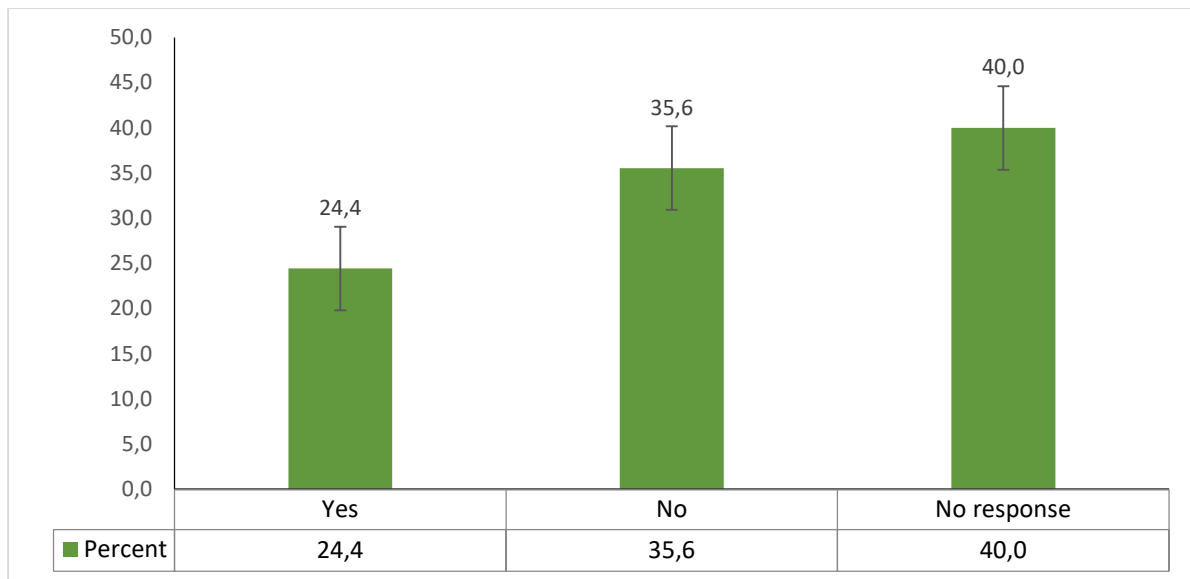
The inferences drawn from the above data shows that the Audio-Braille library need to provide services which accurately reflect the needs of the visually impaired students. Results of the interviews from the lectures indicates that provision of information materials is essential and need to be given priority. One participant indicated that visually impaired students are ordinary people like me and you only that they need to be assisted so that they can reach their potential. The only thing needed is to be passionate about them to understand what materials they require. Another participant admitted to not having proper experience and capacity to teach visually impaired students but indicated that the only strategy that he uses to help them is to always make sure that there are lecture notes and slides available to them and, where required, sends them to RDC before the beginning of every semester to be transcribed into alternative formats. However, the participant also pointed out that the priority is to make sure that materials such as slides and copies chapters from textbooks are provided to first-entering students.

Figure 4. 9: Ability to Use the Audio-Braille Library without the Assistant of the Librarian (N=45)



Students were asked if they could use the Audio-Braille library without the assistance of the librarian. Figure 4.9 indicates that 51 (n=23) can use the Audio-Braille library independently and 49% (n=22) of student participants are not able to use the Audio-Braille library without the assistant of the librarian. The results indicate that majority of the users of the Audio-Braille library are information literate. Fifteen out of the 31 students or virtually 50% of the participants; indicated that they can use all the library services without the help of a librarian. Of these students, all of them knew that special help from the librarian was available only during working hours; which is weekdays, between 07:30 am and 16:00 pm.

Figure 4. 10: Getting Assistance from the Audio-Braille library (N=45)



Visually impaired students may not be able to use some of the library services on their own due to their disability. So, providing personal assistance will be a great help for the disabled. Figure 4.10 shows that many participants (at 40%) were impartial and did not indicate whether they always got assistance from the Audio-Braille library or not. The highest number of participants (at 36%) certainly indicated that they did not always get assistance from the Audio-Braille library. The slightest number of participants (at 24%) agreed that they always get assistance from the Audio-Braille library. These responses demonstrate dissatisfaction and disagreeableness with patron support. This could be because there is only one librarian available to offer them support and this leads to a situation whereby there is unquestionably no patron support in his/her absence.

The lectures who were interviewed showed believe that students were getting required assistance from the Audio-Braille library. One of them mentioned that the library is helping students a lot because they usually tell that they get the notes from RDC. Another lecturer indicated that he knows for a fact that the library has proper software such as JAWS that assists students to get information from computers, especially now with internet available almost everywhere.

Table 4. 8: Reasons for Not Getting Assistance from the Audio-Braille Library (N=45)

| | Frequency | Percent |
|--|-----------|------------|
| Not indicated | 31 | 69 |
| Because I'm always using journals articles at the main library | 1 | 22 |
| The librarian is not available after hours | 1 | 2 |
| I can operate by listening to audio | 1 | 2 |
| I don't know | 1 | 2 |
| I don't use the library | 1 | 2 |
| I'm not sure of the reason | 1 | 2 |
| Information is outdated | 1 | 2 |
| Lack of adequate staff | 1 | 2 |
| Lack of resources | 1 | 2 |
| Lack of sufficient support staff | 1 | 2 |
| Material shortage | 1 | 2 |
| No materials available to be assisted on | 1 | 2 |
| The library assistants won't be always in | 1 | 2 |
| The library is empty | 1 | 2 |
| Total | 45 | 100 |

The participants were asked to give reasons why they were not getting assistance from the Audio-Braille library. Largely, many participants were silent to the reasons why they did not always get assistance from the Audio-Braille library. However, the participants mentioned lack of resources and materials to be assisted on, lack of adequate staff, and outdated information as reasons for not getting assistance always.

Table 4. 9: Training on the Use of the Audio-Braille Library (N=45)

| | Frequency | Percent |
|--------------|-----------|------------|
| Yes | 9 | 20 |
| No | 35 | 78 |
| <i>Total</i> | <i>44</i> | <i>98</i> |
| Missing | 1 | 2 |
| Total | 45 | 100 |

It was essential to know whether the users of the Audio-Braille library get any training from the library to use assistive technology, computers and accessing the online library catalogue. Whitmire (2002) suggested that library services should include teaching undergraduate students, particularly first-year academic students, how to use library catalogues, databases and other websites to meet their information needs. From the data in Table 4.9, it was observed that only 20% (n=9) of the participants received training on the use of the Audio-Braille library and a staggering 78% (n=35) of the

participants reported that they received no training from the library. Only 2% (n=1) of student participants did not indicate whether they received training from the library.

Table 4. 10: Services Trained On (N=45)

| | Frequency | Percent |
|---|-----------|------------|
| Did not indicate | 35 | 78 |
| How to search for information using internet and to find articles | 4 | 9 |
| I was trained on how to search for journal articles and books on the internet and varsity webpage | 3 | 7 |
| Librarian is always focusing on personal work and not people in the library | 1 | 2 |
| The use of computer and photocopying machine | 1 | 2 |
| How to use the Audio-Braille library and how to operate a computer | 1 | 2 |
| Total | 45 | 100 |

Participants were asked to indicate the type of library services that they were trained on. Table 4.10 shows that most of the participants did not indicate the services that they were trained on. However, 9% (n=4) of the participants says they received training on how to search for information using internet and to find articles; 7% (n=3) of the participants received training on how to search for journal articles and books on the internet and varsity webpage; 2% (n=1) of the participants received training on how to use the Audio-Braille library and how to operate a computer, on how to use the photocopying machine and how to print using the remote/centralised printer; and 2% of the participants mentioned that the librarian is always focusing on personal work and not people in the library.

