Full service and special school teacher perceptions on the needs of learners with visual impairment

by

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Submitted in partial fulfilment of the requirements for the degree

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in the Faculty of Education

at the

University of Pretoria

Supervisor: Dr Anna-Barbara du Plessis

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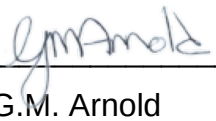
DECLARATION OF ORIGINALITY

I declare that this mini-dissertation, which I hereby submit for the degree Masters in Educational Psychology at the University of Pretoria, is my own work and has not previously been submitted by me for a degree at this or any other tertiary institution.



Ms. G.M. Arnold

7 November 2020

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CLEARANCE CERTIFICATE	CLEARANCE NO.: **UP 17/06/01 Ferreira 19-001**
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- Informed consent/assent,
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- Registered title, and
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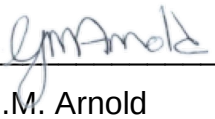
ETHICS STATEMENT

The author, whose name appears on the title page of this mini-dissertation, has obtained, for the research described in this work, the applicable research ethics approval. The author declares that she has observed the ethical standards required in terms of the University of Pretoria's *Code of ethics for researchers* and the *Policy guidelines for responsible research.*



Ms. G.M. Arnold

7 November 2020

DEDICATION

I dedicate this research to the children who may benefit as a result of this mini-dissertation.

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- First and foremost, I would like to thank my incredible extended family who have supported me to pursue my chosen career. Without their constant love and support this would not have been possible. Thank you, for being a source of strength that helped me persevere and achieve my goal.
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- And lastly, thank you to my paws for being my constant companions while I worked.

ABSTRACT

Every learner has unique educational needs. However, treating all learners alike does not address the unique educational needs of learners, especially those with disabilities such as visual impairment (VI). Addressing the specific needs of learners with VI is essential if participation in the South African education system is going to occur.

This study falls within the EU/DHET study regarding VI, and seeks to understand full service and special school teacher perceptions of the needs of learners with VI, using Bronfenbrenner's bioecological systems theory and the social model of disability. A qualitative approach was followed, and a case study design was used. The participating schools were selected using a convenience sampling method. Transcriptions from Participatory Reflection and Action (PRA) workshops, where teachers created posters based on what they thought the needs of learners with VI were, were used as data.

Inductive thematic analysis revealed that full service and special school teachers had some needs in common, such as braille, assistive devices, adaptions to classroom, acceptance and teacher education. Analysis also revealed differences in the perceived needs, with teachers from full service schools identifying accommodations to the classroom environment more frequently, and teachers from special schools identifying devices and skills needed to use these devices effectively.

The contribution of this study lies in developing our understanding of what learners with VI may need to be able to participate in the classroom, and thus be included, thereby preventing unnecessary early drop out. A limitation is that this study examined learners' needs from teachers' perspectives not the perspectives of learners themselves.

Keywords: teachers; needs; full service school; special school; visual impairment; learners; participation; Participatory Reflection and Action; case study

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has been language edited on behalf of its author, with recommendations for improvement.

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LIST OF ABBREVIATIONS

CPD	Continuous professional development
DBE	Department of Basic Education
DHET	Department of Higher Education and Training
DoE	Department of Education
ECC	Expanded Core Curriculum
EU	European Union
EU/DHET	European Union/Department of Higher Education and Training
FASD	Foetal alcohol spectrum disorder
FSS	Full service School
HPCSA	Health Professions Council of South Africa
ICD-10	International statistical classification of diseases and related health problems 10th revision
ICT	Information and communication technology
IOP	Intraocular pressure
ONH	Optic nerve hypoplasia
PCG	Primary congenital glaucoma
PPCT	Process-Person-Context-Time model
PRA	Participatory reflection and action
QDA	Qualitative data analysis software
RD	Retinal detachment
ROP	Retinopathy of prematurity
RSA	Republic of South Africa
SACE	South African Council for Educators
SS	Special school
UP	University of Pretoria
UPIAS	Union of the Physically Impaired Against Segregation
VQoL	Vision-related Quality of Life
VI	Visual impairment
WHO	World Health Organization

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

CHAPTER ONE

INTRODUCTION, CONTEXTUALISATION AND OVERVIEW OF THE INTENDED RESEARCH

1.1. INTRODUCTION AND BACKGROUND

Inclusion describes the increasing participation of learners in the education system by removing barriers to learning (Bornman & Rose, 2017).[1] South Africa created policies to include children with disabilities[2] in the education system (Donohue & Bornman, 2014). However, according to Justice Zak Yacoob, the interpretation of the policies was harmful, as they treated all learners with diverse disabilities in the same manner (Fish-Hodgson & Khumalo, 2015). By treating all disabilities alike, one ignores the unique educational needs of learners, such as those with visual impairment (VI) (Fraser & Maguvhe, 2008). Addressing the specific needs of learners with VI is essential if learning and participation – viz. inclusion – in the education system is going to occur (Fraser & Maguvhe, 2008).

Despite existing policies, the South African education system's inability to accommodate learners with VI is suggested by the Census 2011 (Lehohla, 2014). The Census showed that the number of learners with mild VI between the ages of seven to 13 years not attending school was 3.9% of the South African population with VI. By secondary school, the number of learners between the ages of 14 and 19 with VI not attending school had increased to 15.3% (Lehohla, 2014). Census 2011 therefore indicates that non-attendance increases with age, where consequently, one can tentatively assume that learners with VI are unable to participate in the education process.

The study forms part of the EU/DHET (European Union/Department of Higher Education and Training) study. The EU/DHET study commenced when the Department of Educational Psychology at the University of Pretoria (UP) obtained funding from the DHET. The DHET obtained the funding as part of a support grant

[1] The APA 6th version of guidelines for referencing was applied in this study.
[2] The term 'disabilities' is used as a layman's term and the meaning will be described later in the mini-dissertation (section 2.6.1.).

from the European Union (EU) (Heyl, 2017; R. Ferreira, personal communication, May 22, 2019). The EU/DHET study involved seventeen schools in South Africa: seven full service schools and ten special schools for learners with VI (Heyl, 2017; R. Ferreira, personal communication, May 22, 2019). The study followed a participatory research approach to gather data on the needs and expectations of teachers in full service and special schools in relation to learners with VI (Heyl, 2017; R. Ferreira, personal communication, May 22, 2019). The information gathered in the EU/DHET study was used to determine the content of the advanced diploma in education. Within the EU/DHET study, I focused on teacher perceptions of the needs of learners with VI in Gauteng. It was reasoned that understanding these perceptions would be a step towards accommodating learners with VI, thereby increasing the participation of learners with VI in the education system. This study may therefore eventually increase the inclusion and throughput rate for learners with VI.

1.2. RATIONALE

The study is important for all educators, as the literature has shown that 20% of children in middle childhood experience challenges with vision (Louw & Louw, 2014). Therefore, understanding the perceptions teachers have of the needs of children with VI may ultimately improve the participation of learners with VI in the South African education system, as it is possible that the perceptions teachers have of the needs of learners with VI are not aligned with the actual needs that learners with VI experience. Thus, this study may contribute and expand our theoretical understanding of the needs of learners with VI and how one may provide support to learners with VI in the classroom.

This study is not only important in a professional sense, but has personal motivation too, as I have a twin brother who has multiple barriers to learning. My motivation for exploring how individuals with disabilities experience the South African education system originates from his experiences of being disregarded. With his experiences in mind, when I started teaching, one of my goals was to ensure that all the learners in my classroom felt comfortable to learn. However, I soon realised I did not have enough knowledge to accommodate all the learners' needs in my classroom

and I came to the realisation that I needed to further my understanding of learners' needs.

1.3. PURPOSE OF THE STUDY

The purpose of the EU/DHET study was to establish a Centre for Visual Impairment, to develop an advanced diploma in education specialising in VI, as well as to develop teaching materials in that regard (Heyl, 2017; R. Ferreira, personal communication, May 22, 2019). The purpose of this study is to use data already collected, but not yet analysed, to expand research on the perceptions teachers have of the needs of learners with VI in full service and special schools, as there is a dearth of research regarding the specific needs of learners with VI (Fish-Hodgson & Khumalo, 2015). The general need to expand the information on learners with disabilities is emphasised by Croft (2013), who explained that there was limited information about children with disabilities. This sentiment is also more specifically emphasised by Tumwesigye et al. (2009, p. 135) who state that "there are still many gaps in our knowledge of visual impairment in African children". Therefore, the results from this study may increase the participation of learners with VI in the South African education system, as teachers can be made aware of the specific needs they experience. Additionally, participatory research, as used in the EU/DHET study, is specifically associated with social transformation (Kemmis & McTaggart, 2005, as cited in Ebersöhn, Beukes, & Ferreira, 2012).

1.4. RESEARCH QUESTIONS

To investigate teacher perceptions of the needs of learners with VI, the main research question must be answered, namely:

- What are the perceptions teachers have of the needs on learners with VI in full service and special schools in Gauteng?

For the purpose of this study the following secondary research questions will apply:

- How does teacher education influence teacher perception of the needs of learners with VI?
- To what extent do teacher perceptions of their knowledge have an impact on their teaching of learners with VI?

- What role do policies of the Department of Basic Education (DBE) play in teachers' perception of the needs of learners with VI?

1.5. WORKING ASSUMPTIONS [3]

For this study, the following assumptions some assumptions are maintained:

- I assume that VI can be a barrier that may have an impact on the ability of learners with VI to participate in the South African education system, as there has been limited implementation of inclusive education policies.
- I assume that the context of the school may influence the teacher's perceptions of the needs of learners with VI.
- I assume that learners with VI can participate in the South African education system when they are supported within a systemic network.
- I assume that there are ways to limit or circumvent the barriers posed by VI if the needs of learners with VI are addressed and supported.
- I assume that the eye condition itself has an impact on the type of support learners with VI require.
- I assume that teachers' knowledge about the various eye conditions affects how the needs of learners with VI are addressed within the classroom.

1.6. CONCEPT CLARIFICATION

For the purpose of the study, the following concepts are relevant.

1.6.1. Perception

Perception is described by Prinz (2006) as the internal representation of stimuli, which also implies their individual interpretation; whereas Pitcher (2015) describes perception as an idea or an impression. Based on these descriptions, perception of need here can be taken to refer to the way in which teachers internally represent, evaluate, and judge the needs of learners with VI.

[3] The assumptions were constructed before I consulted literature and while doing research for Chapter Two, it became apparent that many of the assumptions, to some extent, are supported by research.

1.6.2. Teacher and educator

A teacher can be regarded as a person who teaches individuals, thereby providing professional educational services (DBE, 2010). According to Polger and Okamoto (2010), a teacher is a person who uses an assortment of methods to share knowledge with individuals. The DBE expects schoolteachers to register with the South African Council for Educators (SACE) (DBE, 2010). Furthermore, the SACE professional teaching standards draft document (2018) describes a teacher as an individual who provides learners with knowledge-rich learning opportunities in their classrooms. However, the South African Schools Act No. 84 of 1996 describes an educator as an individual "who teaches or trains others or provides professional educational services, including professional therapy and education psychological services, at a school" (Republic of South Africa (RSA), 1996, p. 4).

Within the context of this study, the term teacher was selected over that of educator, as a teacher does not provide professional educational services such as therapy at a school. Therefore, a teacher is a person who has a teaching qualification, who is registered with SACE, and who provides learners with opportunities to learn in the classroom.

1.6.3. Need

Need implies that an intervention could benefit the individual who experiences need (Hasman, Hope, & Østerdal, 2006), whereas Florian (2014, p. 52) describes a need as "something 'different from' or 'additional to' that which is generally available to others of similar age in school". Similarly, Florian and Black-Hawkins (2011) describe a need as something additional or different to that of other children; in other words, creating an additional requirement without which some children cannot fully participate in a classroom.

In this study, a need is an additional requirement to that which is provided to other learners of similar age in a school, and the additional requirement must be met for learners with VI to participate in school.

1.6.4. School

School is an educational organisation that registers learners from Grade R to Grade 12 (DBE, 2010); similarly, the South African Schools Act No. 84 of 1996 defines school as “a public school or an independent school which enrols learners in one or more grades from Grade R (Reception) to Grade Twelve” (RSA, 1996, p. 5). In addition, the DBE (2010) definition of a public school states that a public school refers to ordinary and special schools, whereas Bonnor and Caro (2012) describe a school as an institution that teaches and cares for children. The DBE (2010) defines a special school as a school that accommodates learners who have special education needs due to a physical disability, behavioural problems, or severe learning difficulties; whereas mainstream refers to the inclusion of learners with disabilities in an ordinary school without making adaptions in curriculum, organisation or teaching strategies (DBE, 2010). A full service school is defined as an ordinary school that has special resources and is able to address a full range of barriers to learning in an inclusive education environment (DBE, 2010).

Within the context of this study, the term school specifically denotes a public full service or special school, which enrols learners with VI in one or more grades from Grade R to Grade 12.

1.6.5. Learner

A learner is described as a person who attends school or is obliged to attend school and receives an education in terms of the South African Schools Act No. 84 of 1996 (DBE, 2010; RSA, 1996). Laurent, Matignon and Fort-Piat (2011) describe a learner as an individual who uses experiences to improve behaviour.

For the purposes of this study, the definition from the DBE (2010) in line with the South African Schools Act No. 84 of 1996 is used for learner.

1.6.6. Visual impairment

Visual impairment refers to heterogeneous eye conditions ranging from totally blind to those with low vision (Donald, Lazarus, & Moolla, 2017; Landsberg, 2016). The DBE (2010) describes blindness as the loss of useful vision, including permanent or

temporary damage to one's eye, or the area of the brain that is responsible for vision. For Bornman and Rose (2017), VI refers to the limitation of one or more functions within the visual system that affects visual acuity, visual field and/or colour. The study makes use of the latter description.

1.7. PARADIGMATIC PERSPECTIVES

Research is used to develop an understanding of the world (Maree, 2016), where the researcher's understanding is influenced by his or her views (Maree, 2016) and assumptions. The following section contains Table 1.1, which details the philosophies that guide the current study (Sefotho & Du Plessis, 2018). Table 1.1 contains the conceptual framework that will be described in detail in Chapter Two. Following the conceptual framework, I provide the epistemology and methodological approaches that directed the study, which will be elaborated on in Chapter Three.

Table 1.1: Overview of the paradigmatic perspectives

Conceptual framework	Bronfenbrenner's bioecological systems theory (Bronfenbrenner, 1976) was selected as schools are complex systems (Donald et al., 2017) and Bronfenbrenner's theory can describe schools (Johnson, 2008). In this study, each school was regarded as an individual system, and Bronfenbrenner's (1976) ecological structure of the educational environment was used to explain how the four levels of the system might influence teacher perceptions. The social model of disability (Dreyer, 2015) was included to describe aspects of teacher perceptions within the complex social system. Therefore, the social model of disability may provide insight into the way that society disables individuals with their views of disability and impairment (Anastasiou & Kauffman, 2011).
Epistemology	Interpretivism was selected as an epistemological paradigm regarding the understanding of the origin of knowledge, as interpretivism emphasises a person's ability to construct unique meaning (Nieuwenhuis, 2016b), where studying perceptions within a social context allows the researcher the opportunity to gain an understanding of the perceptions people hold (Nieuwenhuis, 2016b). An interpretivist epistemology is appropriate, as this study aims to understand teacher perceptions of the needs of learners with VI.
Methodological approach	A qualitative research approach was used as "qualitative research refers to research that elicits participant accounts of meaning, experience or perceptions" (Fouché & Delport, 2005, p. 74). As a qualitative approach focuses on understanding meaning within a context (Merriam & Tisdell, 2016), it was valuable to this study in gaining

	insight into teacher perceptions of the needs of learners with VI in full service and special schools in Gauteng. This notion of context is also aligned with the ecosystemic approach mentioned above.
Research Design	A case study approach was used as Yin (2014) and Crowe et al. (2011) explain that a case study design is used to explore a phenomenon in-depth and within its context. Therefore, this approach may help this study to gain insight into the perceptions teachers have of the needs of learners with VI in full service and special schools in Gauteng.

1.8. QUALITY CRITERIA

This study aimed to generate knowledge that may inform teaching practice in full service and special schools in Gauteng whose learner population includes learners with VI. For this reason, this study needs to be viewed as legitimate by the various stakeholders in the South African education system. To ensure this study is viewed as legitimate (valid), I followed two approaches to promote rigour and quality of qualitative research, namely authenticity of the data, and trustworthiness of the analysis (Sargeant, 2012). As a result, I made use of the criteria of Lincoln and Guba (1985), according to Nieuwenhuis (2016a) and Nowel, Norris, White, and Moules (2017), namely credibility, transferability, dependability and confirmability. In addition, Håkansson (2013) explains that one must apply and discuss the aforementioned criteria as well as ethics for research in order to be considered trustworthy. In section 3.5, I discuss the ethical guidelines and in section 3.6, I will elaborate on how trustworthiness was established.

1.9. ETHICAL GUIDELINES

The EU/DHET study applied the following ethical principles: informed consent, voluntary consent, non-maleficence, beneficence, avoiding harm to participants in collecting data, respecting the dignity and rights of the participants, keeping the data safe and obtaining permission to conduct the study (Flick, 2014a; Health Professions Council of South Africa [HPCSA], 2014). For this study, I followed, amongst others, the following ethical principles: safekeeping of the raw data and other materials (Flick, 2014a); doing justice to participants in analysing data (Flick, 2014a); obtaining the necessary permission from the University of Pretoria; and respecting the participants

(Stangor, 2011). Section 3.5 provides a detailed discussion on the ethical principles that were followed during this study.

1.10. OUTLINE

The chapters are structured as follows: Chapter One provided an overview of the study. The chapter began with the introduction and background, followed by the rational and purpose of the study. The research questions guiding the study were stated, followed by the working assumptions and clarification of key concepts. Thereafter the chapter presents the conceptual framework, epistemology, and research methodology, followed by the quality criteria and ethical considerations.

Chapter Two explores existing literature relating to VI and documented needs of learners with VI. Subsequently, it critically explains Bronfenbrenner's bioecological systems theory and social disability theory as these theories were used as the conceptual framework.

Chapter Three provides a detailed account of the research processes. Thus, the chapter begins by describing an interpretivist epistemological lens, and qualitative approach. Then I discuss the research design, followed by the selection procedure. Thereafter I discuss the data in the EU/DHET study, as this study uses transcriptions from the Participatory Reflection and Action (PRA) workshops. Following the discussion on the data sources and documentation, I then describe inductive thematic analysis with which the data was analysed. The chapter concludes by discussing the role of the researcher, trustworthiness and ethical considerations.