Table 4. 11: Adequacy of Training (N=45)

| | Frequency | Percent |
|--------------|-----------|------------|
| Yes | 9 | 20 |
| No | 7 | 16 |
| <i>Total</i> | <i>16</i> | <i>36</i> |
| Missing | 29 | 64 |
| Total | 45 | 100 |

From the follow-up question on the adequacy of training offered to visually impaired students about how to make use of the resources available in the library, the highest number of participants (at 64% n=29) indicated neutrality in terms of their opinions regarding adequate training. Although another large number of participants (at

20%/n=9) agreed that the library has provided adequate training on how to use library materials available, 16% (n=7) of the participants disagreed that there was adequate training. Visually impaired students should receive adequate training to be effective in their use of the Audio-Braille library and its services.

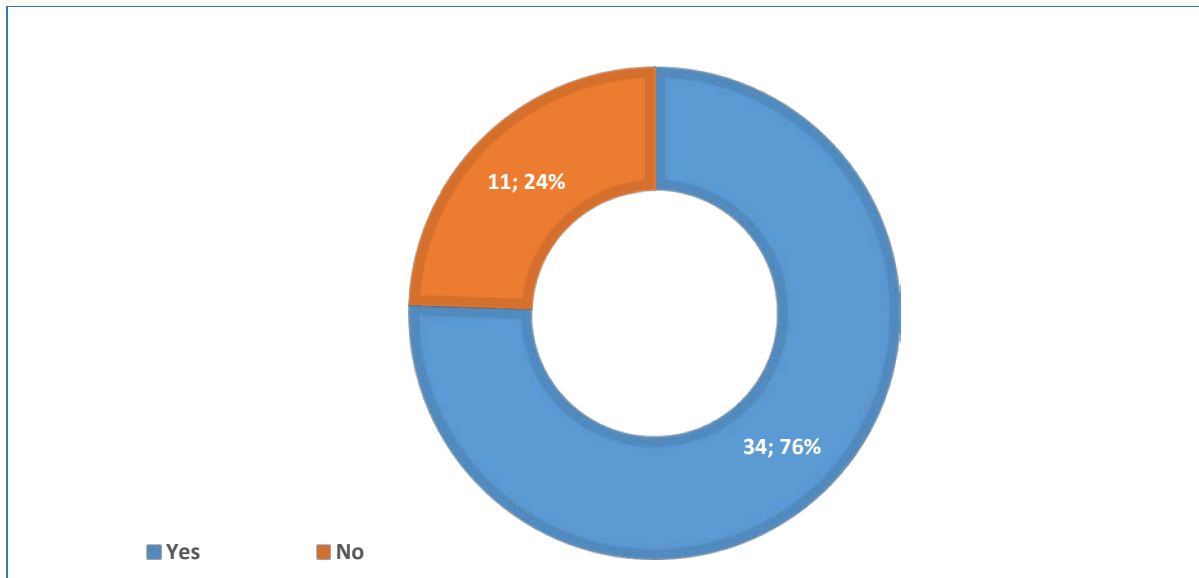
Table 4. 12: Reasons for Not Getting Training (N=45)

| | Frequency | Percent |
|--|------------------|----------------|
| Did not indicate | 14 | 31 |
| Because of late registration | 2 | 4 |
| Because the library is inadequate, there are no reading materials, only newspapers are available | 3 | 7 |
| Due to lack of time management | 1 | 2 |
| I did not attend the training | 5 | 11 |
| I did not know about the training | 11 | 24 |
| I don't know | 2 | 4 |
| I don't use the library | 2 | 4 |
| There is nothing to train me on, just a computer of which I have the knowledge of operating | 2 | 4 |
| We are still arranging | 1 | 2 |
| Total | 45 | 100 |

Participants who indicated not receiving library training were asked to give reasons for not being trained. In this category of comments, 24% (n=11) of the participants reasoned that they did not know anything about training. However, 11% of the participants just did not attend training despite knowing about it. Others (at 7%/n=3) said it is because the library is inadequate, there are no reading materials, and only newspapers are available. As well, 4% (n=2) of the participants pointed out that there is nothing to be train on, except for computer of which they have the knowledge of operating, others did not know, mentioned lack of time management, late registration, and because they do not use the library.

4.3.2 Contribution of Library Services towards Academic Success of Visually Impaired Students

Figure 4. 11: Assistance of the Audio-Braille library assist academic studies (N=45)



Students were asked if the Audio-Braille library was assisting them in their academic studies. From the data in Figure 4.11, it is obvious that the Audio-Braille library is perceived to have some degree of importance among the students surveyed. Most of the participants (at 35%) agreed that the Audio-Braille library is assisting them in their academic studies. However, the smallest proportion of respondents (at 11%) disagreed that the library assists them to advance in their academic studies.

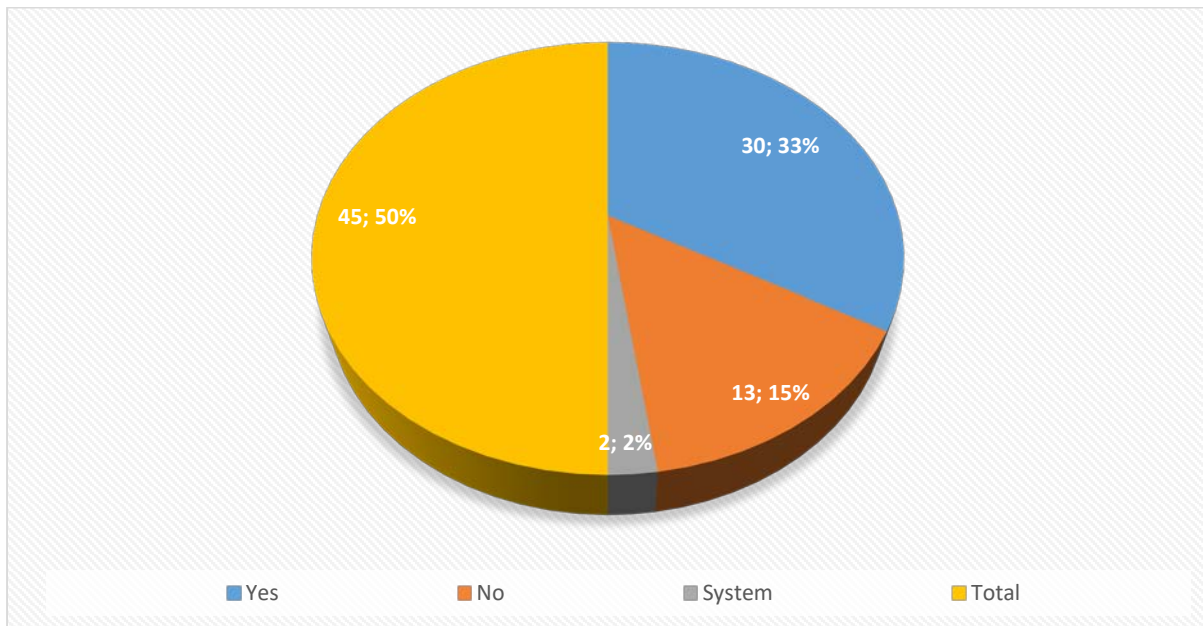
Results of interviews from the lecturers indicate that the library contribute positively towards students' academic studies. A lecturer said that you can tell by their performance that the library is contributing a lot because some of them are head and shoulders above able-bodied students. Another lecturer revealed that the library is helping visually impaired students a lot because in the test that they just wrote recently, he got many complaints from other able-bodied students but not from them.