Chapter Four contains the results obtained during inductive thematic analysis in terms of the themes and sub-themes identified. Chapter Four also relates the results to the existing literature to identify similarities and discrepancies that occurred between the findings of the study and the existing literature.

Chapter Five concludes this study by reviewing the findings of the study presented in Chapter Four to answer the research questions and to determine if the purpose of the study was reached. Limitations and recommendations are also included.

1.11. SUMMARY

Chapter One provides an overview of my study within the EU/DHET study. Chapter One began with contextualising the phenomenon under investigation within the larger study. I then rationalised the undertaking of the study and provided the purpose, followed by the research questions that informed the research process. To ensure authenticity, I indicated my working assumptions. Thereafter, I explained key concepts and provided a brief overview of the paradigmatic choices, quality criteria and ethical considerations.

CHAPTER TWO
LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

2.1. INTRODUCTION

Chapter One provided the context and necessity of the study. Specific research questions were identified and the way to research the answers to the questions was briefly outlined. Chapter Two provides a review of the existing literature that relates to the field of study to provide a platform to investigate VI within full service and special schools within Gauteng. Thereafter, I discuss the conceptual framework which incorporates Bronfenbrenner's bioecological systems theory (1976, 1977) and the social model of disability (Dreyer, 2015).

2.2. CLASSIFICATION OF VISUAL IMPAIRMENT

According to Landsberg (2019), learners with VI are a diverse group ranging from those with low vision to those who are totally blind. Naipal and Rampersad (2018) explain that VI is a condition of reduced visual performance that cannot be fixed by refractive correction (spectacles or contact lenses), operations, or other medical interventions. The functional limitations of the visual system can thus be characterised by permanent vision loss (totally blind), restricted visual field, decreased contrast sensitivity, and increased sensitivity to glare (low vision). These conditions of VI may have an impact on one's ability to perform daily activities (Naipal & Rampersad, 2018), such as reading, mobility and orientation (World Health Organization [WHO], 2019b.)

The severity of VI is indicated by categories which reflect the burden of vision loss for the individual (WHO, 2019b). According to Bornman and Rose (2017), visual acuity refers to the size and distance of objects that one can see, and visual field assesses the individual's uses of their central, peripheral, superior, and inferior fields. Table 2.1 provides the classification of VI in relation to normal vision.

Table 2.1: Severity of VI (WHO, 2019a)

Category	Presenting distance visual acuity		
	Worse than	**Equal to or better than**	**Unit**
0 Mild or no VI		6/18 20/70	Metres Feet
1 Moderate VI	6/18 20/70	6/60 20/200	Metres Feet
2 Severe VI	6/60 20/200	3/60 20/400	Metres Feet
3 Blindness	3/60 20/400	1/60* 5/300 (20/1200)	Metres Feet
4 Blindness	1/60* 20/1200	Light perception	Metres Feet
5 Blindness	No light perception		
9	Undetermined or unspecified		
	* Or counts fingers (CF) at 1 metre		

According to Table 2.1, VI varies from Category 0 (no to mild VI) to Category 5 (blindness without perception of light). Normal vision is 6/6. Moderate VI at 6/18 means that what an individual with moderate VI can see at six metres, an individual with normal vision can see at 18 metres. Table 2.1 includes the distance in feet as vision was measured in feet before the metric system was used. Therefore, normal vision in feet is 20/20, low vision is 20/70 and legal blindness is reached at 20/200 (Bornman & Rose, 2017). Thus, VI is viewed in terms of visual functioning and a limitation in one or more functions of the visual system that affects visual acuity, visual field and colour (Bornman & Rose, 2017).

From the table above, it is apparent that ability to access one's environment is influenced by one's ability to see. As a result, performance of vision-related activities is affected by one's vision. Within the education setting, it is necessary to be cognisant

of the impact of VI, and the related educational needs, as this will influence the learner's ability to participate. This is an important factor, as 80-90% of early learning is based on visual input (Bornman & Rose, 2017).

2.3. DIFFERENT VISUAL IMPAIRMENT CONDITIONS (AND ASSOCIATED CAUSES AND RISK FACTORS)

Solebo and Rahi (2014) explain that the type of conditions of VI of a learner influences the clinical management and the educational, health and social needs of the learner (see Appendix A). This means that teachers must be aware of the specific condition of VI a learner may be contending with, in order to know how best to support the learner. For example, some learners with VI have a VI condition, which requires text to be enlarged. Other learners with VI have a VI condition which allows only tunnel vision. For these learners text often has to be made smaller, so that the tunnel of remaining vision can access the text. If teachers do not understand the unique characteristics of a VI condition, such a learner will struggle to participate and be included in the education process.

It is also relevant for teachers to note that they need to keep in mind that learners' maturation of body parts, such as the eyeball, is not fully developed until puberty (Louw & Louw, 2014). Young children tend to be farsighted. By pre-school, visual and focusing abilities have improved; however, visual acuity is not 6/6, but rather 6/9 on average (Louw & Louw, 2014). In middle childhood, prevalence studies have indicated that the most common vision challenge is myopia. Consequently, at different ages learners' vision changes, and the problems learners experience may change with their age. Thus, challenges with vision may affect almost all spheres of a child's life, including school (Louw & Louw, 2014).

2.4. DEVELOPMENT OF LEARNERS WITH VISUAL IMPAIRMENT

Fotiadou, Christodoulou, Soulis, Tsimaras, and Mousouli (2014) explain that vision is one of the most important senses, and that a loss or a decrease in vision has a severe impact on the development of people's lives. According to Haddad, Lobato, Sampaio, and Kara-José (2006), VI affects children's cognitive, motor and affective

development, but that the extent to which VI influences development depends on the age of onset and additional impairments, and the interaction among these.

Vision impairment may hamper the expected development of a child (Landsberg, 2019; Pring, 2008), as vision provides children with information about people, objects and the space around them (Lewis, Norgate, Collis, & Reynolds, 2000). Therefore, the information learners with VI obtain from their vision may be inconsistent, fragmented, and passive, as not all objects make a noise or have an odour. The learners with VI experience that the information comes in small pieces and they cannot control what they see or touch (Landsberg, 2019; Strickling, 2010). Consequently, VI may hinder learners' development if they do not receive appropriate support from their caregivers and parents, school and the community from birth (Fotiadou et al., 2014; Landsberg, 2019).

2.4.1. Physical and motor development

Every child, irrespective of impairment, goes through the same physical and motor development processes (Landsberg, 2019). According to Louw and Louw (2014), physical development leads to motor development. However, learners with VI are slower in their physical development, which leads to slower motor development. Landsberg (2019) and Strickling (2010) explained that self-initiated movements are delayed, as babies with VI are not visually stimulated to move their bodies, and sound is not as strong a motivator as vision (Strickling, 2010). As a result, they experience motor delays (Landsberg, 2019), as they do not develop sufficient control over their heads, neck, and trunk muscles. Consequently, babies with VI need more time to learn to crawl, sit, stand and walk (Landsberg, 2019); for example, an infant with VI will not reach for an object based on sound cue until they are about 12 months old. Hence, there is a delay in environmental exploration (Strickling, 2010). Fotiadou et al. (2014) explain that even a minor decrease in vision can impair one's motor performance.

In addition to delayed exploration, children with VI lack visual feedback, which has an impact on their concept development and their ability to establish laterality and directionality, as the only feedback to establish laterality and directionality is through sound (Strickling, 2010).

A lack of visual motivation could affect gross and fine motor coordination and result in gross and fine muscle underdevelopment, as a child with VI is not visually stimulated to run, jump and climb, or to manipulate small objects in their hands (Landsberg, 2019; Louw & Louw, 2014; Strickling, 2010). Therefore, the muscle tone of learners with VI may have an impact on their ability to learn, as it can influence their ability to carry a braille machine, as well as to type (Landsberg, 2019). The speed at which physical and motor development occurs depends on the degree of residual vision, the eye condition, and the quality of support the child receives from birth (Landsberg, 2019).

Consequently, eye condition influences the ability of the learners with VI to explore, understand, and enjoy their environment (Louw & Louw, 2014; Strickling, 2010) and teachers need to be aware of the eye conditions, as this will influence how the learners with VI are supported to participate. For example, learners with myopia and cataracts are not encouraged to run towards objects, as they cannot see these objects in the distance (Landsberg, 2019). Learners with albinism will not enjoy playing outside due to their severe photophobia and potential myopia (Landsberg, 2019). Learners with macular degeneration may not take part in close-vision activities, therefore their fine motor movement may be hindered which may affect their writing ability (Landsberg, 2019).

To conclude, children's physical and motor development facilitates development of other skills and systems. Therefore, motor development has an impact on the acquisition of skills such as writing, drawing and painting. At a social level, motor development can enhance learners' participation in sports, which may enhance their self-esteem (Louw & Louw, 2014). Physical activities often enable peer interaction which supports their social and personality development (Fotiadou et al., 2014; Louw & Louw, 2014). Lieberman and McHugh (2001) note that children with VI can easily be excluded and marginalised from their peer group due to their poor physical conditioning and motor abilities (as cited in Fotiadou et al., 2014).

2.4.2. Perceptual development

Perception constitutes the interpretation and labelling of incoming stimuli from the senses (Landsberg, 2019). Perception is an innate and acquired ability and most children develop perception through play, as play allows them to interact with objects, pinpoint the direction and source of sound, identify objects through touch, and to judge distance (Landsberg, 2019). These sensory encounters enable learners to form concepts on which they base their knowledge of the abstract world (Landsberg, 2019); however, VI still affects the quality of the information processing system (Palmer, 2005).

According to Bornman and Rose (2017), visual perception involves the brain's ability to organise and interpret what the eyes see; therefore, children with VI may experience difficulties with visual perception, as children with low vision or functional residual vision may experience difficulties with spontaneous visual stimulation (Bornman & Rose, 2017), meaning they are unable to interpret and organise accurately what they see (Landsberg, 2019). Similar to physical and motor development, the type of eye condition influences perceptual development, as children with cataracts, hyperopia and macular degeneration may find it difficult to distinguish between foreground and background (Landsberg, 2019).

Consequently, learners with VI must rely on auditory and tactile information and they need to be taught the concepts that sighted learners learn incidentally (Palmer, 2005). Strickling (2010) explains that sounds only acquire meaning after tactual, motor, and auditory interactions. Spontaneous tactile exploration usually occurs due to the lure of visual dimensions such as colour, pattern, shape, and location. As these visual lures are unavailable to learners with VI, purposeful tactile activities must be introduced to prevent the environment from staying unknown (Strickling, 2010).

2.4.3. Language and cognitive development

Language development occurs mainly through auditory perception (Landsberg, 2019), as language is mainly acquired through teaching, imitating, and listening to others (Landsberg, 2019; Strickling 2010). Nevertheless, children with VI may not fully understand all words, such as abstract words, and they may be slower to form

hypotheses about word meanings compared to their peers without VI (Landsberg, 2019). Some concepts, such as ‘red’, ‘blue’, ‘waves’ and ‘blush’, are difficult to describe using known words. Other concepts, such as ‘mountains’ and ‘clouds’, are not available for tactile exploration by hand, and some concepts are too dangerous to explore by hand, such as ‘scorpions’ and ‘snakes’.

This notion is explained by Strickling (2010), who notes that children who are blind may be hesitant to explore their world, because they may be afraid of the unknown or their hesitation may be caused by overprotective adults (Strickling, 2010). Therefore, they have limited concrete experiences that have an impact on their ability to form meaningful concepts, as well as to develop the descriptive language needed to describe them (Ophir-Cohen, Ashkenazy, Cohen, & Tirosh, 2005; Strickling, 2010). As a result, they may use words of which they do not have clear understanding, or may use certain words out of context (Landsberg, 2019; Strickling, 2010). Thus, VI influences language development as children with VI may have limited concept development based on the curtailing of their visual experience of the world (Strickling, 2010). Learners with VI are thus likely to construct their world differently to that of their sighted peers (Strickling, 2010).

According to Pring (2008), learners with VI can learn to compensate for their VI and can achieve similar levels of intellectual and educational attainment, and can even attain superior levels of achievement in some cognitive areas relating to memory and processing speed. It seems that auditory processing requires more attention, which may lead to improved retention of the material (Pring, 2008).

2.4.4. Social and emotional development

Social and emotional development often takes place in interaction with others. Learners without VI rely heavily on observation to know how they ought to behave in a group. For learners with VI, all the subtleties of social behaviour and correct emotional expression have to be taught.

One reason why children with VI sometimes find social interaction challenging is because of their inability to observe facial expressions, which affects their ability to

interpret people's emotions, and to react appropriately (Landsberg, 2019). Consequently, children with VI can be ignored by their peers without VI (Landsberg, 2019). In addition, Louw and Louw (2014) add that in middle childhood children enjoy play activities that improve physical skills such as throwing, kicking, and catching balls (Louw & Louw, 2014). Section 2.4.1, however, mentions the delay in fine and gross motor development by learners with VI, which would not support ball games with peers.

Landsberg (2019) mentioned a second reason for challenges with social interaction, namely that learners with VI can exhibit socially inappropriate mannerisms such as turning their heads regularly, rocking, twisting their fists into their eye sockets, or waving their hands in front of their eyes (Landsberg, 2019). These mannerisms are the result of restricted movement, a lack of sensory stimulation, limited physical activity and/or an attempt to self-regulate when one is overstimulated (Landsberg, 2019). Subsequently, these mannerisms might cause sighted peers to be afraid of learners with VI and it can result in parents and teachers labelling them as autistic, intellectually impaired or emotionally disturbed (Landsberg, 2019), which does not support social and emotional development of learners with VI.

A third factor that may influence social and emotional development of learners with VI is their ignorance of the accepted way of doing things, as they cannot observe the subtle expectations. Landsberg (2019) gives an example of learners with VI who could appear disrespectful in the classroom as they may call for the teacher while the teacher is busy with other learners.

Another factor that could impede social and emotional development is the fact that certain visual impairments are inconspicuous. Peers may thus not understand when a learner who is myopic does not wave to a friend who is far away. This can result in learners with VI trying to hide their impairment and provide other explanations for why they did not wave (Landsberg, 2019).

According to Ophir-Cohen et al. (2005), research has established that VI may affect children's attachment and socialisation, and that there is a prevalence of specific

emotional and behaviour problems as well as developmental delays. Harris and Lord (2016) explain that learners with VI experience loneliness and make fewer friends compared to their peers without VI. In addition, Landsberg (2019) also indicated that being called names by their peers can cause learners with VI to withdraw. According to Lieberman and McHugh (2001), one's inability to interact owing to one's vision can cause one to feel insecure, lonely and disappointed, which may cause the child to become egocentric and socially excluded (as cited in Fotiadou et al., 2014).

Section 2.4.1 established that the development of different domains are interlinked. It also established that the specific eye conditions have specific needs to be met. Consequently, the next section will explore the needs of learners with VI.

2.5. NEEDS OF LEARNERS WITH VISUAL IMPAIRMENT

Based on the discussion in Section 2.4, one can assume that learners' needs may be influenced by their eye condition and their experiences. Swart and Pettipher (2019) explain that specific learning needs may be caused by the complex interplay of intrinsic and extrinsic barriers to learning. As a result, Section 2.5 discusses the educational, emotional, psychological, social and cognitive needs of learners with VI.

2.5.1. Educational needs

According to Palmer (2005), one ought to address the specific needs of learners with VI in order to ensure educational outcomes and to accommodate these needs in one's educational planning. For this reason, teachers need to be aware of the specific needs. Research by De Verdier and Ek (2014) indicate that parents and teachers reportedly hold the view that learners with VI should have the same academic demands placed on them, provided they that they received appropriate support. Research by De Verdier and Ek (2014) also indicates that parents feel that ensuring that their child receives the right support is an endless struggle (De Verdier & Ek, 2014).

As learners with VI become tired and take longer to do academic tasks, it is essential to provide more time. De Verdier and Ek (2014) explain that the reading speed of learners with VI develops slowly; however, that their reading comprehension is at grade level. As a result, some learners prefer to use audio books, as this enables

them to keep up in the classroom, whereas other learners with VI prefer braille, as they feel that headphones alienated them from their peers (De Verdier & Ek, 2014).

According to Fraser and Maguvhe (2008), one can support learners with VI learning by using tactile stimuli to supplement for the loss of vision. Thus, learners can learn about shape and size of objects using models. However, learners with VI can become overwhelmed by complex and busy diagram, where one needs to help guide the learner through the model and figures (Fraser & Maguvhe, 2008). To further assist learners, Fraser and Maguvhe (2008) indicate that braille labels can accompany the models to assist learners with feeling their way through the diagram, model or sketch.

In Chapter One, it was mentioned that not all teachers have attended courses or have been trained to teach learners with VI. Consequently, lack of teacher training may influence the support and subsequently the learner's ability to participate in the learning process. According to Haakma, Janssen and Minnaert (2018), helping learners to be independent was the least provided form of support by teachers, where current research indicates that learners with VI may not receive the opportunity to behave in autonomous, self-determined ways. Therefore, learners with VI require opportunities to be independent, as independence influences self-esteem.

2.5.2. Emotional and psychological needs

The degree to which learners with VI experience their needs being met influences their engagement in the classroom (Haakma et al., 2018). According to Haakma et al. (2018), teachers can meet the psychological needs of learners with VI by offering learners structure, support, involvement, and autonomy.

Support within the school system is critical as VI can hamper learners with VI's motivation (Haakma et al., 2018). Research indicated that learners with VI expressed a desire to do things like their peers without VI and to have the same degree of independence (De Verdier & Ek, 2014; Palmer, 2005). In addition, research by (Tadić, Hundt, Keeley, Rahi, & Vision-related Quality of Life (VQoL) group, 2015) has revealed that learners who lost their sight found it more traumatic than learners who were born

blind, thus, the condition and onset of VI plays a role in the psychological and emotional needs of learners with VI.

2.5.3. Social needs

According to Roe (2008), visual information provides an advantage for developing social understanding and children with VI demonstrate difficulties in this area. Therefore, children with VI require other individuals to teach them appropriate social skills, which are usually taught through interaction (Schoenberger, 2010). Thus, learners need to be taught independence, problem solving, leisure skills, reciprocal conversation skills, acceptable manners, helping skills, coping strategies, reciprocal behaviours, world knowledge, and basic grooming, to name a few (Schoenberger, 2010). These skills are needed due to the fact that social emotional development is necessary to be successful in many contexts (Roe, 2008). As children spend a considerable amount of time with one another, friendships become essential, as they allow children to practice and expand their social skills (Roe, 2008). In addition, children with VI require more time and experience to learn social skills (Roe, 2008). Thus, children with VI require relevant experiences and a conducive learning environment in order to learn how to interact with others, as they require verbal feedback so as to be able to interact with others (Roe, 2008).

In South Africa one needs to be mindful that in a classroom there may be multiple languages spoken (Donald et al., 2017). Therefore, language can become an additional barrier. If the learner with VI does not understand the language that will have an impact on their understanding of the feedback they receive.

2.5.4. Cognitive needs

There are many cognitive needs related to the school environment. One need for learners with VI would be to access the content in the curriculum, as they have limited or no access via the visual medium, thus learners with VI must rely on their sense of touch and hearing to learn (Davis & Hopwood, 2004). For this reason, learners with VI need more time to integrate information compared to their peers without VI (Davis & Hopwood, 2004). In addition, learners with VI can become visually fatigued when concentrating for sustained periods of time, where as a result, they need additional

time to rest their eyes regularly. Davis and Hopwood (2004) added that current research indicated that the use of braille imposes significant cognitive demands for learners with VI compared with their peers without VI. For learners with severe VI, the use of braille to access the content and to show mastery of the content can become contentious, especially if the learner is the only learner in class using braille.

Another cognitive need would be to understand abstract words (Landsberg, 2019; Strickling, 2010). Suitable learning and teaching materials are also important, as the specific condition of VI may require different learning and teaching material (Fraser & Maguvhe, 2008). Visual stimuli are a prerequisite for conceptual development in the facilitation of subject content in general and life sciences (Fraser & Maguvhe, 2008). For example, in life sciences, expecting learning through observation would be challenging to most learners with VI, whereas learning through listening and using multiple tactile stimuli to supplement for the loss of sight allows learners to perceive size and shape. Consequently, listening and tactile stimuli would be acceptable to most learners with VI. As with social needs, the possibility of being taught in the home language, especially for young learners with VI, may be a cognitive need. Another cognitive need might lie in the attitudes of teachers towards learners with VI in schools (Dreyer, 2015; Shakespeare, 2013). Learners with VI might expect their teachers to convey an attitude of ability and not of disability and limited cognitive functioning (Dreyer, 2015; Shakespeare, 2013).

Based on the nature of the VI, educational, emotional, psychological, social and cognitive needs may differ from person to person. Consequently, I will discuss the conceptual framework through which learner need can be understood. Using the framework, I will then explore some of the systemic barriers that may have an impact on VI.

2.6. CONCEPTUAL FRAMEWORK: BRONFENBRENNER'S BIOECOLOGICAL SYSTEMS THEORY COMBINED WITH SOCIAL DISABILITY

For this study, a conceptual framework will be used that consists of Bronfenbrenner's bioecological systems theory (Bronfenbrenner, 1976, 1977) and the social model for disability (Dreyer, 2015). Bronfenbrenner's bioecological systems theory

(Bronfenbrenner, 1976, 1977) was selected owing to the fact that schools are complex systems (Donald et al., 2017) and the DBE selected a systemic approach to barriers to guarantee that all learners benefit from inclusive education (Dreyer, 2015). The social model for disability was selected due to the intended paradigm shift away from the medical model to acknowledge equal opportunity, self-reliance, and independence (Dreyer, 2015), which are needs that learners with VI may have as indicated in the literature above. In addition, the social model of disability recognises that society influences the learner's ability to learn and develop (Dreyer, 2015). Therefore, this model may help me to explore teacher perceptions of the needs of learners with VI within their context.

This section will first discuss the social model for disability, followed by Bronfenbrenner's bioecological systems theory (Bronfenbrenner, 1976) and will then conclude with a diagram and explanation of the integration of these theories.

2.6.1. Social model of disability

According to Anastasiou and Kauffman (2011), the basic concepts of the social model were developed originally in the 1970s by the Union of the Physically Impaired Against Segregation (UPIAS), an organisation in the United Kingdom that advocated for the rights of individuals with physical disabilities. As this study focuses on addressing the needs of learners with VI, this model seemed appropriate. In addition, a model has fewer requirements than a theory, where it can explain some planes of an experience and not the whole phenomenon (Anastasiou & Kauffman, 2011). As a result, this model may help me examine aspects of teacher perceptions within the complex school system. The social model of disability is a practical tool for developing insight into the way that society may disable individuals with impairments (Anastasiou & Kauffman, 2011). Thus, this tool may help this study to examine how teacher perceptions of the needs of learners with VI may affect their participation. One goal of the social model of disability is to promote meaningful participation of learners with impairments in a mainstream classroom. Therefore, the social model of disability acknowledges that all learners have unique needs and there is no single method to respond to learners' needs (Dreyer, 2015).

The social model of disability suggests that society creates barriers that are designed to serve the interest of the social majority but restricts accessibility and, hence, participation for individuals with special needs. Barriers in society can range from inaccessible buildings, dismissive attitudes, and discrimination, to name a few (Dreyer, 2015). Consequently, this model may help in understanding why the needs of learners with VI in South Africa are not met, despite the policies to include differences in the society.

Dreyer (2015) explains that responding to the needs of learners with impairments (such as VI), requires educational institutions to move beyond providing physical access to the school by providing participation in all aspects of schooling (Dreyer, 2015). Therefore, Dreyer (2015) explains that for participation to occur, one needs to evaluate the support and services designed to meet learner needs. This study is designed to evaluate teacher perceptions which may influence the support that learners with VI receive.

The social model of disability places moral responsibility on society to address the barriers that have been imposed on people with impairment (Shakespeare, 2013). Therefore, this model holds society accountable and moves the problem of disability from the person to the societal barriers and attitudes, which disable them (Shakespeare, 2013). The social model of disability does not require the person to change, but requires society to change (Shakespeare, 2013). To change society, one needs to examine the role players within it. Therefore, by exploring teacher perceptions using this social model of disability, one may develop an understanding of the attitudes that enhance and/or limit participation of learners with VI within the classroom.

Dreyer (2015) emphasises that one needs to be able to identify the barriers that generate learner needs. Thus, this study will use four broad categories of barriers in order to identify learners needs (Dreyer, 2015), namely (1) systemic barriers, such as policies and curriculum, availability of assistive devices, and facilities at the schools; (2) societal barriers, such as poverty, access to services, attitudes and stereotypes; (3) pedagogic and curriculum barriers, such as teaching methodologies, assessment procedures, support and curriculum; and (4) intrinsic barriers which is VI and co-

morbidity, to name a few (Dreyer, 2015). It is important to note that although VI is located in the individual, the disabling happens in the society.

To conclude, Shakespeare (2013) indicates that the social model of disability is useful, as it forces the unconscious cultural assumptions about individuals with impairments out into the open for examination, thus it may help people recognise the sources of their perceptions.

2.6.2. Bronfenbrenner's bioecological systems theory

According to Bronfenbrenner (1977), human environments are complex in their basic organisation, to the extent that they are unlikely to be captured by unidimensional research models (Bronfenbrenner, 1976). As schools are complex systems (Donald et al., 2017), Bronfenbrenner's theory can be used to describe the school contexts (Johnson, 2008).

According to Bronfenbrenner (1976), the ecological structure of the school context consists of four systems. The first system is the micro-system, which is the immediate setting where the individual takes on a role and activities associated with the role at a given time (Bronfenbrenner, 1976). For this study, the individual is the teacher within the classroom, who is involved in proximal interactions with the learners in the classroom (Donald et al., 2017). The micro-system will be used to investigate how the proximal processes between teacher and learner with VI within the class have influenced the teacher perceptions of VI, and how the teacher perceptions of VI have influenced the learner with VI in the class.

The next system is the meso-system, which involves continuous interactions among micro-systems (Bronfenbrenner, 1976; Donald et al., 2017). Therefore, the meso-system will be used to discover how interactions among micro-systems may influence teachers' perceptions of VI, for example, how the interplay between the school and the learner's home influences the teacher's perception of what the learner may require.

Following and extending from the meso-system is the exo-system (Bronfenbrenner, 1976), which is a larger social, educational, economic or political system where the teacher has no direct influence (Johnson, 2008). However, what happens within these systems influences the teacher (Bronfenbrenner, 1976). An example of the exo-system is government policies (Johnson, 2008). Within this study, the exo-system will be used to explain the potential influence of the DBE's policies on disabilities on teacher perceptions of the needs of learners with VI.

The final system is the macro-system, which includes culture, values, belief systems and customs (Bronfenbrenner, 1977; Johnson, 2008). The macro-system has an indirect influence (Johnson, 2008) on the proximal interactions in the micro- and mesosystems (Donald et al., 2017). Thus, the macro-system will be used to explain how culture, beliefs and values may influence teacher perceptions.

The chronosystem refers to time which plays a key role in understanding human development (Donald et al., 2017). As time affects the interaction between systems, it influences individual development (Donald et al., 2017). Louw and Louw (2014) add that there are critical points of development, and, therefore optimal periods for intervention; for example, treatment for amblyopia is most effective before the age of eight or nine years, as the brain reaches visual maturity at about that age (Courtright, Hutchinson & Lewallen, 2011; DeSantis, 2014). Within the school context, the chronosystem will be used to examine how changes in a school have influenced teacher perceptions. As the Department of Education (DoE) *Education White Paper 6* was published in 2001, implementation of policies within schools over the intervening period will have had an impact on the school itself.

Therefore, in this study, full service and special schools will be regarded as individual systems and the four levels of the system (micro, meso, exo and macro) will be used to investigate whether and how the particular level of system may influence the perceptions teachers have of the needs of learners with VI.

Bronfenbrenner's theory involves interactions. To explain interaction the Process-Person-Context-Time model (PPCT) was developed (Donald et al., 2017). Process refers to transactions that occur between individuals, for example, transactions

between a teacher and a child in the classroom (Donald et al., 2017). These transactions are influenced by personal factors, as well as the context in a given time (Donald et al., 2017). Accordingly, through transactions, individuals have a reciprocal influence on each other (Donald et al., 2017). This model will be used to discover how transactions influence teacher perceptions of the needs of learners with VI, or how teacher perceptions of the needs of learners with VI influence transactions, as the system influences the teacher and the teacher influences the system.

2.6.3. Conceptual framework diagram

The conceptual framework is grounded in Bronfenbrenner's (1977) bioecological systems theory, as the literature suggests that the needs of learners with VI must be viewed within the broader social context if one is to develop a holistic understanding of them and how they may be met (Bouwer, 2016). Figure 2.1 is a visual representation of the integration of the social model of disability and Bronfenbrenner's bioecological theory (Bronfenbrenner, 1977).

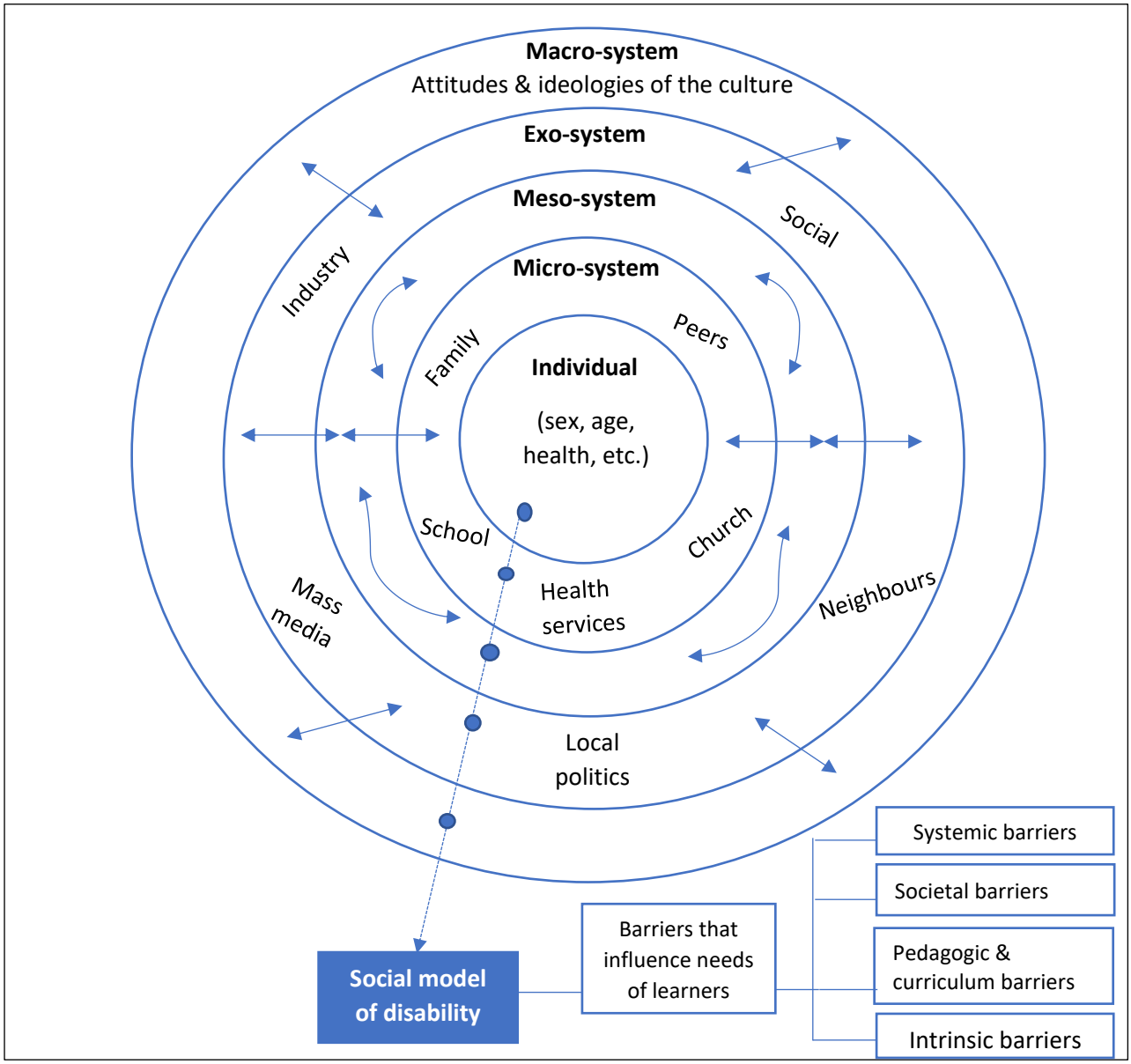

Figure 2.1: The 2nd revision to ecological theory (Bronfenbrenner, 1977, as cited in Vélez-Agosto, Soto-Crespo, Vizcarrondo-Oppenheimer, Vega-Molina, & Coll, 2017, p. 902), combined with the social model of disability (Dreyer, 2015).

To conclude, Swart and Pettipher (2016) explain that Bronfenbrenner's bioecological systems theory is a conceptual tool that can be used to understand the social context and its influence at multiples levels; thus, this tool helps to identify the categories of the social model of disabilities to identify the possible levels of system, where learners with VI may experience needs.

2.7. SYSTEMIC BARRIERS THAT MAY DETRIMENTAL IMPACT ON VISUAL IMPAIRMENT

As indicated above, VI influences all aspects of children's lives. According to Donald et al. (2017), some of the challenges children with VI experience are caused by the children's environment, as systemic barriers such as negative attitudes, stereotypes, inadequately trained teachers, inflexible curriculum, inaccessible environments, inadequate support services, and lack of parent involvement (Bornman & Rose, 2017; Landsberg, 2016; Louw & Louw, 2014), can cause barriers to learning for learners with VI (Donald et al., 2017).

Additional systemic barriers were identified in the *Left in the Dark Report* (Fish-Hodgson & Khumalo, 2015). The report indicated that policies made by the South African government played a major role in the inappropriate education of learners with VI. The inappropriate education that learners with VI receive is influenced by the vagueness of polices, poor resources, demands of the curriculum and lack of support (Bornman & Rose, 2017; Fish-Hodgson & Khumalo, 2015; Swart & Pettipher, 2016). Therefore, vagueness in these policies has resulted in teachers being unsure how to teach learners with barriers to learning effectively (Fish-Hodgson & Khumalo, 2015). It is crucial for teachers to understand the needs of learners, as teachers' understanding of learner needs influences whether or not learners can engage in the classroom (Haakma et al., 2018).

The following section will examine different systems, and the potential influence they may have in forming teacher perceptions.

2.7.1. Education system

In section 2.1 I discussed that one's ability to participate (be included) is dependent on access to the learning environment. According to Palmer (2005), access to learning is achieved when special education modifications are made, appropriate educational materials, equipment and resources are available, and concessions are granted (Palmer, 2005).

In addition to environmental adaptions, Landsberg (2019) indicated that the attitude of teachers towards learners with VI influence their social and emotional development. Several factors which may influence teacher perceptions are discussed below.

2.7.1.1. Framing of disabilities and visual impairment within education

Teacher perceptions of disabilities and concomitant learner needs depend on teachers' orientation towards disabilities which is influenced by beliefs about the disabilities (Lazarus & Oluwole, 2017). A teacher's orientation can potentially affect the education process negatively (Lazarus & Oluwole, 2017) as teachers may be apprehensive of teaching learners with VI as there are often few children with VI in a school (Landsberg, 2016). According to Landsberg (2016), teachers' apprehension will not change until teachers receive the necessary support and training required to accommodate learners with VI.

Teacher perceptions are influenced by their training, resources, class size, responsibilities, and experience with special needs (Peček, Čuk, & Lesar, 2008). Currently, many South African teachers are over the age of 50 and their training was in general or special education (Donohue & Bornman, 2014). Therefore, it is safe to assume that many South African teachers are not trained to teach in the new social paradigm of inclusive education (Donohue & Bornman, 2014). According to Fraser and Maguvhe (2008), teachers' negative perceptions towards learners with VI may result from factors such as the teachers' lack of confidence, as well as their sense of perceived personal inability to teach learners with VI.

2.7.1.2. Types of school: full service and special schools

South Africa follows a policy of inclusive education, where some learners are accommodated in full service schools (DoE, 2001). However, policy and practice differ, with many learners not included in full service nor special schools. Special schools are to become resource centres for inclusive schools (Bornman & Rose, 2017). According to Salleha and Zainalb (2010), special education programmes are designed to cater to the learning needs and abilities of children with VI. Therefore, the teaching styles, educational goals and instructional materials are tailored to address the specific learning needs of learners with VI (Salleha & Zainalb, 2010). Visual impairment needs

require support in excess of what the mainstream and inclusion school can provide. De Verdier and Ek (2014) explained that teachers in mainstream schools found it difficult to make the following subjects available to learners with VI: design, technology, physical education, mathematics, and physical sciences. Some of the parents of these learners explained that when they moved their children to special schools, they noticed a marked sense of happiness and participation amongst the learners (De Verdier & Ek, 2014). De Verdier and Ek (2014) also found that learners who moved to a special school were happier there, as they found themselves amongst individuals like themselves. The need to establish a sense of belonging to one's peer group should not be underestimated.