Table 4. 13: The Impact of Not Using the Audio-Braille Library on Studies (N=45)

| | Frequency | Percent |
|---|-----------|------------|
| Not stated | 7 | 16 |
| Fall behind because we cannot access information | 9 | 20 |
| I don't have the computer in my room, so I depend on the computers in the library | 2 | 4 |
| I might fail my assignments | 2 | 4 |
| I lack relevant and up-to-date information for my school work | 2 | 4 |
| I won't be able to cope with my studies, I struggle academically | 3 | 7 |
| I won't be fully prepared for my tests and exams | 1 | 2 |
| I'll lack knowledge | 2 | 4 |
| It affects my studies but not that much | 1 | 2 |
| No impact, I don't use it and I'm doing just fine | 5 | 11 |
| There's no other quite place for me to plan and study, therefor I fall behind a bit | 3 | 7 |
| Main library is very big so sometimes I fail to get needed information | 1 | 2 |
| My performance drops and my passing rate decline | 2 | 4 |
| Not that much because I use it simultaneously with the main library | 2 | 4 |
| The main campus library is not user-friendly, so I lack the utilization of library all-in-all | 2 | 4 |
| Total | 45 | 100 |

The study sought to find out from students how does not using the Audio-Braille library was affecting their studies. Most visually impaired students (at 20%/n=9) stated that they would fall behind because they cannot access information without the use of the Audio-Braille library. Out of 45 participants, five (11%) students gave negative feedback by saying that the Audio-Braille library has no impact on their academic performance, they are doing just fine without it. Other participants stated that it provides enough space for them to study without disturbance. Students who do not use the library could be affected negatively because they could not get information for academic purposes. It put them at risk of being left behind with their studies. From the interviews, one of their lecturer recommended that the Audio-Braille library need to give students required support because that is one thing that will enable them to excel.

Figure 4. 12: Contribution of the Audio-Braille Library Services Contributed Academic Progress (N=45)

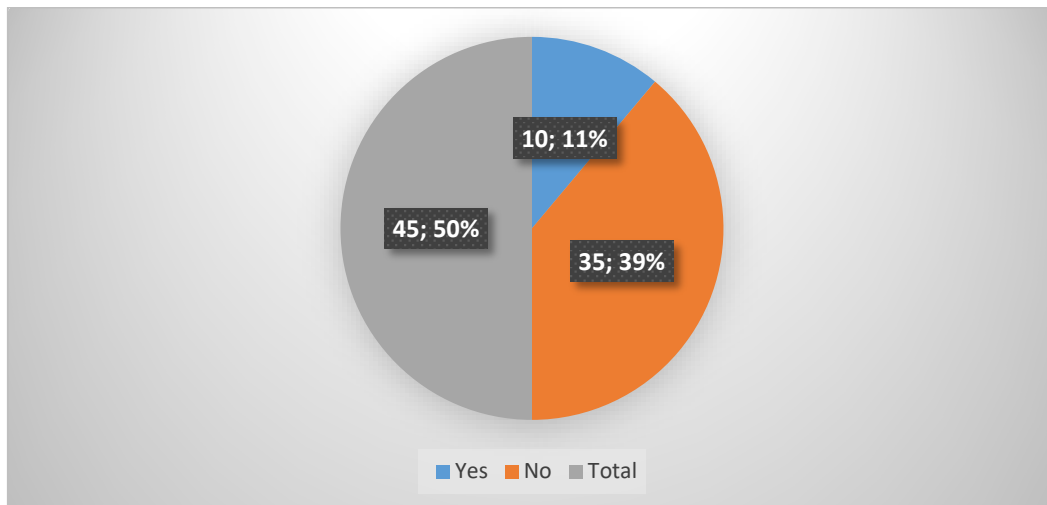


Participants were asked to indicate if access to the Audio-Braille library services has contributed to their academic progress. Most of the participants had high insights towards the way access to the Audio-Braille library services contributed to their academic progress, with 30% of the participants agreeing. However, some participants, (at 13%) disagreed that the library has contributed to their academic progress. The smallest proportion of participants (at 2%/n=1) did not indicate that the library contributes to their academic progress and helps them to advance.

This is what prompted the researcher to carry out the study since students with disabilities were getting access to the Audio-Braille library services and therefore visually impaired students were expected to be at par with other students in terms of academic performance.

One lecturer was sentimental and stated that visually impaired students made him realise that when God takes something away from you, He gives you something because visually impaired students perform well every time they are given a task.

Figure 4. 13: Repetition of a Module



The study sought to find out the academic performance of the students, for instance, whether they were progressing or repeating their modules. Figure 4.28 shows their responses that 10% of the participants have repeated a module and 35% of the participants specified that they have never repeat a module.

From the interviews, their lecturer said that, when she gets to class, she usually looks around for visually impaired students because they try harder than more able-bodied students and they do well.

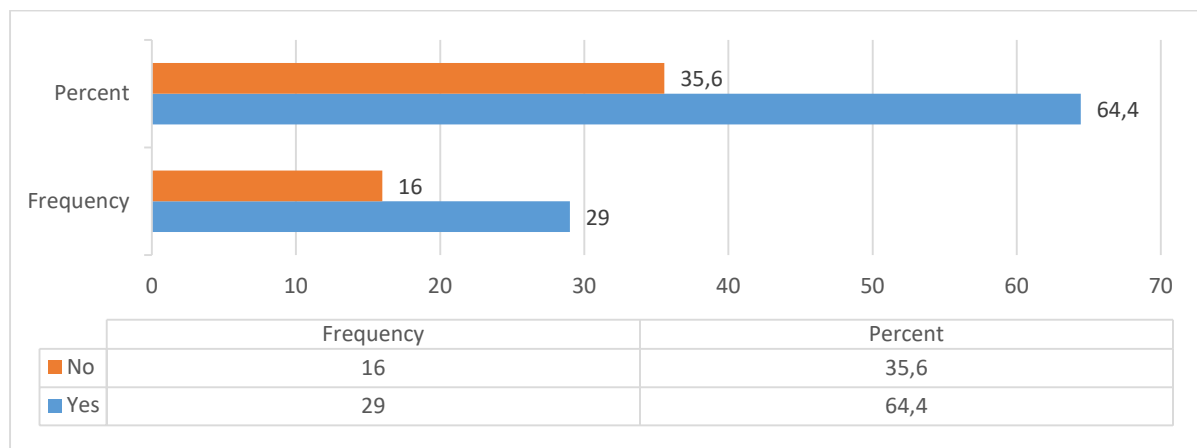
Table 4. 14: Reasons for repeating a module (N=45)

| | Frequency | Percent |
|---|-----------|------------|
| Not indicated | 32 | 71 |
| Due to books which are not available in RDC library | 2 | 4 |
| Did not study hard enough - lack of preparation | 3 | 7 |
| Difficulty access reading material and lack of support | 1 | 2 |
| I had problems with calculations since I can't see from far | 1 | 2 |
| I was failing to adapt to varsity | 1 | 2 |
| Don't have a reason | 2 | 4 |
| Struggling to see and keep up in class | 1 | 2 |
| The tests and exams were quite hectic | 1 | 2 |
| The work was on blackboard, so it got lost on the way | 1 | 2 |
| Total | 45 | 100 |

A follow-up question was to solicit reasons why visually impaired students repeated a module. The table above shows that 71% (n=32) of the participants did not indicate their reasons for repeating a module. However, 7% (n=6) of the participants reasoned that they did not study hard enough due to lack of preparation as opposed to 4% (n=2) of the participants who said they repeated a module because of lack of appropriate reading materials and books from the Audio-Braille library. A different 4% (n=2) of the participants did not have the reason behind the repetition a module, 2 % (n=1) of the participants mentioned that they were struggling to see and keep up in class, had difficulty accessing reading material and faced lack of support, failing to adapt to varsity schedule, and that tests and examinations were quite hectic. One lecturer thinks the library is conducive and is contributing a lot to visually impaired students because one can tell by their performance and some of them are head and shoulder above able-bodied students.