However, in the South African context, accessibility is influenced by many factors, of which money is one factor. Bornman and Rose (2017) explained that the DBE budget for 2014-2015 for special schools was 12 times more than that which was assigned for inclusive schools. This calls into question the commitment of the South African government to their policies of inclusive education. Bornman and Rose (2017) stressed that South Africa needs better-resourced full service schools, as access to special schools is still limited. Due to this need, many learners with VI do not have access to formal education (Bornman & Rose, 2017). Bornman and Rose (2017) explained that teachers in rural and under-resourced schools struggle to acquire knowledge and skills, as attending lectures and workshops may be challenging owing to transport problems, and the expenses involved in attending training.

According to Tadić et al. (2015), in a mainstream setting, learners with VI expressed that they felt that teachers and teaching assistance prevented them from being like their peers. They revealed that within a mainstream setting, sport and break time were difficult for them, as they felt excluded, isolated, or bullied. Learners in special schools or learners who had moved to special schools expressed that they felt accepted and that they were treated more fairly in special schools. Thus, learners expressed that in special schools' teachers spoke to them 'normally' and they felt normal whereas in mainstream education they felt that children with eye conditions were overlooked and teachers shouted too much (Tadić et al., 2015).

2.7.1.3. Curriculum

According to Palmer (2005) and Bornman and Rose (2017), the curriculum needs of learners with VI consist of two components. The first component is access to the general curriculum using adaption and support. The second component involves addressing the specific issues that are unique to the learner with VI (Bornman & Rose, 2017) in an expanded core curriculum (ECC) that consists of the teaching of specific skills that will enable learners' access and participation in learning (Palmer, 2005). Examples of such skills include skills to work assistive devices, skills to move independently and skills for certain daily activities.

2.7.1.4. Visual impairment as a barrier to learning and participation

According to Palmer (2005) and Landsberg (2019), vision is a main channel for learning. Challenges with vision, therefore, can have an impact on all aspects of children's lives, especially at school, as VI affects their ability to learn to read and write, and see material presented on a board (Louw & Louw, 2014). Participation in school is essential as it influences who children will become, and affects their employment and social prospects (Chadha & Subramanian, 2010).

Being aware of the condition of VI is essential, as Bornman and Rose (2017) explain that this information allows the teacher to determine the best position for placing activities to allow for optimal vision. For example, learners with albinism must not sit close to windows, whereas some other learners require task lighting. Consequently, incidental learning is severely restricted by eye conditions (Bornman & Rose, 2017), and the concepts that are learnt through observations need to be explicitly taught to learners with VI (Palmer, 2005). Therefore, learners with VI learn at different rates and in different sequences compared to other learners (Bornman & Rose, 2017).

As children with VI may exhibit mannerisms that people can find unusual, teachers can be advocates for those learners by explaining to peers without VI the reasoning behind the mannerisms (Landsberg, 2019). De Verdier and Ek (2014) warn that learning braille decoding skills takes longer than learning to read; thus, learners with VI in the Foundation Phase should not be compared to other learners.

2.7.1.5. Teacher competency to meet learner needs

VI is regarded as a low-incidence impairment as the learner population diagnosed with VI is smaller than other impairments (Landsberg, 2019). According to Landsberg (2019), teachers are apprehensive about having learners with VI in the classroom. Subsequently, Bornman and Rose (2017) explain that teachers may feel overwhelmed by the presence of children who are viewed as “different”, which may result in these learners being excluded.

Research by Palmer (2005) indicates that teachers were worried about the speed of technological progress; however, the literature suggests that technology can be used to level the playing field between learners with VI and their peers (Palmer, 2005). Therefore, teachers need to be cognisant of the range of technology available and they need to be trained in using these devices if they are going to assist learners with VI (Palmer, 2005).

Consequently, a significant barrier to inclusion of learners with VI is the lack of training that teachers and other stakeholders receive, as this has an impact on their knowledge and skill (De Verdier & Ek, 2014), which, in turn, can influence the learner’s ability to participate (De Verdier & Ek, 2014).

The ability to participate in classroom activities was a factor identified by De Verdier and Ek (2014) as some learners in their study indicated that sometimes the activity and materials had not been adapted properly. Teacher competency to make subjects available to learners with VI will also have an impact on participation in the classroom. Support is emphasised by Bornman and Rose (2017) who explain that even when teachers attend training, there are inadequate support structures to implement what has been learnt.

2.7.2. Social and community system

Parents need to have an inclusive approach from birth as social integration from infancy and involvement in family and community life prepares learners for an inclusive school environment and life within their community (Louw & Louw, 2014). In addition, the social and community context affects the availability of resources to buy assistive

devices and technology. Peer pressure can play a role in learners with VI desiring to be 'normal'. Therefore, children with VI may be at increased risk of being bullied (Bornman & Rose, 2017; Tadić et al., 2015).

Consequently, learners with VI indicated that they have few opportunities for spontaneous socialising, as they sometimes avoid queues in the school tuckshop, dining halls as well as the busy playground (Tadić et al., 2015). Yet other learners with VI found that leisure and sports activities were altered to provide opportunities for them to interact with peers (Tadić et al., 2015).

2.7.3. Political system

South Africa has progressive national policies, such as the *Education White Paper 6* of 2001 (Coetzee, Le Roux, & Mohangi, 2019) and the South African Schools Act No. 84 of 1996 (RSA, 1996), which are in line with the Convention on the rights of persons with Disability and the Convention on the rights of the Child (Bornman & Rose, 2017). Therefore, on paper, South African policies make education accessible to all (Bornman & Rose, 2017). According to the *Education White Paper 6* of 2001, the South African Education Department adopted an inclusive education system (DoE, 2001). This system allows children with various learning needs, impairments, and psychosocial challenges to be included in mainstream education (Louw & Louw, 2014).

However, the South African schools' statistics show the slow implementation of inclusion, which limits participation of children with impairments (Bornman & Rose, 2017. Therefore, the policies in South Africa exist (Bornman & Rose, 2017), even though there are challenges with the implementation of these policies, which has resulted in a large number of school-aged children with impairments being excluded from the South African education system, or unable to effectively access the curriculum in special or ordinary schools (Bornman & Rose, 2017).

2.8. SYSTEMIC FACILITATORS OF VISUAL IMPAIRMENT

From the discussion above, it is evident that VI can affect multiple aspects of a child's life and development. Thus, to support learners with VI all systems outlined in this study's conceptual framework in Section 2.6 should be included in intervention, as

including these systems may meet the needs of learners with VI. According to Louw and Louw (2014), research shows that teacher attitudes towards children's needs are one of the biggest predictors of success within an inclusive environment. Children seem to flourish when they feel wanted, and to fail when they feel they are unwanted (Louw & Louw, 2014). Teacher attitudes can increase participation (Palmer, 2005). Palmer's (2005) research indicated that when teachers acknowledge that all learners learn differently, learners are able to participate that much more easily.

Therefore, teachers need to beware of the eye conditions that impair vision as well as the effects of these conditions, as this will enable them in their capacity to adapt the learning environment to meet learner needs in terms of seating, teaching strategies, and assistive devices for the specific eye condition (Landsberg, 2019). In addition, technology can facilitate learning (Palmer, 2005).

Breaking learning content down into small manageable steps and using concrete materials also facilitates learning (Palmer, 2005). Learning is further enhanced when teachers focus on building strengths and helping learners to reach positive learning outcomes, which enhances self-esteem of learners with VI (Palmer, 2005).

The school facilities play a role in the facilitation of learning. According to Palmer (2005), the school's layout and the amenities are important, as they provide access, for example, clear pathways, as well as clear signs on buildings and doors to help learners with VI navigate around the school premises independently (Palmer, 2005).

Palmer (2005) also identified that the classroom environment can facilitate learning, where seating position, using technology and support materials, and providing extra place for equipment whilst working can all be supportive. Teachers must also accommodate electrical sockets as some of the aids require power sources. Where the learner is placed in class is essential not only in terms of seeing content, but it can also cause isolation if the power source is located too far away from their peers during group work (Palmer, 2005). The impact of devices was also identified by Tadić et al. (2015), where learners reportedly expressed that adaptive technologies facilitated their functioning and gave them independence, but were also a source of embarrassment and frustration.

One needs to be cognisant that learners with VI require more desk space, or raised desks (Palmer, 2005). In addition to these classroom modifications, one can adapt the content by adapting the visual format, which involves changing the font, the spacing or contrast so as to enable learners to see the work more effectively (Bornman & Rose, 2017; Palmer, 2005).

Thus, learners with VI can participate when the teacher establishes a supportive learning environment with flexible learning arrangements (Palmer, 2005). This approach not only provides access, but reduces the sense of being different (Palmer, 2005), which may enhance peer group interactions as well as self-esteem.

2.9. SUMMARY AND CONCLUSION

When planning to meet the needs of learners with VI, one needs to consider the heterogeneous group that makes up the population of learners with VI. This will enable one to ensure that one's planning addresses their needs. Thus, this review found that support was dependent on the environment, as well as the individual learner, and this influenced the development and learning of learners with VI. Consequently, this review found that one needs to create communities and schools where all children can grow, participate, and reach their potential. This requires a shift in focus from the individual and demanding that they fit in, by examining how the system as a whole can adapt to ensure that all learners can participate within the South African education system. Consequently, one needs to challenge perceptions and examine how perceptions within the system can either meet learner needs or become a barrier to the participation of learners with VI.

Chapter Two examined VI from an individual perspective, concluding with a systemic discussion on the needs of learners with VI. The literature and conceptual framework that has been discussed in Chapter Two will inform results and findings in Chapter Four. Chapter Three provides a discussion of the methodological approaches selected for this study in order to answer the research questions.

CHAPTER THREE
RESEARCH DESIGN AND METHODOLOGY

3.1. INTRODUCTION

In Chapter Two, I explored the current literature that relates to the needs of learners with VI in different school contexts. To contextualise this study, Chapter Two provided a description of the selected conceptual framework, namely Bronfenbrenner's bioecological system theory and social disability theory.

Chapter Three contains the detailed planning to conduct the research. Chapter Three will first provide justification for the paradigmatic perspectives that were selected for this study, then I will describe the selection procedures, data sources and documentation, data analysis and data interpretation procedures that were used in this study. Chapter Three concludes with a discussion on the role of the researcher, ethical considerations, and quality criteria I adhered to during this study.

3.2. PARADIGMATIC CHOICES

3.2.1. Introduction

In the following section, I discuss the selected epistemology and methodology for this study. Each subsection begins with a description of the selected approach followed by an explanation, then I elaborate on the advantages and challenges of the selected approach in relation to this study.

3.2.2. Epistemology

The selected epistemology for this study is interpretivism, as interpretivism emphasises a person's ability to construct unique meaning (Nieuwenhuis, 2016a). The ability to construct meaning implies a subjective epistemology (Sefotho & Du Plessis, 2018), implying that meaning is constructed through negotiations between the participants and the researcher (Creswell, 2013, as cited in Merriam & Tisdell, 2016). As a result of the negotiations, reality is socially constructed; therefore, multiple interpretations of an event as well as multiple perceptions of a social phenomenon can exist (Hussain, Elyas, & Nasseef, 2013; Merriam & Tisdell, 2016). Thus, this approach

allowed me to examine the perceptions that teachers hold, as I concentrated on developing a local understanding (Cooper & White, 2011).

As the aim of this study was to understand teacher perceptions of the needs of learners with VI, an interpretivist epistemology seemed appropriate, as it allowed me to describe the needs of learners with VI from the viewpoint of several participants (Andrade, 2009; Creswell, 1998, as cited in Fouché & Delport, 2005). Thus, this approach assumes that reality is socially constructed, and the researcher becomes the vessel that reveals the reality (Andrade, 2009; Thanh & Thanh, 2015). An interpretivist approach allows one to search for the presence or absence of a causal relationship, the manner in which the relationships may manifest and the context in which they occur (Chowdhury, 2014). Therefore, an interpretivist approach assists the researcher to understand what has occurred, as well as how it has occurred (Chowdhury, 2014).

An interpretivist approach may help me to identify how teachers have formed their perceptions of the needs of learners with VI. This notion is emphasised by Cooper and White (2011), who explain that an interpretivist approach is used when one attempts to describe and understand the experience of the individuals from their perspective.

In addition to the above, the selection of interpretivism was informed by the larger study as knowledge in PRA is not singular, but plural; hence, the participatory process allows the researcher to discover the interpersonal and creative sharing of knowledge which may result in the generation of new insights and ideas (Chambers, 2012). According to Chambers (2007), the epistemology in PRA seeks and embodies participatory practices that are designed to empower local and compliant individuals, which allow them to express and enhance their knowledge leading to new planning and action. Thus, the PRA workshops may enhance the participation of learners with VI in the classroom, as the workshops may enhance the teachers' knowledge about the needs of learners with VI, which may inform their planning and teaching practices within the classroom.

As I investigated teacher perceptions of the needs of learners with VI, this approach helped me understand the perceptions teachers hold as the advantage of

interpretivism is that it allows for rich descriptions of phenomena (Hussain et al., 2013; Tuli, 2010). Hence, the rich descriptions may provide the reader with the opportunity to establish a deep understanding of the phenomena (Hussain et al., 2013; Phothongsunan, 2015). In addition to rich descriptions, interpretivism provides the researcher the opportunity to understand human experience and perceptions (Ebersöhn et al., 2012) as the researcher can explore the meaning people assign to events (Morgan & Sklar, 2012). Thus, an advantage of an interpretivist approach is its inclusivity as this approach accepts viewpoints from multiple individuals including individuals from different groups (Thanh & Thanh, 2015).

Due to the inclusivity of interpretivism, it is a naturalistic approach that relies on human communication to understand (Phothongsunan, 2015), where knowledge is developed through social constructs, for example language, documents, tools, and other artefacts (Andrade, 2009). Interpretivism focuses on the uniqueness of a situation, in this case, teacher perceptions of the needs of learners with VI, which may contribute to the development of relevant insight as this paradigm provides contextual depth (Chowdhury, 2014). As this study seeks contextual depth, the research questions outlined in Chapter One did not postulate a relationship among variables, nor did they require intervention. The questions were purposefully formulated in order to yield data that may help one to understand a particular concept, in this case the needs of learners with VI (Creswell, Hanson, Plano Clark, & Morales, 2007).

An interpretivist approach emphasises that the social world is complex (Phothongsunan, 2015), focusing on understanding how and why a phenomenon occurs, while emphasising complexity and making allowances for contextual factors (Raddon, 2010). To conclude, an interpretivist approach can facilitate educational research when the research requires in-depth information from a population (Thanh & Thanh, 2015). As interpretivism allows the researcher to discover meaning, one can gain a greater understanding of events within a context. For this reason, an interpretivist approach may have facilitated the research process and helped me explore teacher perceptions.

Based on the above, the value of interpretivism is its ability to provide contextual depth; however, the results from interpretivist studies have been criticised in terms of

validity, reliability and generalisability (Chowdhury, 2014; Mustafa, 2011). The challenge concerning the ability to make generalisations will not be a concern, as the aim of this study was to gain an in-depth understanding of a specific group of teachers within a specified context and not of the larger population.

To address validity, I used Guba and Lincoln's (1994, as cited in Bapir, 2012) two key criteria for assessing validity in qualitative research, namely credibility, which refers to whether the results are believable, and transferability, which refers to the ability to apply the results to other contexts. In addition, Bapir (2012) explains that validity has two characteristics: the first is to conduct research in a professional, accurate and systematic manner, and the second characteristic is that the researcher must state how research was conducted in a transparent manner. To achieve these characteristics, I held regular meetings with my supervisor so as to ensure I conduct my research in a professional manner and I followed the ethical principles outlined in the EU/DHET study, and in ethics documents of the UP and the HPCSA. In addition, I kept a research journal and notebook, and I have documented the research process throughout the course of this study.

In terms of reliability within this study, the concern involves the replicability of the research findings, and whether the research findings would be replicable, utilising the same methods (Lewis & Ritchie, 2003). Reliability in this study will be addressed in terms of confirmability (refer to section 3.6).

The challenge with interpretivism lies in trustworthiness and credibility (Tuli, 2010). To overcome the problem, I followed Guba's (1981, as cited in Nieuwenhuis, 2016b) four criteria that qualitative researchers use to establish trustworthiness, namely credibility, transferability, dependability, and confirmability (Nieuwenhuis, 2016b). A detailed description of these criteria follows in section 3.6.

The final challenge with interpretivism is the subjective reality (Mack, 2010). Mack (2010) explains that a subjective reality can be overcome by taking an objective stance when analysing the data, as well as by taking an emic approach (Nieuwenhuis, 2016a). An objective stance and emic approach allowed me to put my assumptions aside so as to allow the data to show the emerging themes (Nieuwenhuis, 2016a).

This is known as bracketing (Mack, 2010); thus, the data provide the researcher with an understanding of the environment, and not personal assumptions (Mack, 2010).

Considering the discussion above and the solutions identified to overcome the limitations of an interpretivist approach, the approach seemed appropriate to examine the perceptions teachers have of the needs of learners with VI as one can explore the perceptions the teachers hold within their social context. Additionally, as outlined in Table 1.1, the methodological approach is qualitative. According to Snape and Spencer (2003), qualitative research is naturalistic and interpretative, which focuses on trying to understand the meaning individuals attach to phenomena within their social context. To conclude, an interpretivist approach allows one to examine concepts contextually, which is in line with the ecosystemic approach outlined in Chapter Two.

3.2.3. Methodological approach

This study made use of a qualitative research approach. According to Fouché and Delport (2005, p. 74), “qualitative research refers to research that elicits participant accounts of meaning, experience or perceptions”. The qualitative approach enables the participants to construct their own meaning (Tuli, 2010). In addition, Tuli (2010) explains that this approach allows the researcher to immerse him/herself into a context and participate through activities such interviewing, taking life histories and conducting case studies (Tuli, 2010). As a qualitative approach focuses on understanding meaning within a context (Hussain et al., 2013; Merriam & Tisdell, 2016; Nieuwenhuis, 2016a), the approach is valuable to this study, as I wanted to enhance my understanding of teacher perceptions of the needs of learners with VI in full service and special schools, and I assumed that the perceived needs of learners with VI will depend on the context of the school and the teacher. This notion of context is also aligned with the ecosystemic approach as explained in Chapter Two.

Based on the common characteristics identified by Bapir (2012), a qualitative research approach was deemed appropriate. The first characteristic of qualitative research outlined by Bapir (2012) is the centrality of social reality and humans; the second characteristic is the ability to investigate a changing reality; the third characteristic is that the research subject contributes to the meaning of the research;

and the final characteristic of a qualitative research approach is that qualitative research is used to help develop our understanding and meaning of a phenomenon (Bapir, 2012). This approach was appropriate to develop an understanding of teacher perceptions of the needs of learners with VI.

The description of qualitative research tends to focus on meaning, thus researchers are interested in how individuals experience events and make sense of the world (Willig, 2013). Consequently, the aim of qualitative research is to understand what it is like to experience a particular situation (Willig, 2013). Thus, the primary strength of qualitative research is that qualitative research can investigate the underlying values, beliefs, and assumptions (Choy, 2014). Another strength is that qualitative research provides the researcher the opportunity to explore and understand phenomena from different perspectives (Kemparaj & Chavan, 2013). This is emphasised by Choy (2014), who explains that a qualitative inquiry is broad and open-ended, which allows participants the opportunity to express what is important to them. This notion is also expressed by Willig (2013), who explains that an advantage of qualitative research is that qualitative research defines a phenomenon using the participants' language within their context. Hence, qualitative studies that involve human participants need to use the same definitions as the participants in order to develop an understanding of a given phenomenon. Therefore, qualitative research enables researchers to study complex situations and produce rich findings (Sutrisna, 2009).

A final advantage is that the researcher is the primary research instrument. According to Merriam and Tisdell (2016), this is ideal during data collection and analysis. As the researchers are part of the environment, they are able to understand what the participants convey in terms of their speech as well as the indirect inferences of their speech in terms of syntax, speech breaks, contextual lapses, and hidden meaning (Devetak, Glažar, & Vogrinc, 2010).

However, the researcher as a research instrument has shortcomings (Merriam & Tisdell, 2016), as the researcher's biases can influence the study. Not only can bias have an impact on the study, but the presence of the researcher can influence the phenomenon under investigation (Devetak et al., 2010). This challenge, in other

words, my influence, was not a concern in this study, as I used unanalysed data from the EU/DHET study. However, I needed to be cognisant of the fact that this might have been a challenge to the data collection in the large EU/DHET study. To overcome the challenge in terms of this study, I acknowledged my influence might have shaped some of the research findings (Sutrisna, 2009), and I followed Guba's (1981, as cited in Nieuwenhuis, 2016b) four criteria that qualitative researchers use to establish trustworthiness. Confirmability, which is one of Guba's criteria, refers to the degree to which findings are shaped by participants and not by researcher bias, motivation, or interests (Lincoln & Guba, 1985, as cited in Nieuwenhuis, 2016b). Confirmability was established by stating my assumptions in Chapter One of this study (Nieuwenhuis, 2016b). A further challenge includes time and the constraints of a mini-dissertation, as qualitative research can be time-consuming (Choy, 2014). The data collection process was not a concern in terms of time as this study made use of the unanalysed data from the EU/DHET study. The challenges of time constraints of a mini-dissertation were curtailed by including only the EU/DHET data of full service and special schools in Gauteng.

Hence, the results of this study may not reflect teacher perceptions of the needs of learners with VI in other provinces or schools. The results of this study cannot be generalised, which is a disadvantage of some qualitative research (Devetak et al., 2010). However, as mentioned in section 3.2.2, the purpose of this study was to not to generalise the findings to the larger population. The aim was to understand.

Thus, the reporting stage in the qualitative research process is important to the success of qualitative research, which presents a significant challenge to the researcher (White, Woodfield, & Ritchie, 2003), where it is necessary to represent the social world that has been researched, as well as the participants' accounts, with nuance and complexity (White et al., 2003). Consequently, the reporting task is preceded by the act of recording outcomes, as well as the active construction and representation of the shape and nature of the phenomena being explored (White et al., 2003).

To overcome the challenges associated with qualitative research reports, this study provides discussions on the type of inferences that can be derived from qualitative

data and its transferability to other settings (White et al., 2003). White et al. (2003) explain that the documentation process is critical. This study consequently provides a clear account of the research methods to evidence credibility, and my written account explains how the research was conducted, as well as why such an approach and method were selected in relation to the aims of this study (White et al., 2003). Transparency was essential to the integrity of findings. I was transparent during the analysis and interpretation to ensure the reader could follow the thought process that led to the conclusions (White et al., 2003).

Based on the challenges and the possible approaches mentioned to mitigate these challenges, the study incorporates reflexivity. Darawsheh (2014) explains that reflexivity is an appropriate and valuable strategy that can improve qualitative research as it adds to the rigour of qualitative research. Rigour can enhance the confidence, congruency and credibility of the findings (Darawsheh, 2014). I engaged in a continuous process of self-reflection so as to enhance my awareness of my actions, feelings and perceptions. Subsequently, throughout this mini-dissertation I would explore my decisions and feelings. I would write down in my journal all possible thoughts or actions, then I would engage in further reading. After reading, I would reflect on the value of the sources in relation to my thoughts and actions and how it may impact this study before I would finalise a section. After finalising a section, I had meetings with my supervisor where I discussed my reflections to explore my decisions further to ensure the rigour of the research process. In addition, reflexivity played a role during the editing of Chapter Two as the chapter was long and to reduce Chapter Two without losing the essences required me to reflect on sections and I had to examine and think critically about the literature to condense Chapter Two. Reflexivity enhances transparency of the subjectivity of the researcher, both during the process of conducting research as well as in the analysis of data, and it allowed for the necessary changes to guarantee the credibility of findings (Darawsheh, 2014).

3.3. RESEARCH PROCESS

3.3.1. Introduction

This section presents the research design, the selection procedure, data sources and documentation, and the data analysis and interpretation methods selected for this study.

3.3.2. Research design

A case study approach was used to investigate the perceptions teachers have of the needs of learners with VI in full service and special schools. According to Merriam and Tisdell (2016), a “case study is an in-depth description and analysis of a bounded system” (p.37). Similarly, Yin (2014) and Crowe et al. (2011) explain that a case study design is used to explore a phenomenon in-depth and within its context. Hence, this approach can be referred to as a naturalistic design (Crowe et al., 2011). Yin (2014) stresses that one uses a case study design when the boundaries between the phenomenon and the context are blurred. This study made use of a multiple case study design, where each school was viewed as a bounded system. Each full service and special school was explored as individual cases. This enabled me to develop an in-depth understanding and insight into teacher perceptions within their school, as well as providing the opportunity to develop greater understanding across cases, from different perspectives (Creswell et al., 2007). The approach was appropriate, as Crowe et al. (2011) explained that one uses a case study approach to produce an in-depth, multi-faceted understanding of a problem within its real-life context.

A case study approach can sometimes provide an explanation of a phenomenon within a context, which is called explanatory information (Crowe et al., 2011). Therefore, this case study approach might provide an explanation for the perceptions teachers hold. In addition to providing explanatory information, a case study approach can generate information about possible gaps in our understanding (Crowe et al., 2011). Subsequently, this study might have identified possible areas for further research.

Yin (2014) states that one of the advantages of using a multiple case study approach is that the evidence is considered more compelling and robust as the phenomenon operates in a bounded system (i.e. the school) and it is explored in different settings (i.e. the type of school, namely full service or special school). Similarly, Crowe et al. (2011) explain that the value of using a multiple case study approach is the ability of the approach to generate a broader appreciation of a phenomenon. Therefore, a case study design was deemed suitable to explore the research questions of this study.

A case study approach is not without its limitations. One of the possible challenges of using a case study approach in inclusive education research is anonymity (Mills, Durepos, & Wiebe, 2010), as the descriptions of the phenomenon may lead to the identification of participants (Mills et al., 2010). To protect participants' anonymity, no identifiable information may be published (Stangor, 2011).

Another challenge to the approach is the extensive time and resources the approach requires, as the requirements often lie beyond the capacity of a single researcher (Yin, 2014). The challenges associated with data are also emphasised by Crowe et al. (2011), as they explain that the quantity of data and the time restrictions have an impact on the depth of the analysis. For this reason, Crowe et al. (2011) suggest that one should avoid the temptation to collect as much data as possible, and to ensure one sets sufficient time aside for data analysis and interpretation. The challenge has been overcome, as this study used the EU/DHET study's data sources, which have already been compiled. In addition, I focused on the data that is in line with my research questions, while maintaining flexibility and allowing for alternative paths to be explored (Crowe et al., 2011). Although data from all the provinces in South Africa were available, I selected only the data from Gauteng province.

Yin (2014) mentions that one of the limitations of comparison studies is the analysis, as the researcher may spend a considerable amount of time on the comparison, and may neglect other aspects (Flick, 2014a). To ensure I did not neglect other aspects, I followed a regimen of first completing analyses of every single case, before attempting comparison.

The case study approach has been critiqued for lacking precision, objectivity, rigour and for having a limited basis for generalisations (Andrade, 2009; Crowe, et al., 2011; Noor, 2008). To address these concerns, one can make use of theoretical sampling, respondent validation and transparency throughout the research process (Crowe, et al., 2011). As this study used the unanalysed data from the EU/DHET study, I achieved transparency by providing detailed descriptions of the case selection, the background, the data collection, as well as my level of involvement and its influence on the interpretation of the data (Crowe et al., 2011). I also searched for alternative explanations for the teacher perceptions, and I clearly stated how I formed my interpretations and conclusions in order to help the reader of this study to judge its trustworthiness. In addition, I used Stakes checklist for assessing the quality of a case study report (see Appendix B) (Crowe et al., 2011).

In terms of the challenges associated with generalisability, as mentioned previously, the object of this study was not to generalise findings. The challenges associated with rigour were overcome by providing adequate descriptions and rationale for the methodological foundations, and sufficient detail to help the reader understand the study's design, in the hope of maintaining the credibility of this study (Hyett, Kenny, & Dickson-Swift, 2014).

Based on the challenges above, case study research is inherently challenging. However, Crowe et al. (2011) explain that if one carefully conceptualises and conducts and reports in a thoughtful manner, this approach can provide powerful insights.

3.3.3. Selection procedure

As mentioned previously, the EU/DHET study included seventeen schools in South Africa: ten special and seven full service schools for learners with VI. The EU/DHET study used purposive sampling for the teachers and the selection criteria were English proficiency and availability after school (R. Ferreria, personal communication, May 22, 2019). As the EU/DHET study has been conducted and the data sources are available, this study selected specific data sources from the large study to address the research objectives (Gentles, Charles, Ploeg, & McKibbon, 2015). Therefore, convenience sampling was used to select transcripts based on the research objectives. As a result,

the transcripts selected for this study were all the transcripts from the two participating full service schools and the two participating special schools for learners with VI in Gauteng. I purposefully selected Gauteng, because I have not taught in Gauteng schools and I resided there, which made site visits possible, in the event of unclarity of the data sets.

Convenience sampling is a form of non-probability sampling, which, according to Etika, Musa and Alkassim (2016), is used when drawing inferences from the sample to the population is not a concern, as with this study. Additionally, one uses non-probability sampling, as it is cost-effective, and quick to implement (Maree & Pietersen, 2016; Salkind, 2010).

There are several challenges to convenience sampling. One of these challenges is that convenience sampling does not result in a representative sample. For this reason, findings cannot be generalised (Maree & Pietersen, 2016; Salkind, 2010). Generalisation was not a concern, as the objective of this study was not to generalise findings.

An additional challenge of using convenience sampling is the possibility that the sampling could be biased (Etika et al., 2016). To prevent sample bias, I asked my supervisor for advice when selecting the sample (Sargeant, 2012). In addition, I have explicitly stated my working assumptions in Chapter One, thus the readers of this study are aware of my predisposition (Sargeant, 2012). My personal predispositions were limited, as I selected all the transcripts in full service and special schools in Gauteng.

3.3.4. Data sources and documentation

The data in the EU/DHET study were collected through PRA. According to Ebersöhn. Eloff and Ferreira (2016), PRA uses concrete, visual and colourful methods, activities, and materials to promote participation. Participatory Reflection and Action is a participatory methodology (Ebersöhn et al., 2012) and participatory research is associated with social transformation (Kemmis & McTaggart, 2005, as cited in Ebersöhn et al., 2012). Therefore, participating in the workshops, might contribute to the social transformation in the schools where the teachers work. During the EU/DHET

study, the teachers worked in small groups and made mind maps of perceived needs of learners with VI. This study made use of the transcripts of the schools in Gauteng from the PRA workshops that have not been analysed.

One of the advantages of using existing data is that it mitigates the challenges such as limited time and resources; consequently, using existing data sources accelerated the research process, as data collection can be one of the most time consuming steps in research (Johnston, 2014). In addition, I had access to comprehensive and larger data sources than I would have been able to collect myself (Strydom & Delport, 2005).

One of the challenges of using data sources is that I did not participate in the data collection process (Johnston, 2014); therefore, I am unaware of any potential factors that might influence the data, such as a low response rate, or a participant misunderstanding a question (Johnston, 2014). I overcame this challenge by speaking to some of the original researchers, and looking at the documentation of the data collection procedures (Johnston, 2014). According to Strydom and Delport (2005), a challenge in using data collected by someone else, is an inadequate understanding of the problem, as the researcher was not involved in the study. Therefore, there was the possibility that I have a partial understanding of teacher perceptions. I tried to overcome the challenge by reading publications on the EU/DHET study (Johnston, 2014).

3.3.5. Data analysis and interpretation

This study made use of inductive thematic analysis as thematic analysis is a form of qualitative analysis that enables the researcher to form classifications and present themes that correlate with the data (Ibrahim, 2012). Thematic analysis involves the repetitive review of the data to identify recurring themes, categories or patterns (Hancock & Algozzine, 2017). Similarly, Clarke and Braun (2014) define thematic analysis as a method that allows one to identify and interpret patterns of meaning across data. This definition is similar to that presented by Joffe (2012), who explains that thematic analysis is an approach enabling the researcher to identify and analyse patterns of meaning in a data source.

As a result, thematic analysis helps the researcher to identify themes describing the phenomenon under study (Joffe, 2012). All the themes are supported by evidence from the data (Hancock & Algozzine, 2017). In this study it enabled a description of teacher perceptions of the needs of learners with VI, based on the transcripts from the PRA workshops.

Thematic analysis allows the researcher to investigate the relationships between concepts (Ibrahim, 2012). As a result, this analysis process can identify the variables that influence the phenomenon under investigation, as the participants' interpretation provide an explanation into their thoughts, actions and behaviour (Ibrahim, 2012). The explanations the teachers provide in terms of the needs of learners with VI, have an impact on their actions, thoughts and behaviour towards learners with VI.

In an inductive thematic analysis approach the analysis starts with particular content and develops to form general, broader categories, patterns or themes (Creswell & Poth, 2007; Ibrahim, 2012). The process requires the researcher to read and reread the transcriptions (Hancock & Algozzine, 2017). As a result, when thematic analysis is used inductively, the analysis is steered by the content of the data and the participants' language and concepts (Clarke & Braun, 2014).

Inductive thematic analysis seemed appropriate for this study as qualitative research is characterised as inductive (Creswell & Poth, 2007). Similarly, Ebersöhn et al. (2016) explain that in PRA, inductive thematic analysis is used to analyse data. According to Braun and Clarke (2006), one of the advantages of thematic analysis is a flexibility of the approach, as thematic analysis is applicable to a broad range of methods. Clarke and Braun (2014) explain that thematic analysis is not tied to a theoretical framework, thus, it is a method, rather than a methodology, which provides flexibility. For Ibrahim (2012), the advantage of thematic analysis is that it allows the researcher the opportunity to link various concepts and participants' opinions and compare these with the data that have been gathered in different locations.

Similarly, Clarke and Braun (2014) explain that thematic analysis can answer a wide variety of research questions in relation to experiences, perceptions, practices and behaviours. The flexibility of this method also allows one to analyse almost any

type of qualitative data, as well as any size of dataset (Clarke & Braun, 2014). In addition, Ibrahim (2012) states that thematic analysis allows for a broader understanding of a phenomenon. This helped me to develop a broad understanding of teachers' perceptions as this study was examining perceptions in more than one context (full service and special schools).

To summarise, thematic analysis does not require extensive theoretical knowledge; hence, it proves to be a more accessible approach for novice researchers (Braun & Clarke, 2006). However, there is a lack of literature on thematic analysis and this can cause novice researchers to feel unsure on how to conduct thematic analysis (Nowell et al., 2017). The uncertainty of using thematic analysis was overcome by applying the six phases of analysis of Braun and Clarke (2006). Even though thematic analysis is a flexible approach, flexibility can become a challenge, as flexibility can cause inconsistency when developing themes (Holloway & Todres, 2003, as cited in Nowell et al., 2017). According to Holloway and Todres (2003, as cited in Nowell et al., 2017), inconsistency can be overcome by applying and stating your epistemological position, as I have already done.

I also ensured that the themes reflected the purpose of this study and I answered the research questions; that the themes develop from saturated data taken from all relevant data; that I developed themes with distinct categories as overlapping themes can suggest the need for further synthesis of findings; that the themes were as specific as the data allowed; and that the themes were similar in their complexity (Hancock & Algozzine, 2017).

Subsequently, this study made use of qualitative data analysis software (QDA) – ATLAS.ti. – to assist in data analysis to answer the research questions, as ATLAS.ti. is a tool for supporting the data analysis process (Rambaree, 2013). According to Hwang (2008), there are benefits to using software, such as that it allows the research processes to be transparent and it allows for replication (Hwang, 2008; Tummons, 2014). These aspects are meaningful in social science research, heightening its credibility (Hwang, 2008). Tummons (2014) adds that the data process is more transparent, and can lead to greater rigour and reliability in qualitative research.

In addition, QDA can save time (Hwang, 2008; Tummons, 2014). A computer can assist one to work through data sets (Hwang, 2008). As this study is using data sets from the EU/DHET study, the software may be beneficial, as the larger project can access and use the data should they require it. QDA also eases the process of analytical discussions between researchers as it allows researchers to examine and discuss the data as each researcher can login to the project and work on the project simultaneously (Hwang, 2008; Rambaree, 2013).

Rambaree (2013) discusses the implications of using QDA as QDA can make the analysis process rigid and deterministic. However, Rambaree (2013) also explains that novice researchers may benefit from a more structured approach. Tummons (2014) adds that it allows data to be stored in one place, where it is quick and easy to access, allowing one to keep track of developing ideas during the research process. Therefore, using ATLAS.ti seemed appropriate for this study, as it was a tool that supported the qualitative data analyses process, and its usefulness was dependent on the researcher approach (Flick, 2014b).

3.4. ROLE OF THE RESEARCHER

Strydom (2005) explains that the main role of the researcher is to produce new knowledge. During this process the researcher has different roles, depending on the stage of the research project, the situation, the research objectives and the researcher's personal qualities (Strydom, 2005).

As I did not collect the data, the formation of a collaborative partnership with participants to enable data collection and analysis, being a sensitive observer who records the phenomena, and assisting in the planning, structuring and facilitating of interviews (Maree, 2016) do not apply to me as the researcher. Willig (2013) explains that in case study research, the role of the researcher is to provide an accurate and detailed account of the case. This involves examining the evidence closely and thoroughly so as to deliver a report that encapsulates the characteristics of the case (Willig, 2013).