4.3.3 Access to Services at the Audio-Braille Library

Figure 4. 14: Accessibility of the Audio-Braille Library and Its Services (N=45)



Participants were asked if the library and its services were accessible. Figure 4.14 indicates the participants' views regarding access to the Audio-Braille library and its services. The highest proportion of participants (at 64%/n=29) agreed that the library was accessible and some further 36% (n=16) of the participants answered with a no concerning Audio-Braille library being easily accessible. Alharbi (2012) indicated that the need for information access and the number of students at most of the universities

are increasing each year, therefore academic libraries must consider the constant change of their facilities to create a convenient and inviting environment.

One lecturer confirmed that he once asked students if they had access to library services and they told him that they have a functional library that is flexible and accessible, where they get their reading material from. He further mentioned that, as proof that they have available resources, they never failed to submit any assessment, and, in most cases, they are the ones who submit as compared to the other ones.

Table 4. 15: Hindrance of Access to the Audio-Braille library (N=45)

| | Frequency | Percent |
|---|-----------|------------|
| Not indicated | 29 | 64 |
| Nothing but books shortage | 3 | 7 |
| I do not have all the necessary skills to access services | 2 | 4 |
| Inadequate resources | 1 | 2 |
| Lack of Information, we do not know, we were never informed about anything | 2 | 4 |
| Lack of information in braille | 1 | 2 |
| Lack of infrastructure and human resources | 1 | 2 |
| Lack of materials | 2 | 4 |
| Limited computers | 1 | 2 |
| The library is full of old books that are not relevant | 1 | 2 |
| The service is poor, materials old; it doesn't provide relevant information | 1 | 2 |
| Total | 45 | 100 |

This was a follow-up question to find out from the participants what was hindering access to the Audio-Braille library. In this category of comments, more than half of visually impaired students (at 64%/n=29) did not indicate what was hindering access while 7% of the participants expressed the views that shortage of books; 4% (n=2) of the participants mentioned that lack of information and lack of materials hindered access to the Audio-Braille library. Another 4% (n=2) of participants stated that lack of necessary skills to make use of the Audio-Braille library services also hinders access. Another area of concern was the issue of the library being full of old books that are not relevant to their studies. These results show that lack of new materials and information about library services to visually impaired students lead to poor service that hider access.

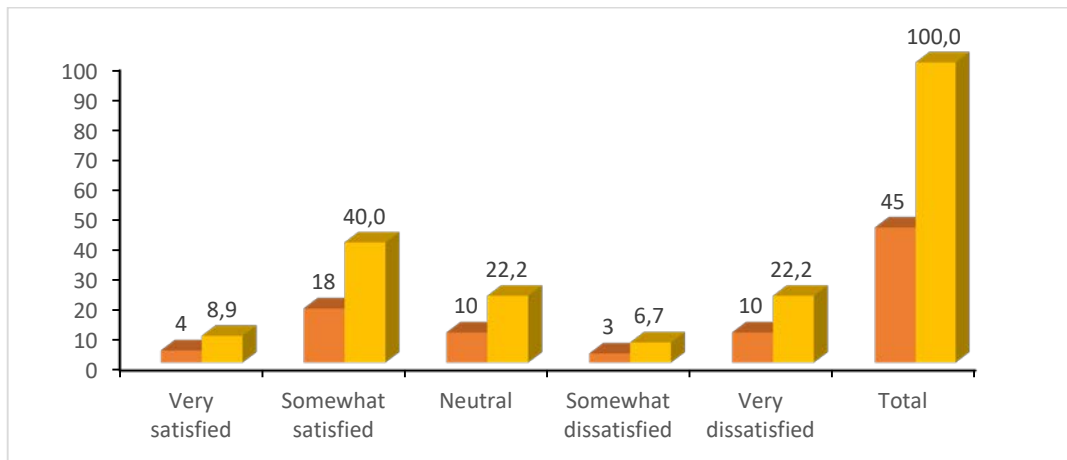
4.3.4 Level of Satisfaction with the Audio-Braille Library Services

Table 4. 16: Finding all the materials required from the Audio-Braille library (N=45)

| | Frequency | Percent |
|---|-----------|------------|
| I have never find materials that I need | 1 | 2 |
| Most of the time except the issue of network | 1 | 2 |
| No | 27 | 60 |
| No, I do not | 1 | 2 |
| No, I think it is irrelevant | 1 | 2 |
| No, it depends on how many student need help | 1 | 2 |
| No, some books are not available in the library | 1 | 2 |
| No, some of the latest prescribed books of mine aren't here | 1 | 2 |
| Not always | 1 | 2 |
| Not really | 1 | 2 |
| Sometimes | 2 | 4 |
| Yes | 7 | 16 |
| Total | 45 | 100 |

Participants were asked if they had always found all the materials they required from the library. As revealed in Table 4.16, an overwhelming number (at 60%/n=27) of visually impaired students surveyed indicated that they did not always find the materials they required from the Audio-Braille library, as compared to 16% (n=7) of the participants who agreed that they always found the materials they required from the Audio-Braille library. This could be because, currently, the library does not keep a collection of print books but has a lot of outdated non-academic reading materials in alternative formats including Braille, audiotape, electronic text and softcopy. There are severe shortages and problems in respect of obtaining academic materials such as prescribed textbooks in braille and softcopy that could ensure that visually impaired students always find the materials they require from the library.

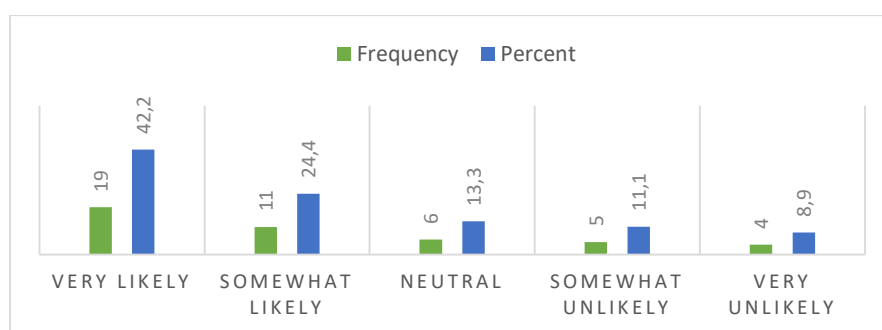
Figure 4. 15: Level of Satisfaction with the Services Offered by the Audio-Braille Library (N=45)



This question investigated the students' level of satisfaction with the Audio-Braille library services. According to Naidu (2009), a library needs to ensure that its services both meet customer needs and customer expectations to the highest degree. The findings depicted in Figure 4.31 show that most of the participants rated the services offered by the Audio-Braille library as somewhat satisfactory, with 40% positively agreeing. Only 9% (n=4) of the respondents indicated that they were very satisfied with the services offered by the Audio-Braille library. It is fascinating to see that 22% (n=10) of the participants indicated that their satisfaction levels were neutral regarding library services, while the other same number (at 22%/n=10) indicated that they were very dissatisfied with the services offered. A small number of respondents (at 7%/n=3) indicated that they were somewhat dissatisfied with the library services.

This therefore implies that there are still services offered by the Audio-Braille library that participants are not satisfied with. The results revealed that the library is not excelling in the provision of all services rendered and that there are perhaps many areas that still need attention or improvement. This concurs with the literature reviewed in which some of the studies demonstrated that attention should be drawn to the still-very-insufficient library services available so that serious efforts can be done to improve and develop new services to fill up the gaps in providing information services to the visually impaired people (Singh and Moirangthem, 2010; and Fatima et al., 2014).