3.5. ETHICAL CONSIDERATIONS

According to Creswell (2012), throughout the research process, the researcher needs to engage in ethical practices. The EU/DHET study considered and implemented the following ethical principles: informed consent, voluntary consent, non-maleficence, beneficence, avoiding harm to participants in collecting data, respecting the dignity and rights of the participants, keeping the data safe, and obtaining permission to conduct the study (Flick, 2014a; HPCSA, 2014). For this study, the ethical consideration of safe-keeping of the raw data and other materials was followed (Flick, 2014a). This was done by having a password on my laptop, and the data sets were password protected on my laptop. In addition, I password protected the data in the ATLAS.ti program and the passwords used were different.

In addition, justice was done to participants in analysing data (Flick, 2014a). According to the HPCSA (2014), justice implies that the research should leave participants and the community better off, or no worse off. Therefore, the researchers must ensure the research does not exploit participants.

Furthermore, the necessary permission from UP was obtained, and the participants were respected (Stangor, 2011) in terms of confidentiality and anonymity (HPCSA, 2014; Stangor, 2011). Confidentiality and anonymity were achieved by using pseudonyms where necessary, and ensuring that no identifying information about participants was published, for example, age and region of the schools (Nieuwenhuis, 2016b; Stangor, 2011).

In addition to the aforementioned ethical considerations, Creswell (2012) explains that with data reporting in education research, the following should be kept in mind. The researcher needs to show respect to the reader, thus the data should be reported openly, without altering or modifying the findings to meet predictions or stakeholder expectations. One must provide credit and should not plagiarise; this involves citations as well as a reference list. Furthermore, Creswell (2012) states that research should be free of jargon, and that the participants need to be able to understand the study. Moreover, within education, one needs to try to communicate the practical significance of the research to encourage further inquiry and use. Thus, research should be

published and openly shared even when findings are contrary to the accepted standard (Creswell, 2012). To conclude, educational researchers have an ethical obligation to produce research that is of high quality, and to report their results (Creswell, 2012).

3.6. QUALITY CRITERIA

3.6.1. Introduction

It was essential that this study was understood and viewed as legitimate by the various stakeholders in the South African education system, to ensure acceptance of the findings that could promote learner participation. Attention was therefore paid to authenticity or quality of the data and trustworthiness of the analysis (Sargeant, 2012).

According to Sargeant (2012), "authenticity of the data refers to the quality of the data or data collection procedures" (p. 2). Therefore, the researcher should consider whether the sampling approach and participant selection will enable one to answer the research questions and provide a comprehensive view of teacher perceptions. The researcher must determine whether the choice of method is appropriate to answer the research questions and that no leading questions are asked. The researcher must state assumptions (Sargeant, 2012). Based on these considerations, which were all done, the rigour of this study was maintained.

Nowell et al. (2017) explain that trustworthiness is a method one can employ to persuade readers. According to Nieuwenhuis (2016a) and Nowel et al. (2017), Lincoln and Guba (1985) proposed four criteria that one should consider in the pursuit of trustworthiness: credibility, transferability, dependability and confirmability. Håkansson (2013) explains that when one uses an inductive approach in qualitative research, as is the case with this study, one must apply and discuss the aforementioned criteria as well as ethics. I will now elaborate on the criteria as ethics have been discussed in section 3.5.

3.6.2. Credibility

According to Nieuwenhuis (2016a), credibility involves the following questions: "How congruent are the findings with reality? How do I ensure that the reader will believe

my findings?" (p.123). Creswell (2012) explains that the use of references in a study builds credibility, therefore quotes were included in the results and findings in Chapter Four to build towards the credibility of this study.

In addition, one can use the following strategies to ensure credibility, namely adoption of a well-established research method, the use of a research design that suits the research questions, and a theoretical foundation that is aligned with the research methods and question (Nieuwenhuis, 2016a), all of which were done in Chapter Three. Moreover, Nieuwenhuis (2016a) expresses that regular debriefing meetings with one's supervisor, reflecting on the research process and thick descriptions of the phenomenon under study can promote credibility. Hence, I kept a notebook with my reflections, I had regular meetings with my supervisor and in Chapter Four I will provide thick descriptions of the phenomenon to ensure credibility.

3.6.3. Transferability

The findings of qualitative research can be transferable. Nieuwenhuis (2016a) suggests that one must provide a comprehensive understanding of the context in order to increase transferability of findings from one context to another similar context. Hence, I described the context (section 4.2.), which should help the reader to evaluate whether the research can be transferred to another setting (Nieuwenhuis, 2016b). Transferability differs from generalisability as generalisability refers to whether findings can be applied to other situations (Merriam & Grenier, 2019).

3.6.4. Dependability

There is a close link between credibility and dependability, as demonstrating credibility to some degree ensures dependability (Lincoln & Guba, 1985, as cited in Nieuwenhuis, 2016b). Whereas Håkansson (2013) expresses that dependability is the process to evaluate accuracy in conclusions, Nieuwenhuis (2016a) explains that dependability is established throughout the research design and its implementation, detail of the data collection process and the researcher's reflections during the study. In addition, one can document the categories one forms as well as the changes of the categories, and include observations one makes concerning the data. These

measures enable the reader to follow the analysis and the interpretations (Nieuwenhuis, 2016b).

3.6.5. Confirmability

According to Lincoln and Guba (1985, as cited in Nieuwenhuis, 2016b), confirmability refers to the extent of impartiality or the extent to which the results are informed by participants and not by researcher bias, motives, or interests. Håkansson (2013) states that confirmability confirms that the research has been conducted in good faith without personal assumptions that may affect the results.

To reduce researcher bias, I have acknowledged my assumptions in Chapter One, as this is a strategy identified by Nieuwenhuis (2016a). In addition, Nieuwenhuis (2016a) explains that researcher bias increases as one becomes more involved with the participants. As I was not involved in the data collection process, I was unable to form relationships with the participants, thus, researcher bias based on knowledge of the participants have been mitigated. Furthermore, I reproduced text to ensure the reader can decide what the participant is trying to convey and not force my interpretation of the text.

3.7. CONCLUSION

Chapter Three presented a comprehensive overview of the research process that was followed. In terms of paradigmatic choices, it explored the choice of qualitative research approach, which enabled analysis and interpretation of data from an interpretivist paradigm. I then discussed the use of a multiple case study design, as this approach enabled me to develop a deeper understanding of teacher perceptions of the needs of learners with VI in special and full service schools. This provided deep understanding within and across schools. In addition, the chapter presented the selection procedure as well as data sources and documentation in this study, followed by a description of the data analysis and interpretation process. My role as a researcher, as well as my ethical responsibilities as a researcher in the field of education were addressed. This section concluded with a description of the quality criteria used in this study.

Chapter Four presents and discusses the results and findings of this study in terms of the themes and sub-themes that developed through the inductive thematic analysis process. These discussions and presentation of the themes are supported by inserts from the PRA transcriptions.

CHAPTER FOUR
RESEARCH RESULTS AND FINDINGS

4.1. INTRODUCTION

Chapter Three discussed the epistemology and research methodology selected in order to answer the research questions. Chapter Three also discussed the research design for this study, including the advantages and limitations as well as how the limitations would be addressed. In it, I described the sampling and analysis process, and outlined the quality criteria and ethical principles to which the study adhered. Lastly, my role as a researcher was described.

In Chapter Four, I describe the context of the schools and report on the research results and findings of this study, in terms of the themes and sub-themes identified. The results and findings are corroborated by including direct quotations from the transcriptions of the data captured in PRA posters. I also integrate the results and findings with the literature and the conceptual framework.

4.2. CONTEXT

In this section, the contexts of the schools are discussed in order to help the reader understand how the context of the school may have informed the teacher perceptions of the needs of learners with VI.

4.2.1. Full service school One

Full service school One (FSS1) is situated close to an industrial community. There is a tar road leading to the school, with pavements or walkways on one side of the road. The houses around the school are government subsidy houses and smaller family homes. This school seems to be situated in a community with limited resources. The classrooms have the basics that one would expect: learners have desks, there is a blackboard, and the walls are covered with educational content and posters. The resources consist of a mixture between old and new resources and the old resources are useable as the charts on the walls appear to come from the early 2000s; however, the charts are clear, and one is able to read the charts. The school has a few teaching media in braille and there is also a computer room. In addition, the grounds of the

school are well-maintained, and they have gardens with wide dirt paths. The buildings seem to be in a good condition. Lastly, the classrooms are full to capacity and there is little space left for the learners and teacher to move between the tables with ease.

4.2.2. Full service school Two

Full service school Two (FSS2) has a tar and dirt road leading to the school. The houses around the school are government subsidy houses and smaller family homes. FSS2 also seems to be situated in a community with limited resources. Within the classrooms, each learner has a desk. Some of the windows are painted to limit light into the classroom. On the walls, there is a small portion of learner art and a few old educational posters. The desks are close together and the classroom is full.

4.2.3. Special school One

Special school One (SS1) is situated in an area where the homes consist of government subsidy houses and smaller family homes. SS1 also seems to be situated in a community with limited resources. The classrooms have the basics that one would expect: learners have desks, there is a 3D world map, with learner art and a few older education posters on the wall. The classrooms have white boards and are organised with space to move around, thus there are fewer learners in the classroom compared to the full service schools.

4.2.4. Special school Two

Special school Two (SS2) is in the middle of a Gauteng city. It has well maintained grounds where the paths are wide and made with bricks. The school grounds have a sports field and a swimming pool. In the classrooms there are books with large print, computers, technology, and assistive devices, such as large colourful keyboards. There are current educational posters on the walls. There are also computer screens with specialised programs that increase font size so learners are able to see the learning content. The classrooms are spacious and there is much space to move around, making moving around the classroom easy for both the learners and the teacher. There are blinds and black coverings on the windows to control the amount of light entering the classroom. There are only a few learners in the classroom. There is a playground as well as a variety of educational materials in braille and large print.

There are calculators that are voice operated and have large print. There are braille machines and modern digital overhead projectors. The school seems well-resourced and modern technology is available to the learners.

4.3. DISCUSSION OF RESULTS AND FINDINGS OF DATA ANALYSIS

The inductive thematic analysis resulted in themes, with sub-themes that became apparent regarding teacher perceptions of the needs of learners with VI. The schools were analysed separately, and the analysis revealed that some themes were identified in all the schools, while other themes were school-specific. The first theme relates to accommodations and concessions that enable learners with VI to access curriculum or content. The second theme describes the accommodations and adaptions to the classroom and school environment that are required for learners with VI to be able to participate. The third theme describes a supportive school environment that is required for learners with VI. The fourth theme explores the emotional support for well-being. The fifth theme examines competent teachers as a need. Competent teachers may not be a need that learners with VI would identify; however, the participants within the study identified that teacher competency was a perceived need of learners with VI. Within each theme, sub-themes were identified. Evidence for the themes comes from the transcriptions of the PRA posters from the full service and special schools in Gauteng (see Appendix D for four examples of transcribed posters). Figure 4.1 provides a visual summary of the themes and sub-themes that emerged during the data analysis.

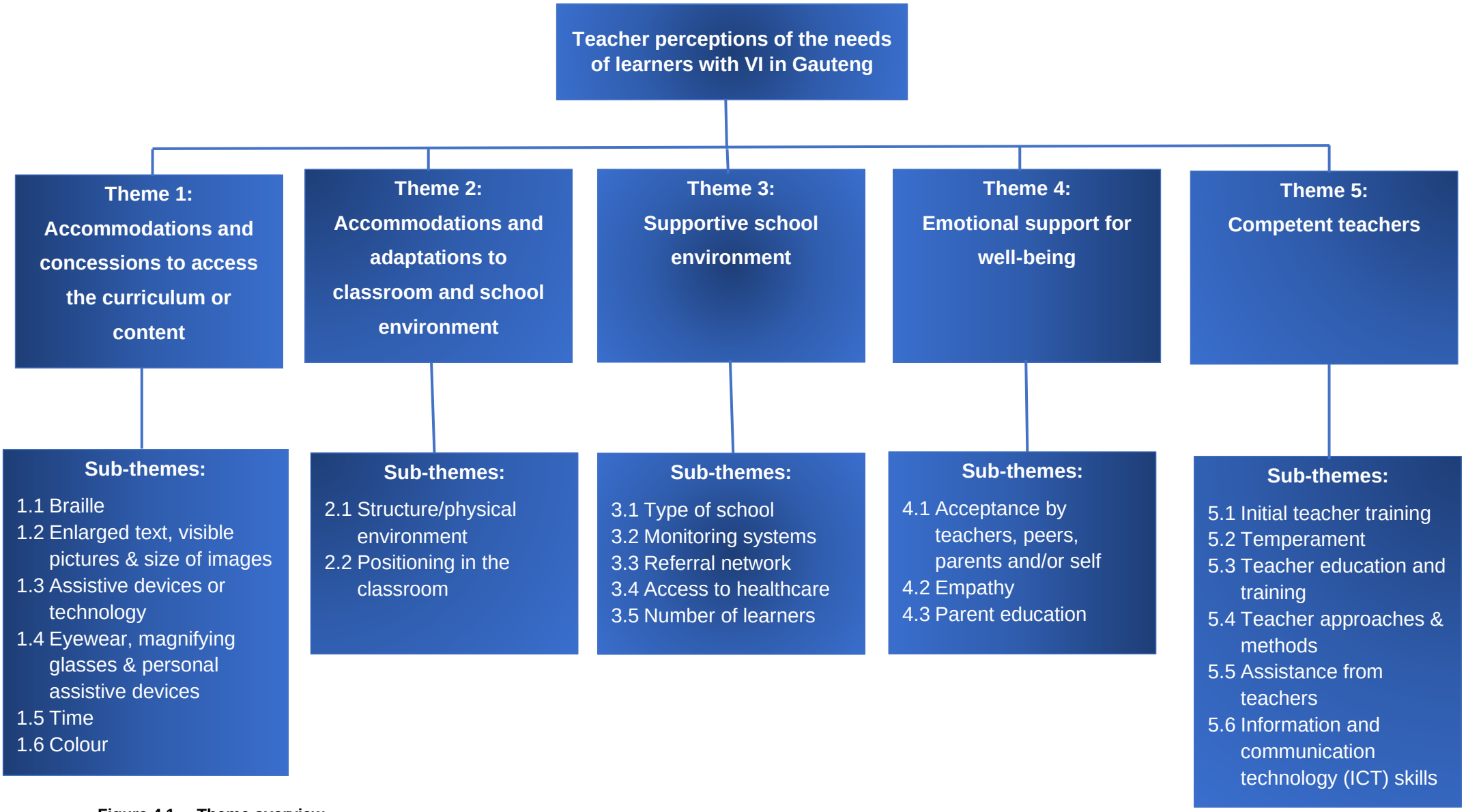

Figure 4.1: Theme overview

4.3.1. Theme One: Accommodations and concessions to access the curriculum or content

4.3.1.1. Introduction

Table 1 in Appendix C indicates the inclusion and exclusion criteria that were used during the inductive thematic analysis regarding accommodations and concessions required for learners with VI to access the curriculum or content within the school environment.

4.3.1.2. Sub-theme 1.1: Braille

This sub-theme explains that teachers from FSSs and SSs perceive that some learners with VI need access to the curriculum and that access to the curriculum should take place through braille and braille machines, as without braille, the learners' ability to participate is restricted. This sub-theme also acknowledges that teachers perceive that their own ability to use braille affects learners with VI.

The posters from FSS1 indicated that learners with VI need "Braille"[4] (FSS1, poster (P) 3, line 1 (L1)). In addition, the transcription from FSS1 identified that learners with VI need "braille lessons" and "Braille equipment" (FSS1, P5, L3-4). This was supported by the content in FSS2 as the teachers reiterated "support resources like braille" (FSS2, P1, L2). SS1 echoed this sentiment as the poster read "Braille books-teachers, Braille machines, Brailled book" (SS1, P2, L1-2). Learners with VI may not have identified teachers having access to braille material as a need. However, the teachers' ability to prepare and plan learning activities has an impact on the learners' ability to participate; therefore, for learners with VI to participate and access the content, they need the teachers to have access to the content. Access to material in braille was also found on the posters of SS2 as they indicated that learners require "assistive devices (braillers; ruby's[5])" (SS2, P1, L1-2), Braille (UBC[6] contractions[7]), adapted LTSM (enlarged and Braille), Braille paper" (SS2, P1, L4-6).

[4] Quotes are in blue to improve ease of reading.
[5] A ruby is a portable, handheld video magnifier that helps people with low vision to read text and see details.
[6] UBC is the abbreviation for Unified Braille Code.
[7] UBC contractions is a shorter form of braille.

The findings correlate with the literature which has found braille to be an essential skill for people with VI (De Verdier & Ek, 2014).

4.3.1.3. Sub-theme 1.2: Enlarged text, visible pictures and size of images

This sub-theme describes how teachers identified access to different types of content, based on the functional vision due to the learners' eye condition, as a perceived need of learners with VI. The teachers perceived that enlarged images and enlarged font is a need for learners with VI to access the content and the curriculum.

FSS1 posters revealed that the size of images is a need, with "provision of visible pictures" (FSS1, P1, L3) and "use bigger pictures and big letters" (FSS1, P4, L2). Expanding on this SS2 highlighted "teachers provide large prints for those with low vision" (SS1, P2, L3). In addition, FSS1 identified the size of text on the board ("teachers should use large fonts when writing on the board" (FSS1, P2, L1-2)), the font size on question papers ("large font question papers" (FSS1, P2, L3)) and the font size on teaching aids ("use teaching aids written in big fonts" (FSS1, P3, L3)) as a need. The posters further highlighted the need for "prescribed books with bigger font to accommodate learners with decreased ability to see" (FSS1, P4, L3-4). SS2 echoed the above: "Adapted LTSM (enlarge and Braille) font must be adapted as well" (SS2, P1, L4-5) and "adapted learning material in different fonts + braille; enlarge and simplified worksheets and pictures" (SS2, P2, L10-12). SS2 identified "diagrams in Braille (maths, map work etc.)" to indicate that certain types of text require more than enlargement (SS2, P1, L13). Curriculum adaptations were emphasised in "simplify worksheets and pictures" (SS2, P2, L12), "be able to adapt and simplify curriculum (take the essence out)" (SS2, P2, L6-7) and "adapted papers" (SS2, P2, L8).

Enlarging fonts for books, writing on the board, question papers, and learning and teaching support material was evident. But enlarging also has challenges, hence the perceived need for enlarged and simplified worksheets and images. A bigger picture may still be difficult to understand, as a multitude of lines can confuse a learner with VI. In addition, the data show that teachers need to adapt the content for learners to participate in the learning process. For example, Grade 1 reading text might be about snow in winter. However, learners with VI in South Africa will not understand snow,

unless they have been introduced to it. Changing the reading text to rain will probably be more appropriate for learners with VI, without changing the level of difficulty.

The literature also indicated that adaptions to text was a need, as well as learning materials in large print (Bornman & Rose, 2017). In addition, literature also indicated that adapting the visual format which involves changing the font, spacing, and contrast can enable learners to see the work better (Bornman & Rose, 2017; Palmer, 2005).

4.3.1.4. Sub-theme 1.3: Assistive devices or technology

This sub-theme describes how the teachers perceived learners with VI to have the need to have access to specific types of assistive devices or technology in order to access the curriculum, which in turn enables participation.

The posters from FSS1 identified "audio-visual must be clear and loud" (FSS1, P4, L3), whereas FSS2 did not mention technology. The context and limited resources available at FFS2 might have been a factor in not mentioning technology. Assistive devices and technology were included in the SS1 and SS2 posters: "assistive device e.g. Apex"[8] (SS1, P1, L3), "assistive devices (braillers; ruby's (digital magnifiers)" (SS2, P1, L1-2), "speech programs and magnifier programs for the computers" (SS2, P1, L11-12), "Braille printer" (SS2, P2, L3), "embossers" (SS2, P2, L4), "adapted LMST (for example zoo boards)" (SS2, P2, L14), "talking calculators" (SS2, P2, L16) and "Ruby/max mouse electronic devices" (SS2, P2, L20).

The full service schools hardly mentioned the technology available that may help learners with VI to access content. Only FSS1 mentioned audio visual material. It might be that the resources available in full service schools are not sufficient to help learners with VI access the curriculum with technology; however, lack of knowledge regarding the available technology might also have played a role in the absence of technological support at full service schools. What is also interesting is that the school that frequently mentioned technology was situated in a city and not in a resource-constrained context, as was the other. Thus, the context in terms of available resources and the city might also have precipitated the use of technology in the school.

[8] A braille display.

The use of technology to enable access was also identified in the literature review, as Palmer (2005) indicated that technology can be used to help learners with VI. Bornman and Rose (2017), as well as Landsberg (2019), indicated that various high- and low-tech vision devices are becoming available such as hand-held magnifiers, talking calculators, scanners, note takers, computer programs and recorded textbooks (audiobooks). Tadić et al. (2015) explained that adaptive technologies facilitated learning and gave learners with VI independence. Haakma et al. (2018) explained that teachers needed to consider the technology available as technology could contribute and facilitate the learning process.

4.3.1.5. Sub-theme 1.4: Eyewear, magnifying glasses and personal assistive devices for mobility

This sub-theme suggests that teachers perceive that eyewear, magnifying glasses and personal assistive devices for mobility influence the ability of learners with VI to participate and to access content.

The participants from FSS1 mentioned “spectacles” (FSS1, P1, L6 & P5, L2), “learners should be assisted in terms of spectacles; walking sticks” (FSS1, P2, L4-5), and “walking sticks for the blind” (FSS1, P3, L3). Participants from FSS2 also identified “walking sticks” (FSS2, P1, L2). SS1 identified “assistive devices such as magnifying glasses” (SS1, P2, L5). The participants from SS2 highlighted “canes” (SS2, P1, L10) and “white canes” (SS2, P2, L16).

From these excerpts, the data reveal that teachers within full service schools identified spectacles as a need, whereas the special schools did not. From this, one can see that the perceptions of teachers regarding the needs of learners with VI in full service and specials schools differ in certain instances. It might be that the VI of learners placed in special schools is of such a nature that spectacles are obvious in the school and mentioning it was regarded as unnecessary. However, both types of schools mentioned white canes as a need. The broader literature also identified these as needs. Landsberg (2019) explains that learners with VI need formal training in mobility, for example, using a guide dog or white cane. Bornman and Rose (2017)

explain that individuals may need prescribed corrective lenses to accomplish visual tasks.

4.3.1.6. Sub-theme 1.5: Time

This sub-theme explores how time is perceived as a need for learners with VI. Time is understood as the amount of time learners with VI may need to demonstrate their learning, as well as to learn the content. Teachers identified that learners with VI need additional time.

The participants from both the full service schools mentioned "give learners enough time" (FSS1, P1, L1) and "extra time for activities" (FSS2, P2, L2). SS2 identified that learners with VI need "additional time for assessments" (SS2, P2, L25). Based on the data, the participants in both full service schools and one of the special schools see the amount of time learners require as a need to not only learn, but also to demonstrate their learning.

Learners with VI require more time to complete tasks, as they become tired and take longer with their academic tasks (De Verdier & Ek, 2014). For example, some learners with VI have only a percentage of vision in one eye available and using that one eye to finish an exam paper places strain on the eye, but also on the body that may have to pose uncomfortably to optimise vision. For other learners with VI, it takes time to read a question, move their eyes from the question to their answer sheet or braille typewriter, and to give the answer. Palmer (2005) added that concessions such as extra time enabled learning.

4.3.1.7. Sub-theme 1.6: Colour

Sub-theme 1.6 involves the teachers' understanding that certain eye conditions benefit from content in a specific colour, as well as understanding that certain colours may be challenging for learners with VI to see, depending on their eye condition. Therefore, the colours teachers use within the classroom may enable learners with VI to access the content, or may inhibit access.

Some participants highlighted "not to use bright colours" (FSS1, P1, L4). Teachers at FSS1 might have been exposed to learners who experience challenges with colour.

Colour as factor to access content was identified in the literature by Bornman and Rose (2017), who noted that increasing contrast can make print more visible, for example, using white or yellow text on a dark background may be more legible than using dark letters on a white background.

4.3.2. Theme Two: Accommodations and adaptions to classroom and school environment

4.3.2.1. Introduction

Table 2 in Appendix C indicates the inclusion and exclusion criteria that were used during the inductive thematic analysis regarding accommodations and adaptations to the environment that enable learners with VI to participate and learn.

4.3.2.2. Sub-theme 2.1: Structure or physical environment

Sub-theme 2.1 describes which adaptations to the classroom teachers perceive are required for learners with VI to participate. The data show that teachers perceive that learners with VI require the brightness of light in the classroom to be controlled, as well as that they require an organised environment that enables learners with VI to move.

The participants identified that learners with VI require that the light be controlled in the classroom through "dimmed window panes" (FSS1, P1, L3), "blinds can be placed on windows to minimise light" (FSS2, P2, L3), "adaptable lighting" (SS2, P2, L3) or "small lamps" (SS2, P2, L18). The participants also added that "user friendly environments, e.g. ramps, spacious bathrooms" (FSS1, P3, L4-5) and a "well-arranged classroom" (FSS1, P3, L7) are necessary. Participants in special schools also highlighted the need for "adaptable tables and chairs" (SS2, P2, L17).

Literature confirms that these modifications to the classroom can help learners with VI. Palmer (2005) explains that raised desks can help learners with low vision see their work. In addition, Bornman and Rose (2017) and Landsberg (2019) indicated that

small desk lamps, blinds, as well as adjustable desks were accommodations to the classroom. Bornman and Rose (2017) add that physical adaptions to the classroom can enable access and one should ensure that there are clear and open walkways. To conclude, Haakma et al. (2018) explain that learners' motivation and ability to participate is influenced by the teacher's ability to create a safe and accessible learning environment. Therefore, Haakma et al. (2018) state that providing a structured environment can facilitate learning.

4.3.2.3. Sub-theme 2.2: Positioning in the classroom

Positioning within the classroom implies that teachers need to seat learners with VI according to their eye condition, as their specific eye condition affects how much the learner can see.

The participants highlighted where learners ought to be placed within the classroom, with seating in the front a recommended position: "put them in the front seat" (FSS1, P1, L4).

The positioning of learners is seen as a need in full service schools. Special schools are specialised environments for learners with VI; therefore, positioning and being able to see the content on the board is not a factor as the special schools use technology to help learners to access the learning content. It might be that limited resources available in the full service schools necessitate front seating.

Positioning in the classroom was also identified in the literature review as Palmer (2005) and Landsberg (2019) indicated that learners with VI should be placed in the front of the classroom.

4.3.3. Theme Three: Supportive school environment

4.3.3.1. Introduction

Table 3 in Appendix C shows the inclusion and exclusion criteria that were used during the inductive thematic analysis to identify the type of environment that learners with VI require to participate.

4.3.3.2. Sub-theme 3.1: Type of school

Sub-theme 3.1 refers to the type of school. According to *Education White Paper 6* (DoE, 2001), South Africa was to follow a policy of inclusive education, where all learners had to be admitted to schools and the schools had to provide education to them. Full service inclusion schools would be schools with extra resources to include learners with barriers to their learning. When such schools were unable to provide access to learning, learners were to be placed in special schools which specialist support services. As a result, the type of school becomes a need, as not all schools are equally equipped. An inclusive school ethos does not necessarily mean a child with VI can participate. Therefore, specialised school environment may be in the best interest of the child as it enables their educational needs to be addressed. This sub-theme may not necessarily have been identified by learners themselves; however, participants within the EU/DHET in Gauteng identified this as a perceived need.

The participants highlighted that "learners be placed in suitable institutions (special schools)" (FSS1, P3, L7) and "refer the learner to the relevant institute" (FSS1, P1, L2).

This sub-theme was identified in full service schools. These participating full service schools were in resource-constrained communities that appeared to have limited resources. Therefore, learners with VI might require a more specialised environment that had the resources which these full service schools might not necessarily be able to provide to learners with VI.

The literature review in Chapter Two revealed that the ability to participate is dependent on access to the learning environment, and, according to Palmer (2005), access is achieved when special education modifications are made. According to Bornman and Rose (2017), the curriculum of learners with VI consists of two components: access to the general curriculum through adaptions and support, and addressing the unique issues that learners with VI encounter, such as orientation and mobility, and independent living skills. Chapter One and Chapter Two mentioned that learners with VI have experienced inappropriate education due to a vagueness of polices, poor resources, demands of the curriculum, and lack of support (Bornman &

Rose, 2017; Fish-Hodgson & Khumalo, 2015; Swart & Pettipher, 2016). It might mean that full service schools may not be able to support learners with VI, which is why placement in special schools was identified as a need. Bornman and Rose (2017) have explained that South Africa requires better-resourced full service schools, as access to special schools is limited. In addition, research by De Verdier and Ek (2014) reported that teachers found it hard to make the following subjects accessible to learners with VI: design, physical education, technology, physical sciences and mathematics (struggling to make subjects available aligns with Theme 5: Teacher competency).

The type of school required by learners with VI depends on the learner, as research by Tadić et al. (2015) indicated that some learners with VI were able to cope in full service settings, and others not; thus, one's ability to participate in learning seems to depend on the individual and the context of the school. Louw and Louw (2014) indicated that some learners prefer special schools, whereas others prefer full service schools. The data did not indicate that full service schools were a need. In addition, learners with VI who moved to special schools apparently felt accepted, that they were treated fairly, and felt normal; whereas, in a mainstream setting they had felt overlooked by teachers (Tadić et al., 2015). Louw and Louw (2014) indicate that the effectiveness of inclusion has been fairly controversial, as some learners benefit in inclusive settings while others do not, and success depends on the severity of the impairment and support services available. Thus, the teacher may perceive that the severity of the impairment may exceed the support available in full service schools.

4.3.3.3. Sub-theme 3.2: Monitoring system

This sub-theme was identified by the teachers as this enables the teachers to monitor the learners. Therefore, monitoring the safety of the learners of VI becomes a perceived need, as without monitoring systems, one cannot address certain safety concerns. In addition, technology allows for learners to be monitored without infringing on their independence. Monitoring systems may not be a need that learners themselves would identify; nevertheless, the PRA posters that were completed in the workshops in full service and special schools in Gauteng identified this as a need.

Participants identified that learners with VI need "a camera and monitor system in the class" (SS2, P1, L3) and "CCTV system" (SS2, P2, L2).

Participants from only one special school identified that monitoring systems are required. SS2 is in an urban environment and is well-resourced whereas the other schools are in resource-constrained communities; therefore, what is regarded as a need in a well-resourced community may not necessary be regarded as a need in a community with limited access to resources. Independence was identified in the literature review as a need of learners with VI (De Verdier & Ek, 2014; Palmer, 2005; Tadić et al., 2015). Literature also revealed that some teachers were being overprotective (Harris & Lord, 2016; Strickling, 2010). However, through the use of CCTV cameras, safety can be monitored, whilst at the same time allowing independence (Tadić et al., 2015).

4.3.3.4. Sub-theme 3.3: Referral network

Sub-theme 3.3 explains that teachers perceive that learners with VI need access to additional professionals for learners' needs to be addressed as the school and teachers may not be equipped or trained to address all needs.

The participants in FSS1 highlighted "assess and refer for eye test" (FSS1, P5, L1) and "make sure that learners go to check up regularly (have record in profile)" (FSS2, P2, L3-4). Participants in SS2 highlighted "how to refer" (SS2, P1, L8) and "know when to refer" (SS2, P2, L12). The participants in the special schools highlighted "mobility instructor" (SS1, P1, L1; SS2, P2, L16), "… mobility training for blind learners" (SS2, P1, L10), "special orientation" (SS2, P2, L8) and "continuous counselling" (SS1, P1, L2).

The data shows that learners with VI have needs that may influence their ability to learn and that the teachers perceive that they need to know when to refer. According to the teachers, learners with VI need to see additional professionals in order to participate in the classroom. The teachers did not highlight other services that could assist learners with VI. This may be due to the environment as the full service schools and one special school are situated in communities associated with limited resources,

thus, (lack of) access to services becomes an aspect that may inform the needs of learners with VI.

Mobility training was mentioned in the literature (Bornman & Rose, 2017; Landsberg, 2019). In addition, Harris and Lord (2016) indicated that learners need help with psychosocial adjustment, and that 20-30% of learners aged 11 years required professional advice or support. Thus, referral networks are essential, as this enables the unique needs of learners with VI to be met, which will enable participation.

4.3.3.5. Sub-theme 3.4: Access to healthcare

Sub-theme 3.4 explains that teachers perceive that learners with VI need access to healthcare, as there are risk factors associated with some eye conditions that can have an impact on the learners' health. In addition, some conditions are degenerative, where the eye condition needs to be monitored so as to ensure appropriate access to devices that can enable them to participate.

Participants from FSS1 highlighted "learners should be assisted in terms of spectacles" (FSS1, P2, L4) and "… refer for eye test" (FSS1, P5, L1). Participants from FSS2 added "make sure that learners go to check up regularly" (FSS2, P2, L3-4).

These remarks came from participants from the full service schools. The context of the school might have been a factor in indicating access to healthcare, as the special schools have access to health professionals. In addition, the full service schools were in resourced-constrained communities, where access to healthcare may be limited due to the context of the school.

4.3.3.6. Sub-theme 3.5: Number of learners

This sub-theme was identified by the teachers, as it enables the teachers to provide individualised attention. Sub-theme 3.5 may not have been identified by learners themselves; however, teacher to learner ratio has an impact on the amount of support learners with VI receive.

Participants in SS2 highlighted that learners with VI require "small classrooms" (SS2, P2, L22).

"Small classes" was not mentioned by the participants from the other schools. The other schools were all situated in resource-constrained communities and schools in these communities are often overcrowded. Thus, the context in which the school is situated may contribute to teacher perceptions as "small classes" are generally associated to schools that are well resourced. Louw and Louw (2014) explained that South African schools are overcrowded, and small classes are associated with individualised support (refer to Theme 5) and participation (Peček et al., 2008).

4.3.4. Theme Four: Emotional support for well-being

4.3.4.1. Introduction

Table 4 in Appendix C identifies the inclusion and exclusion criteria used during the inductive thematic analysis regarding the emotional support for well-being of learners with VI.

4.3.4.2. Sub-theme 4.1: Acceptance by teachers, peers, parents and/or self

Sub-theme 4.1 infers that teachers perceive that learners with VI need to feel accepted by teachers, peers, parents, and/or themselves. According to Dreyer (2015), needs derive from barriers, therefore the need for acceptance can derive from the barriers of rejection as seen in societal attitudes and sterotypes.

FSS1 mentioned a supportive peer "buddy" (FSS1, P1, L5) and "encourage peer acceptance" (FSS1, P3, L4). Participants from the full service schools mentioned teacher behaviour as a need: "teachers should not discriminate these learners and teach other learners to respect them" (FSS1, P2, L3-4) and "support the learners so that they can feel dignified or valued" (FSS2, P1, L3-4). In addition, participants from the full service and special schools mentioned psychological support that learners need, such as "emotional support" (FSS1, P3, L2), "build self-confidence" (FSS1, P4, L5), "learners need love, support, and inclusivity in class" (FSS2, P1, L1). SS1

highlighted "support system" (SS1, P1, L2), "acceptance =[9] emotional, mentally" (SS1, P2, L10) and SS2 highlighted "every child is unique" (SS2, P2, L16).

It seems that teachers perceive that learners with VI need to feel accepted to be able to participate in the classroom. Suggestions were made for the teachers, the peers, and the learners with VI themselves. Bornman and Rose (2017) identified that peer support can be used as a strategy to support learners with VI; thus, a peer with normal or corrected vision can be trained to help learners with low vision. In addition, extant literature indicates that a positive attitude facilitated learning (De Verdier & Ek, 2014). Louw and Louw (2014) added that research shows that teachers' attitude towards learners' needs is one of the biggest predictors of success in inclusive education settings. In addition, Landsberg (2019) explained that accepting learners and teaching their peers to accept them enabled participation. Support was affected by the school's attitude, which has an impact on participation (De Verdier & Ek, 2014). Tadić et al. (2015) indicated that learners with VI saw their relationships as an important aspect that facilitated learning and that teachers, peers, and parents were important anchors for support and acceptance. These relationships enabled learners to meet social demands. Landsberg (2019) added that teachers need to be advocates and teach tolerance. Lastly, Fotiadou et al. (2014) and Landsberg (2019) explain that VI can become a barrier that hinders development, when learners do not receive appropriate support from their caregivers or parents, school and community from birth.

4.3.4.3. Sub-theme 4.2: Empathy

Empathy was a perceived need for learners with VI.

Participants from SS2 mentioned "understanding" (SS2, P2, L2) and to "have compassion for learners with visual impairment" (SS2, P2, L3-4).

Therefore, the teachers at SS2 see empathy towards learners with VI as a need. Thus, having an empathic approach to learners with VI may enable learners with VI to participate. This is also found in literature as Bornman and Rose (2017) explained that when people are exposed to individuals with impairments their attitudes shift, and they

[9] The equal sign was used in the poster.

become more positive. Thus, empathy links to sub-theme 4.1, as with understanding comes acceptance, which may in turn promote participation.