Figure 4. 16: Continuing Using the Audio-Braille library (N=45)



Many participants (at 42%/n=19) indicated that they were very likely to continue using the Audio-Braille library, followed by 24% of the participants who indicated that they were somewhat likely to continue using the library services. It is interesting to note that 13% (n=16) of the participants chose to remain neutral and 11% (n=5) of the participants was somewhat unlikely to continue using the library. Only 9% (n=4) of the participants indicated that it was very unlikely for them to continue using the library.

Table 4. 17: Improving the Audio-Braille Library Services (N=45)

| | Frequency | Percent |
|---|-----------|------------|
| Always having trained library assistants until the library closes for additional assistance after hours | 5 | 11 |
| Audio-Braille library must be open for 24 hours | 1 | 2 |
| Buy prescribed textbooks relevant to our degrees (Audio, electronic and large font) | 17 | 38 |
| By expanding the library collection and have more books covering science and maths | 3 | 7 |
| Improving the software for visually impaired by installing other applications | 3 | 7 |
| Everything is fine | 1 | 2 |
| Increase computers and make sure network is available | 3 | 7 |
| More stricter rules to better regulate noise control | 1 | 2 |
| Throw away old, dusty, outdated cassettes and bring relevant books | 2 | 4 |
| Provide reading materials | 1 | 2 |
| Provide the same books that are in the main library | 1 | 2 |
| Training all students at RDC on access and increase staff component | 2 | 4 |
| RDC students should be asked what they want | 1 | 2 |
| Provide some daily newspapers in Braille | 1 | 2 |
| Updating materials in the library, especially electronic ones | 3 | 7 |
| Total | 45 | 100 |

When responding to the question on what can be done to improve (library) services, 38% (n=17) of the participants emphasised getting new materials, especially prescribed textbooks relevant to their degrees (preferably in audio, electronic and large font); 11% (n=5) of the participants recommended always having library assistants, until the library closes, for additional assistance after hours; 7% (n=3) of the participants highlighted expanding the library collection and having more books covering science and maths; 7% (n=3) of the participants wants the library to improve software for the visually impaired by installing other applications; 7% (n=3) of the participants wants the library to increase computers and make sure network is available; and another 7% (n=3) of the participants called for the updating of materials in the library, especially electronic ones. Four percent of the participants suggested that the library throws away old, dusty, outdated cassettes and bring relevant books; and another 4% of the participants demanded training of all students at RDC on access and increased staff component. A mere 2% of the participants asked for the daily newspapers to be brailled so that even the blind students can get the opportunity to read on their own.

Table 4. 18: Other Comments (N=45)

| Comment | Frequency | Percent |
|--|-----------|------------|
| | 12 | 26.7 |
| A study should be done to better understand the needs of people who use the Audio-Braille library | 1 | 2 |
| Audio-Braille library must have more materials for all courses to cover all students with disabilities | 5 | 11 |
| All library services are adequate and satisfying | 1 | 2 |
| Provide braille newspapers and train students on how to access information from the internet | 2 | 4 |
| I am thankful for the assistance I get from the disability centre | 2 | 4 |
| It should also consider large print materials | 1 | 2 |
| It should be made clear that people need to shut up upon entering! | 1 | 2 |
| Library must open 24 hours with adequate assistance | 1 | 2 |
| No Comment | 12 | 20 |
| The Audio-Braille library is a comfortable and quite place to be, if one needs to concentrate | 1 | 2 |
| The library looks like a museum with old material | 3 | 7 |
| The main issue is the internet | 1 | 2 |
| They must enlarge the place – it is too small | 2 | 4 |
| Total | 45 | 100 |

The final question on the questionnaire asked the participants to add any comment about the Audio-Braille library services or add comments about any further services they expect from the library. The results of these questions are combined because most of the comments are related. Many of the participants (at 20%/n=12) did not want to comment. However, others (at 11%/n=5) emphatically commented on getting more materials for all courses to cover all students with disabilities, and that people should keep quiet upon entering the library. Others (at 7%/n=3) viewed the library as a museum with old materials and 4% (n=2) of the participants suggested the need for the library to be enlarged as it is too small.

On the one hand, few of the participants (at 4%/n=2) wants the library to provide braille newspapers and train students on how to access information from the internet and, on the other hand, the same number (at 4%/n=2) of the participants were thankful for the assistance they get from the library. Merely 2% (n=1) of the respondents called for a study to be done to better understand the needs of people who use the Audio-Braille library, yet another 2% declared the library as a comfortable and quiet place to use when one needs to concentrate. The comments show that the Audio-Braille library needs to provide enough services for visually impaired students and update its services and materials regularly. It should not just serve as a reading space only.

4.4 Conclusion

In this chapter, data collected via questionnaires and interviews were analysed and presented according to research objectives. The role of the Audio-Braille library in contributing to academic performance of visually impaired students was established. Furthermore, personal feelings of students in expressing their dissatisfaction with the limitations of the library were evident in their responses.

The key issues raised in this chapter are summarised as follows:

- The Audio-Braille library provides literature searches and a quiet place to study;
- The library services provided for visually impaired students are not adequate;
- Most visually impaired students prefer to read large print and electronic over the traditional Braille;

- The Audio-Braille library does not provide information material in the format that is required by visually impaired students;
- Access to the Audio-Braille library services has contributed to students' academic progress;
- The findings depicted that most of the students rated the services offered by the Audio-Braille library as somewhat satisfactory;
- Audio-Braille library needs to increase computers and make sure network is available; and
- The library needs to buy prescribed textbooks relevant to students' degrees in audio, electronic, large font and Braille.

It is clear from the discussion that the Audio-Braille library has a long way to go in order to make wholesome contribution to the improved academic performance of visually impaired students.

The next chapter interprets and discusses the research findings.

CHAPTER FIVE

INTERPRETATION AND DISCUSSION OF RESEARCH FINDINGS

5.1 Introduction

The previous chapter analysed and presented the results of data obtained via questionnaire, interviews and document study. This chapter provides the interpretation and discussion of the results. According to Creswell (2009), an interpretation of results means that the researcher draws inferences from the results for the research questions, hypotheses and the larger meaning of the results. This section is meant to discuss the interpretations of the results. The discussion is constructed on the following objectives as stated in Chapter One, namely, to:

- Describe the services provided by the Audio-Braille library;
- Measure the contribution of services provided by the Audio Braille library towards academic success of visually impaired students;
- Assess if access to services at the Audio-Braille library enables visually impaired students' progress and performance; and
- Measure the satisfaction level of visually impaired students with services provided by the Audio-Braille library.

The presentation of the current chapter follows the order of research objectives listed above. It is evident that most of the visually impaired students made use of the Audio-Braille library, with 73% of the respondents acknowledging. It was also interesting to note that there were 27% of the respondents who did not make use of the Audio-Braille library resources. Most of the students did not make use of the library because it does not have enough material and relevant books for their respective degrees. Partially sighted students said they did to see the benefits of using the Audio-Braille library because they are comfortable using large printed materials which the library does not have.

One student indicated that, even though technology has improved, the Audio-Braille library was still offering audio cassettes. Talking of technology, it does not take long for students at any university to realise that the Internet can be a very useful tool when searching for information. Students learn fast that they can easily find answers to

almost any question related to their studies by using search engines that the library subscribes to and those that are freely available such as the Google scholar. In fact, Jolley (2013) attests to the fact that the search engines and Internet itself have become such an integral part of the computer that it is hard to imagine the point of a computer without these facilities. So, it is not surprising that students today use their Internet search engine (for example, Google), when, years ago, students would have used the university library.

Additionally, the fact that all these respondents were undergraduates could be the reason for not making use of the library. Many students have matriculated from schools in rural villages with shortages and poor infrastructure and arrive at the university without the background of having seen or used a library. As such, these students may find it intimidating to make use of the Audio-Braille library.

5.2 Services Provided by the Audio-Braille library

Most of the participants (at 24%) indicated that the Audio-Braille library provides literature searches for them, others (at 20%) have equally said it provides a quiet place to study in preparing for classes and exams and books in braille, audio cassettes and normal print. Another high number (at 18%) indicated that the library provides computers with JAWS and ZoomText for them. Most of the interviewed lecturers in the current study concurred that they know that their visually impaired students have access to information and that they get the information from RDC.

The Audio-Braille library is providing services that are documented in the literature and found to be appropriate for visually impaired students. Majinge and Stilwell (2014) also found that academic libraries provided services to visually impaired students, which included, among other things, book loans, Internet searches and photocopying services. Babalola and Yacob (2011) similarly add that libraries and information centres around the world have developed specialized information services to meet the library and information needs of their visually impaired users, and these include, Braille books, E-books, large printed materials and audio recordings of news articles.

However, most students (at 56%) also revealed that the services offered by the Audio-Braille library were not adequate and that there are services that the library was not

offering yet it is supposed to offer to visually impaired students. They indicated that the library is supposed to offer relevant course books in Braille and audio, enough prescribed books in large print for partially sighted students and electronic textbooks for easy zooming using ZoomText on computers. They also said the library must develop a collection of reading material that contains up-to-date information and offer academic books in preferred formats.

The findings of this study are in line with Singh and Moirangthem (2010) who discovered, when they explored the existing scenario of library services for visually impaired students by departmental libraries attached to the Delhi University, that services being provided by these libraries were insufficient. They recommended that steps be taken to improve and develop library services to fill up the gaps in providing information services to the visually impaired students. So, the Audio-Braille library needs to build collections in alternative formats and make them available to the visually impaired students who are unable to peruse normal print books.

5.3 The Contribution of Services Provided by the Audio Braille Library towards Academic Success of Visually Impaired Students

Over sixty percent (64%) of the participants concurs that the library is accessible, however, some (at 36%) disagreed that access to services at the Audio-Braille library enables visually impaired students' progress and performance. Other participants (at 13%) indicated that access to library does not necessary contribute to their academic progress and performance whereas 30% of the participants agreed that access to the library contributes to their academic progress and performances and 2% of the participants did not specify.

These results show that access alone to library services does not contribute to students' performance, however, it is the type of services that a library provides that makes the difference. It has been proven that the Audio-Braille library is accessible and provides information to students, but this is not enough when students deem the library resources and information materials to be inadequate, out-dated and irrelevant to their degrees. Students want the library to provide information materials in the formats accessible to them.

5.4 Access to Services at the Audio-Braille Library Enables Visually Impaired Students' Progress and Performance

Access to information is a fundamental right of every human being. According to Eskay and Chima (2013), visually impaired students, just like their peers, need to have access to a wide variety of reading materials, and be allowed to choose what they would like to read. Therefore, it is important to have at least a small-browsing collection for the visually impaired students in the library. Most of the participants had high insights on the way access to the Audio-Braille library services contributed to their academic progress, with 30% of the participants agreeing. However, some respondents (at 13%) disagreed that the library has contributed to their academic progress.

Majinge and Stilwell (2014) argue that academic libraries exist to support learning, teaching, research and consultancy to all university's community of users, including visually impaired students. Therefore, visually impaired students must have access to the Audio-Braille library services since they read for tests and examinations; write assignments and research papers; and carry out all work related to academic purposes, just as other able-bodied students do. To facilitate access to information for visually impaired students, Mutula and Majinge (2016) suggest that academic libraries focus on the ways these students seek, access and use information; their preferred sources and formats of information; and the tools that they use to search for information, such as the use of Information and Communication Technology (ICT).

Academic performance of visually impaired students is determined by access to the available information at their disposal. Their lecturers, who were interviewed in the current study, vehemently concurred that visually impaired students have access to information. According to the lecturers, this has been demonstrated by the way they respond to class or lecture tasks and assignments. Also, lecturers will always assist these students efficiently if they do have access to information. Hence, when asked if the students have access to information, most lecturers demonstrated knowledge of the library and the University of Limpopo's Reakgona Disability Center (RDC) from where these students have special facilities that enable them to execute their academic responsibilities.

The accessibility of information from the Audio-Braille Library has been evidenced by the way visually impaired students have been submitting their assignments on time and participating very well in class as seen by their performance (i.e., marks). The performance of students is assessed by lecturers and it can be said that those who do not access the library still require some help from the Audio-Braille library as the lecturers have recommended it to better their performances.

5.6 Satisfaction Level of Visually Impaired Students with Services Provided by the Audio-Braille Library

Lastly, 60% of visually impaired students surveyed indicated that they did not always find the materials they require from the Audio-Braille library as compared to 16% of the participants who agreed that they always find the materials they require from the Audio-Braille library. This implies that students are not completely satisfied with the services provided by the library because most of the books are outdated, irrelevant and unsuitable to their reading preferences. This finding is in line with what Mansa (2007) discovered at the University of Ghana that visually impaired students were not happy with library services and therefore opted to make use of sources such as audio recordings, lecture notes and interaction with their lecturers, friends and resourceful persons when doing research instead of using the library services. Majinge and Stilwell (2014) assert that every library's aim is to provide the right information at the right time and in the right format to its patrons, regardless of race, religion, age, nationality and language. This core function includes the provision of information to the visually impaired in the format that is suitable and usable to them.

According to the input-output model, the physical resource, together with the process which is the services that are offered at the Audio-Braille library directly affects the outcomes of the visually impaired students which are the academic performances, and satisfaction as illustrated on Figure 1 in the first chapter. Though there is high number of the visual impaired students using the library, there are still some of the things that were not available from the library. The input-output model also indicated that if resources are lacking, they can also affect the outcome or output of the students. This is evident from the study where 84% of the participants illustrated that they do not always find the information they require from the library, whereas the 16% of the respondents are able to get hold of the information they need.

The findings of this study are in relation with Kavanagh and Skold (2005) who also discovered that visually impaired people have the same information needs as sighted people. Just as sighted people might read a newspaper, listen to a CD or download electronic information from the Internet, visually impaired people also want access to relevant information in their preferred accessible format. It is therefore extremely important for academic libraries to develop efficient services for visually impaired students because there are significantly fewer books available commercially in accessible formats as compared to what is published in print for the able-bodied students.

According to Babalola, and Yacob (2011), libraries and information centres around the world have developed specialized information services to meet the library and information needs of their visually impaired users. These include, namely: (1) Braille books – Braille is a system of reading and writing whereby raised dots are used to represent letters which are read by touch. Braille books are appropriate for users who have both visual and hearing impairment; (2) Talking books – these are audio versions of books that could be recorded on cassettes, CD-ROM, DVD and on the internet as e-books. Talking books are preferred by majority of the visually impaired; (3) Talking newspapers – audio recordings of news articles in the dailies; and (4) Large printed materials – these are documents printed in large fonts for use by partially sighted users.

Correspondingly, Kavanagh (1994) states that visually impaired students need access to the same range of resources as the general student population. The visually impaired people are equally important part of our society and they have equal rights to get all information produced in the world, but they require special services and facilities to get information (Zia and Fatima, 2011). The Audio-Braille library must build its collection of academic books in alternative formats to make them available and accessible for students. Most of the lecturers interviewed in the current study acknowledged that their students with visual impairments have got access to information which they get from RDC.