4.3.4.4. Sub-theme 4.3: Parent education

Sub-theme 4.3 was identified by the teachers as a need, as parents play a role in their children's education (Donald et al. 2017; Louw & Louw, 2014). Parent education might not have been identified by learners themselves; however, parents who are well informed may be able to provide the support their children requires. That being the case, parent education was identified as a need.

Participants from SS1 one highlighted "parents to be more educated (equipped) to be more helpful … understanding their kids" (SS1, P2, L8). This was not identified in the other schools. The context of SS1 may have played a role, as it is in a resource-constrained community, which is associated with poor education and poverty. For this reason, educating the parents may constitute a need, due to context. Lack of parental involvement was identified in the literature, which revealed that a parent's education can be a barrier to learning, as parents themselves may have limited education (Donald et al., 2017). In addition, Fotiadou et al. (2014) and Landsberg (2019) indicated that VI can become a barrier that hinders development when learners do not receive appropriate support from their caregivers or parents, school, and community from birth. Thus, parents need to be equipped to provide the support their children require.

4.3.5. Theme Five: Competent teachers

4.3.5.1. Introduction

Theme Five was not identified by the learners themselves, however, by the teachers. Table 5 in Appendix C identifies the inclusion and exclusion criteria that were used during the inductive thematic analysis concerning competent teachers.

4.3.5.2. Sub-theme 5.1: Initial teacher training

Teachers within the schools identified the teacher's education as a need for learners with VI as the teacher's training may inhibit or enable access to learning opportunities.

The participants highlighted a need for knowledge related to identification, teaching and support of learners with VI. Teachers mentioned following needs: "identify learners according to their problem" (FSS2, P1, L1), "experienced and qualified teachers to help them" (FSS2, P1, L3). SS1 identified "require training on how to use assistive devices" (SS1, P1, L3), "teachers need to know learn how to use, write and read Braille" (FSS2, P1, L 4-5) and SS2 highlighted "know when to refer" (SS2, P2, L2), "knowledge of eye conditions" (SS2, P1, L4), "how to refer" (SS2, P1, L8), "knowledge on Braille + contractions" (SS2, P2, L5), "understand the different eye conditions and medical considerations" (SS2, P2, L9-10), "know pass requirements" (SS2, P2, L13) and "knowledge of specific emotional challenges that go with learners with visual impairment" (SS2, P1, L6-7).

Based on the above, teacher training was a perceived need in all the schools, where teachers see training as a need that learners require to participate in the classroom. The literature review stated that many South African teachers are over the age of 50, and their training was in general or special education (Donohue & Bornman, 2014). Therefore, it is safe to assume that the majority of South African teachers are not trained to teach in the new social paradigm of inclusive education (Donohue & Bornman, 2014). In addition, De Verdier and Ek (2014) indicated that a lack of training influenced teachers' ability to support learners. Landsberg (2016) added that teachers' apprehension about teaching learners with VI will not change until teachers receive the necessary support and training required to accommodate learners with VI. Therefore, teachers require support, as Bornman and Rose (2017) explain, that even when teachers attend training, the content can be overwhelming and there are inadequate support structures to implement what has been learnt. In addition, even teachers working at schools for learners with VI have been trained in general education (Bornman & Rose, 2017). As a result, teachers struggle to adapt the curriculum to accommodate learners. Thus, the teachers are unable to mediate or facilitate learning (Fraser & Maguvhe, 2008). Lastly, Bornman and Rose (2017) explain that teachers in rural and under-resourced schools struggle to acquire knowledge and skills due to the cost of training and transport to the training.

4.3.5.3. Sub-theme 5.2: Temperament

Temperament was perceived to be a need for learners with VI as temperament may affect learners' participation.

Participants from SS2 highlighted that teachers need to "be patient" (SS2, P2, L2) and learners require "patient teachers" (SS2, P2, L23).

Only participants from SS2 mentioned patience. SS2 was well-resourced with experienced teachers. Being patient was an aspect that was identified within special schools in literature. Tadić et al. (2015) indicated that learners who had transferred from mainstream to special schools said that teachers within special schools are more patient. Thus, patience is an aspect associated with special schools.

4.3.5.4. Sub-theme 5.3: Teacher education and training

This sub-theme was identified by the teachers as a need for learners with VI. It is unlikely that learners with VI would have identified continuous professional development (CPD); however, teachers perceive that learners with VI will benefit from the teachers doing CPD.

Participants highlighted that "teachers should be attend workshops about how to deal with such learners" (FSS1, P2, L5-6), "teachers should be knowledgeable about the barrier, e.g. well-arranged classrooms, research, workshops" (FSS1, P3, L5-6) and "keep learning developing" (SS2, P2, L14).

The data from this sub-theme show that CPD becomes a need as it enables competency and learners with VI need to have competent teachers if they are going to be able to participate in the classroom.

Many South African teachers are not trained to teach in the new social paradigm of inclusive education (Donohue & Bornman, 2014), and thus require further training. Teachers' understanding of what it means to be visually impaired is determined by the teachers' knowledge (Donohue & Bornman, 2014). Therefore, the support learners receive is dependent on the teachers' knowledge. CPD is important, as this leads to

the development of knowledge, which can help to support and enhance participation. Similarly, SACE states that it is mandatory for teachers to engage in ongoing professional development as this may enhance teaching and learning processes (SACE, 2012). Thus, furthering one's knowledge is a need identified in policy as well as by the teachers in this study. However, literature has shown that teachers struggle with the process of ongoing professional development as there is no incentive, the process is online and requires updating, and many schools struggle to complete the forms online due to insufficient data as well as a lack of computer skills (Bernadine, 2019). In addition, older teachers indicated that when they are close to retirement, their focus changes and they are reluctant to engage in CPD (Bernadine, 2019). Thus, there is a reluctance to engage in CPD which was not found in this study; thus, the quality of the training available becomes a concern as teachers who work with learners with visual impairment indicated that they require workshops. Subsequently part of the EU/DHET study is to create an advanced diploma which may help teachers develop the knowledge required to support learners with VI in their classrooms.

4.3.5.5. Sub-theme 5.4: Teacher approaches and methods

Sub-theme 5.4 was recognised by the teachers as a need as the teacher approaches can enable participation of learners with VI. This may not have been identified by learners themselves.

The participants emphasised the following teaching approaches and methods:

- "verbal explanation of activities" (FSS1, P3, L3);
- "have relevant resources" (FSS1, P3, L7);
- "bring learner closer to the pictures" (FSS1, P4, L1);
- "use hands and gestures" (FSS1, P4, L2);
- "observe them closely" (FSS2, P2, L1);
- "demonstrate skills" (FSS2, P2, L5);
- "… enhance their capabilities of what they can do" (FSS2, P2, L3-4);
- "adapt to changing circumstances" (SS2, P1, L3);
- "multi-tasking" (SS2, P1, L2);
- "think outside the box, creative problem solving" (SS2, P1, L1); and
- "be able to adapt and simplify curriculum (take the essence out)" (SS2, P2, L6-7).

This sub-theme shows that the teacher approach within the classroom can enable participation and learning. Subsequently, De Verdier and Ek (2014) indicated that teachers struggled to differentiate academic tasks and adjust the academic requirements. The study also revealed that uncertainty in adjusting tasks and assessment was a factor that contributed to some teachers feeling insecure about how to assess learners with VI (De Verdier & Ek, 2014). According to Landsberg (2019), teachers' knowledge about eye conditions affects their ability to adapt teaching strategies. Palmer (2005) added that teacher's oral approach can enable learning.

4.3.5.6. Sub-theme 5.5: Assistance from teachers

This sub-theme was identified by the teachers, as learners with VI were perceived to require individualised attention to learn.

Participants highlighted "teacher (individualisation)" (FSS1, P1, L7) and "individual hands-on teaching" (SS2, P2, L26).

In the literature review, individual support according to the eye condition was identified as a need, and the type of support is dependent on the eye condition (Appendix A; Landsberg, 2019). Therefore, as indicated in Chapter One, one cannot treat all learners with VI alike, as the condition itself plays a role in the type of support required. In addition, Tadić et al. (2015) identified that teacher support was an anchor that facilitated learning. Lastly, Barnes (2012) identified that personal assistance to be a need.

4.3.5.7. Sub-theme 5.6: Information and communications technology (ICT) skills

This sub-theme was identified by the teachers as technology is seen as a means to help learners with VI ability to participate in the classroom.

Participants highlighted "computer literacy skills" (SS1, P1, L4) "be taught ICT skills (computer skill is a need)" (SS1, P2, L6), "basic skills on ICT" (SS1, P1, L4), "speech and magnifying program for computers" (SS2, P1, L11-12) and "computer skills good" (SS2, P2, L9).

The teachers see that their skill and their ability to teach learners to use technology is a need as it enables access to the content. This sub-theme was not found in the full service schools and this may be due to the resources and contexts of these schools as the full service schools were located in resource-constrained communities. Thus, technology was not identified, as the teachers may not have access to these types of resources. This is found in literature as well as in Bornman and Rose (2017), De Verdier and Ek (2014), Landsberg (2019), Palmer (2005) and Tadić et al. (2015), who explain that the technology that is available and that teachers' competency in technology influences the facilitation of learning. In addition, Bornman and Rose (2017) also added that technology has become affordable, and is seen as a means to facilitate learning. As a result, teacher competency with the devices affects learners' ability to use them. Therefore, teachers need ICT skills.

4.4. INTEGRATING RESULTS AND FINDINGS WITH THE CONCEPTUAL FRAMEWORK

In this section, I will link the themes to the conceptual framework. From the discussion of themes above, one can see that the themes identified occur at multiple levels, for example individual learner level, teacher level, school level, education department level, and government level. Due to the constraints of a mini-dissertation, I will only provide a few examples and I will not elaborate on each theme or sub-theme.

In Chapter Two, I explained that schools are complex systems, reciprocally interacting with other systems (refer to Figure 2.1 [second revision to ecological theory combined with the social model of disability]). I will first discuss a theme that starts at the macro-system, after which I will elaborate on how it has an impact on the individual. I will then explain how the individual system can influence the macro-system.

The macro-system (Bronfenbrenner, 1977; Johnson, 2008) includes values, beliefs, and customs. The macro-system has indirect influence on the proximal interactions in the micro- and meso-systems (Johnson, 2008). In South Africa we value inclusion, and throughout this mini-dissertation, the belief in inclusion is evident. This belief is held by our educational and political systems, which have resulted in policies and practices being outlined for the inclusion of all, thus inclusive polices were created

(exo-system). At this level, the teacher has no direct influence (Johnson, 2008); however, these systems influence the teacher as policies filter down to schools (meso-system) (Donald et al., 2017). Thus, DBE policies on inclusion subsequently inform teachers' perceptions within the meso-system. However, one needs to consider the factor of time also known as the 'chronosystem' (Donald et al., 2017). As mentioned in section 4.3, inclusion came with democracy (Coetzee et al., 2019) and was formalised in education policy since 2001. Currently, it is 2020, and the census conducted in 2011 indicates that the number of learners with VI in schools is decreasing with age (Lehohla, 2014), meaning that the learners with VI are not included in the schools. If inclusion is a value that is then placed in policy, then one would assume that it would filter down and it would influence the school system (Donald et al., 2017). Thus, policies at the macro level, such as inclusive education policies, are becoming barriers to learning for learners with VI (Dreyer, 2015).

Another example would be societal barriers (Dreyer, 2015), for example, poverty. Within this data, the three schools are situated in under-resourced communities which are associated with poverty (Donald et al., 2017). Thus, the school micro-system does not have the resources required, where, specifically, the families in these contexts have limited resources to provide for the individual child, thus both micro-systems have limited resources which influences learner participation. However, both micro-systems require support from the exo-system and above the exo-system, we have the macro-system which contains values. One value in South Africa is that children have the right to education. Yet this right may not be a reality, as learners with VI need access to resources to learn. As their communities do not have access to resources, the exo-system is expected to provide these, yet our full services schools in this study had limited resources, which then in turn affect the individual learner. Thus, this example illustrates how a value can influence all levels of the system without being actualised.

If we start from the individual system, VI would be located in the individual system (although it would be society that disables and not the VI) (Dreyer, 2015). Visual impairment influences learners' ability to interact with the environment, as such learners with VI need assistance and assistive devices to access the learning content. If the health system cannot respond to the learners' needs, the school and the family systems are affected. Thus, access then becomes a barrier at all levels, as, according

to truism, we live in an interconnected world. Therefore, the four broad categories of needs identified by Dreyer (2015) are found within the system, namely systemic barriers (policies and curriculum, availability of assistive devices and facilities); societal barriers (poverty, access to services and attitudes); pedagogic and curriculum barriers (teaching methodologies, assessment procedures and support); and intrinsic barriers (VI).

4.5. SUMMARY

Chapter Four presented the results of this study in terms of five main themes and associated sub-themes that emerged through the thematic inductive analysis process, by applying inclusion and exclusion criteria that describe the relevance of the data to a specific sub-theme. The results and findings that were obtained from the data analysis were discussed thoroughly and were substantiated with quotes from the data. In addition, the chapter compared and discussed the findings of the study against existing literature and integrated the findings with the conceptual framework by explaining two examples.

In Chapter Five, I will conclude this mini-dissertation by answering the research questions formulated in Chapter One, discussing the limitations associated with the study and suggesting relevant recommendations.

CHAPTER FIVE
RESEARCH CONCLUSION, LIMITATIONS AND RECOMMENDATONS

5.1. INTRODUCTION

Chapter Four contextualised the schools that participated in this study, after which followed a discussion of the themes and sub-themes that emerged after the inductive thematic analysis. Thereafter it linked the results and findings to current literature, and concluded by linking the results to the conceptual framework.

Chapter Five concludes this mini-dissertation by providing an overview of Chapters One to Four, answering the research questions in Chapter One (section 1.4.) by presenting literature and/or findings from this study, and explaining the study's limitations, along with recommendations for future research.

5.2. SUMMARY OF PREVIOUS CHAPTERS

Chapter One provided an overview of the study. It began with relevant background information, the rationale for the study and the purpose of the study. The research questions that steered the study were introduced, followed by the working assumptions and a clarification of key concepts. This was followed by a brief discussion of the selected paradigmatic lenses and methodological strategies. The chapter briefly described the quality criteria and ethical considerations.

Some relevant literature relating to the needs of learners with VI within full service and special schools in South Africa and abroad was reviewed in Chapter Two. The chapter began by discussing VI from an individual perspective, the development of learners with VI, and the needs of learners with VI. The conceptual framework for this study was described by discussing Bronfenbrenner's bioecological systems theory in conjunction with VI from a social perspective where I explored systemic barriers that may have a detrimental impact on VI within the education system, social and community system and political system. I concluded the chapter by describing the systemic facilitators of VI.

The relevant epistemology and research methodology were discussed in Chapter Three. The selected research design, a qualitative multiple case study design, was described, as well as the associated benefits and limitations thereof. Subsequently, Chapter Three described the selection procedure used to select the transcribed PRA posters. The chapter also included a discussion on inductive thematic analysis, and concluded with a description of the ethical considerations and quality control mechanisms applied.

In Chapter Four the results and findings obtained from the inductive thematic analysis were reported as five themes and related sub-themes. The five themes were accommodations and concessions to access curriculum or content, accommodations or adaptions to classroom and school environment, supportive school environment, emotional support for well-being, and competent teachers. Extracts from the transcribed PRA posters supported the themes and sub-themes, in addition to literature relating to each theme. The chapter concluded by applying the findings to the conceptual framework.

5.3. ANSWERING RESEARCH QUESTIONS

5.3.1. Introduction

In this section, I discuss the findings of the study as these relate to the research questions stated in Chapter One (section 1.4). The secondary questions are addressed first, followed by the primary research question.

5.3.2. Secondary research questions

5.3.2.1. How does teacher education influence teacher perception on the needs of learners with VI?

The influence of teacher education on teacher perception on the needs of learners with VI was identified in sub-theme 5.1 and 5.3. Teachers saw their initial training as a need that learners require to participate in the classroom, as their training was associated with their ability to support learners with VI. Donohue and Bornman (2014) explained that many South African teachers are over the age of 50, and their training more than three decades ago was in general or special education. Even teachers

working at special schools have often only been trained in general education. The findings of this study therefore support the assumption/discourse that many teachers are not trained to teach in the new social paradigm of inclusive education (Donohue & Bornman, 2014), or have not been trained in VI specifically. Alarmingly, De Verdier and Ek (2014) indicated that a lack of training influenced teachers' ability to support learners. In short, limited teacher training limits teacher perception of the needs of learners with VI.

As the teachers from the full service schools and special schools had varying degrees of experience with learners with VI, their experience probably made them aware of their own CPD training in many aspects related to teaching learners with VI (sub-theme 5.3). Peček et al. (2008) explained that teachers' training influences their ability to facilitate learning. Nonetheless, teachers require support, as Bornman and Rose (2017) explained that even when teachers attend training, the content could be overwhelming, and that there were inadequate support structures at school to implement what has been learnt. As a result, teachers struggle to adapt the curriculum to accommodate learners with VI. Peček et al. (2008) summarised that teacher perceptions were influenced by their training and experience with special needs. Therefore, teacher education does seem to influence teacher perceptions of the needs of learners with VI.

5.3.2.2. To what extent do teacher perceptions of their knowledge have an impact on their teaching of learners with VI?

The literature revealed that teachers are apprehensive about teaching learners with VI and their sense of apprehension will not change until teachers receive the necessary support and training required to accommodate learners with VI (Landsberg, 2016). By voicing a need for training, teachers of learners with VI perceive that their existing knowledge is not adequate to teach learners with VI. Their training is seen as a way to access knowledge. The teachers required training and CPD on:

- Accommodations and concessions to access curriculum and content (Theme 1), including Braille, text size, and assistive devices;
- Accommodations and adaptation to classroom and school environment (Theme 2), including positioning in the classroom; and

- Becoming competent teachers, including teacher approaches and methods, and technology (Theme 5).

Theme 1 has an impact on teachers' perception of their teaching of learners with VI, as teachers need to have knowledge on how to accommodate learners, as well as make concessions if learners are going to access content. Adapting content was also identified in the literature, where Landsberg (2019) explains that it facilitates learning. In addition, the teacher's knowledge about adaptions to the classroom environment (Theme 2) has an impact on their teaching of learners with VI as they need to have knowledge of the eye conditions in order to know what accommodations need to occur. Extant literature also indicates this, as the ability to adapt the environment facilitates learning (Palmer, 2005).

Lastly, sub-theme 3.1 indicated that teachers in full service schools were of the view that learners should be placed in special schools; thus, full service schools' teachers may perceive that they lack the resources and the knowledge to effectively teach learners with VI.

5.3.2.3. What role do policies of the Department of Basic Education (DBE) play in teachers' perceptions of the needs of learners with VI?

The literature revealed that the South African education system makes provisions for learners needs. According to Louw and Louw (2014