5.7 Chapter Summary

This chapter interpreted and discussed the findings presented in Chapter Four. The chapter provided key observations from the interpretation and discussion of the research findings regarding the role of the Audio-Braille library in contributing towards academic performance of visually impaired students. From the findings, students revealed that the services provided by the library are not adequate for them and did not meet their expectations despite their lecturers' opinions that the Audio-Braille library enables visually impaired students to perform on the same level as their able-bodied counterparts.

CHAPTER SIX

SUMMARY OF FINDINGS, RECOMMENDATIONS AND CONCLUSION

6.1 Introduction

The purpose of this chapter is to outline concluding remarks for this present study. The chapter therefore achieves this through the summarisation of the findings of the study as guided by the objectives. The chapter further taps into the strengths of this study. Limitations of the study are further discussed, which then informs the future recommendations in as far as this topic is concerned, of which are also discussed.

6.2 Summary of the Findings

The overall objective of this study was to investigate the role of the Audio-Braille library in contributing towards academic performance of visually impaired students. The study was motivated by the notable problems associated with very limited access to and usage of library and information services at the University of Limpopo. To achieve the overall objective of the study, five specific objectives outlined in Section 1.4 of Chapter One were formulated. The research model for the study was adapted from the Input-output theoretical model developed by Shavelson, McDonwell and Oakes (1987). The model shows how the infrastructure and the processes influenced students' outcomes.

The study used a census of all 74 visually impaired students to complete the survey questions and a total of 45 students responded to the questionnaire making 62% response rate. Of the 45 respondents, 28 (62%) were males and 17 (38%) were females. In-depth interviews complemented the main questionnaire survey. The interviews targeted a maximum of five lecturers who teach visually impaired students to get their opinion on the contribution that the Audio-Braille library makes towards the performance of students, which they would provide by their experience of teaching and observing these students in a classroom situation.

The following sub-sections present the summary of the key results based on the five specific objectives of this study.

6.2.1 The Services Provided by the Audio-Braille Library

The study established that the Audio-Braille library is assisting visually impaired students in searching information for their assignments, provides audio cassettes, printed books, braille books and Internet. The library has enough space that makes for a comfortable and quiet place to study in preparation for class as well as examinations.

It has a librarian who, besides finding information for students, assists students with their assignments and research in terms of referencing and citation and train them on how to find information on their own. Additionally, the Audio-Braille library provides newspapers for current news and computers with internet, JAWS and ZoomText.

However, it has also emerged that these services were not adequate for visually impaired students and that the library should be offering more. According to the findings, the library should provide current academic books in appropriate formats including textbooks in Braille, audio, large print and electronic study materials for easy zooming on computers for partially sighted students. Students also require sufficient support in relation to training on access and the use of library resources.

6.2.2 The Contribution of Services Provided by the Audio Braille Library

Most of the visually impaired students agree that the library is contributing positively towards their studies and they also admit that they will suffer academically and fall behind if they did not make use of the Audio-Braille library. The popular idiomatic expression "Half a loaf is better than no bread" comes to mind when students still acknowledge the contribution of their library despite its lack of current and accessible information resources in appropriate formats.

6.2.3 Access to Services at the Audio-Braille Library

The results indicated that visually impaired students prefer to access their information materials in Braille, enlarged print, audio and electronic format for academic purposes. It has emerged that the Audio-Braille library is accessible, however, it does not always provide information materials in appropriate formats as preferred by students. As a result, students do not always get assistance from the library due to lack of access to information materials in appropriate formats.

Despite these deprivation and disparities of library services, it has also emerged that access to the Audio-Braille library has made a positive contribution towards students' performance. Many students who use the library indicated that they have never repeated a module, while on the other hand, those who repeated a module blamed lack of preparation on their part, as well as not studying hard enough for examinations.

6.2.4 The Satisfaction Level of Visually Impaired Students with the Audio-Braille Library Services

The results showed that students were not completely satisfied with the services provided by the library services mainly because they did not always find what they required from the Audio-Braille library. From the results, it is evident that the library needs to improve its services to satisfy visually impaired students. The lack of adequate library services and reading materials in alternative formats has a negative effect on the satisfaction levels of visually impaired students.

6.3 Recommendations

For future considerations, the researcher recommends the following:

- a) Considering the socioeconomic status of our different universities in our country, it is of note that the results of this study presented the picture of only one university, of a lower socioeconomic level. Therefore, not much is known about the accessibility and development of library services for visually impaired students as far as other universities are concerned. Therefore, it would be significant to broaden this type of study to other universities; and

- b) It is significant to believe that the situation that was presented by the results of this study may not resemble the same picture in other universities of a higher socioeconomic level within our country. Therefore, it is recommended that the management of the Reakgona Disability Centre at the University of Limpopo aim towards benchmarking with other universities to improve the services that the Audio-Braille library provides to their affiliated students.

- c) The results clearly showed that the Audio-Braille library is not providing adequate reading materials for the visually impaired. Therefore, it is highly recommended that library focus on building a desirable collection of academic books and reading materials that are accessible to visually impaired students. Because books in alternative formats are scarce, the Audio-Braille library should acquire academic books in print and make them readily available for conversion into alternative formats whenever the need arise. This will speed up the process of converting information into alternative formats and to avoid unnecessary delays.

6.4 Conclusion

It was the aim of this chapter to summarise the findings of this study, with the alignment to the objectives that the study sought to achieve. The strengths of this study were discussed, further shedding more light to the future recommendations that may assist in the improvement of the findings. Firstly, it is of note to emphasize the gap that was identified through the process of this study about the library services for the visually impaired students as compared to those of the able-bodied students. Secondly, the issue of accessibility came out as a major limitation, requiring further significant attention. One would contend that the University of Limpopo, especially after establishing the Audio-Braille library have done reasonably well in a bid to improving the library services of students living with disabilities, this is not the reality to the visually impaired as the results have indicated.

There is still a lot of inexperience around library services for visually impaired students at the University of Limpopo and maybe in other universities as well, therefore the

Audio-Braille library must ensure that visually impaired students receive unsurpassed library and information services like any other students. The University of Limpopo (UL) must care much about nursing the information needs of the visually impaired the same way they do for able-bodied students.

It is of great concern to discover that library and information services provided for visually impaired students at UL are not adequate. Visually impaired students are not able to get information because the reading material which are able to cater for their special needs are not in their preferred formats, to make matters worse, those who prefer to read braille must pay for it. The Audio-Braille library should expand its collection to ensure that all visually impaired student receive books, information, lecturer notes and other study materials that students need in their academic development process in appropriate formats.

The popular slogan of “Nothing about us without us” comes to mind when thinking of how the visually impaired students in general are treated when it comes to library and information services. Their struggle for equity of access to information in higher education could be dated back to when our communities used to reject people with disabilities. The Audio-Braille library must partner with visually impaired students and encourage them to participate in acquiring reading materials to ensure that they receive the best library and information services like any other students at the University of Limpopo.

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APPENDIX A: QUESTIONNAIRE USED IN THE STUDY TO COLLECT DATA

| | |
|----------------------|--|
| Questionnaire | |
|----------------------|--|

1. SECTION A: BIBLIOGRAPHIC INFORMATION

1.1 Please indicate your gender.

| | |
|------|--------|
| Male | Female |
| | |

1.2 Nature of disability.

| | | |
|-------|-------------------|----------|
| Blind | Partially sighted | Albinism |
| | | |

1.3 Please indicate your age group.

| | | |
|-------------|-------------|--------------|
| 18-25 years | 26-35 years | 36-and above |
| | | |

1.4 Which degree are you currently enrolled for?

| |
|--|
| |
|--|

1.5 What is your level of study?

| | |
|---------------|--------------|
| Undergraduate | Postgraduate |
| | |

1. SECTION B: SERVICES PROVIDED BY AUDIO BRAILLE LIBRARY

2.1 Do you make use of the Audio-Braille library?

| | |
|-----|--|
| Yes | |
| No | |

2.1.1 If no, why?

| |
|--|
| |
|--|

2.1.2 If yes, what is the main purpose of using the Audio-Braille library?

| | |
|--|--|
| Planning and preparing for class | |
| For updating my knowledge | |
| Preparing for test or exams | |
| For writing paper and presenting paper | |
| For doing research work | |
| Other (Please specify) | |

2.1.3 How long have you used the Audio-Braille library/service? Choose **ONE** of the options.

| | |
|------------------------------|--|
| Less than 6 months | |
| 1 year to less than 3 years | |
| 3 years to less than 5 years | |
| 5 years or more | |
| Others (Please specify) | |

2.2 What services does the Audio-Braille library offer to students with disabilities?

| |
|--|
| |
|--|

2.3 Are the library services offered to students with disabilities adequate?

| | |
|-----|--|
| Yes | |
| No | |

2.3.1 If no in 2.3, which services is the Audio-Braille library not offering to students with disabilities but supposed to offer?

| |
|--|
| |
|--|

2.4 What format would you like to access your information materials?

| |
|--|
| |
|--|

2.4.1 Does the Audio-Braille library always provide information materials in that format?

| | |
|-----|--|
| Yes | |
| No | |

2.5 Are you able to use the Audio-Braille library without the assistance of the librarian?

| | |
|-----|--|
| Yes | |
| No | |

2.5.1 If no in 2.5, do you always get assistance form the Audio-Braille library?

| | |
|-----|--|
| Yes | |
| No | |

2.5.2 If no in 2.5.1, what is the reason?

| |
|--|
| |
|--|

2.6 Did you receive training on the use of the Audio-Braille library services?

| | |
|-----|--|
| Yes | |
| No | |

2.6.1 If yes, which services were you trained on?

| |
|--|
| |
|--|

2.6.2 Was the training adequate?

| | |
|-----|--|
| Yes | |
| No | |

2.6.3 If no in 2.6, why were you not trained?

| |
|--|
| |
|--|

2. SECTION C: CONTRIBUTION OF AUDIO TO STUDENTS' ACADEMIC PERFORMANCE

3.1 Does the Audio-Braille library assist you in your academic studies?

| | |
|-----|--|
| Yes | |
| No | |

3.2 If you don't use the Audio-Braille library, how does that affect your studies?

| |
|--|
| |
|--|

3.3 Is the Audio-Braille library and its services accessible?

| | |
|-----|--|
| Yes | |
| No | |

3.3.1 If no, what hinder access to the Audio-Braille library?

| |
|--|
| |
|--|

3.3.2 Have access to the Audio-Braille library services contributed to your academic progress?

| | |
|-----|--|
| Yes | |
| No | |

3.4 Have you ever repeated a module?

| | |
|-----|--|
| Yes | |
| No | |

3.4.1 What was the reason for repeating a module?

| |
|--|
| |
|--|

3. SECTION D: SATISFACTION LEVEL WITH LIBRARY SERVICES WHEN YOU NEED INFORMATION

4.1 Do you always find all the materials you require from the Audio-Braille library?

| |
|--|
| |
|--|

4.2 How satisfied are you with the services offered by the Audio-Braille library?

| | | | |
|-----------------------|--|--|--|
| Very satisfied | | | |
| Somewhat satisfied | | | |
| Neutral | | | |
| Somewhat dissatisfied | | | |
| Very dissatisfied | | | |

4.3 How likely are you to continue using the Audio-Braille library?

| | |
|-------------------|--|
| Very likely | |
| Somewhat likely | |
| Neutral | |
| Somewhat unlikely | |
| Very unlikely | |

4.4 What can be done to improve the Audio-Braille library services?

| |
|--|
| |
|--|

4.5 Any other comments?

| |
|--|
| |
|--|

Thank you for your time in completing the questionnaire.

APPENDIX B: INTERVIEW GUIDING QUESTIONS

Please answer the following questions, which are based on the central research questions:

1. How many students with visual impairment are there in your class?

2. Do you have any experience of teaching visually impaired students?

1. Do community members have easy access to library services? Explain.

3. What is your perception of visually impaired students at UL?

4. Apart from what you're teaching, how do visually impaired students get information?

5. What do you think of the Audio-Braille Library and its services?

APPENDIX C: COVERING LETTER FOR THE QUESTIONNAIRE

I am intending to carry a research study on the role of the Audio-Braille library in contributing towards the academic performance of students with visual impairments at the University of Limpopo. The purpose of this questionnaire is to find out your perspective on using the library resources and how these library sources are contributing to your academic performance and success. Your cooperation in filling up the questionnaire is solicited.

I would appreciate if you could spare a few minutes of your valuable time to answer as carefully and completely as possible all the questions in this questionnaire. Please, be rest assured that the information received will be kept confidential and will be used only for this research study. Data will be presented only in aggregate and responses will not be attributed to particular respondents or organisations. Therefore, do not write your name or the name of your organisation on the questionnaire. I would be grateful if you can complete and return the completed questionnaire to me by 19 May 2017.

Should you have any queries about the study, please do not hesitate to contact the student Mr Justice Phukubje @ justice.phukubje@ul.ac.za or the supervisor Mr. Lefose Makgahlela @ lefose.makgahlela@ul.ac.za if you seek further clarity.

Thank you in advance for your co-operation.

Mark (X) the option relevant to you

Use the space provided to write your answers to the questions

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APPENDIX D: COVERING LETTER FOR THE INTERVIEW GUIDE

Dear Sir/Madam

I am seeking your assistance in my research project on library and information services for students with disabilities. I am a student currently doing a Masters in Information Studies degree with the University of Limpopo. I am doing research. The purpose of the research is to evaluate the role of the Audio-Braille library in contributing towards the academic performance of students with visual impairments at the University of Limpopo.

I'll be obtaining views from visually impaired students at the UL and the lecturers who teaches them. The interview will take about 15-30 minutes of your time. The interview will be open-ended. There is no right or wrong answer. With your permission, I will ask you some questions and will record your responses using a digital recorder, as well as written notes.

APPENDIX E: ETHICAL CLEARANCE CERTIFICATE



University of Limpopo
Department of Research Administration and Development
Private Bag X1106, Sovenga, 0727, South Africa
Tel: (015) 268 2212, Fax: (015) 268 2306, Email:noko.monene@ul.ac.za

TURFLOOP RESEARCH ETHICS COMMITTEE CLEARANCE CERTIFICATE

MEETING: 24 April 2017

PROJECT NUMBER: TREC/30/2017: PG

PROJECT:

Title: An evaluation of the role of the audio-braille library in contributing towards academic performance of visually impaired students at the University of Limpopo

Researcher: Mr J Phukubje

Supervisor: Mr LA Makgahlela

Co-Supervisor: N/A

School: Languages and Communication Studies

Degree: Masters in Information Studies


PROF. TAB MASHEGO
CHAIRPERSON: TURFLOOP RESEARCH ETHICS COMMITTEE

The Turfloop Research Ethics Committee (TREC) is registered with the National Health Research Ethics Council, Registration Number: REC-0310111-031

Note:

- i) Should any departure be contemplated from the research procedure as approved, the researcher(s) must re-submit the protocol to the committee.
- ii) The budget for the research will be considered separately from the protocol.
PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES.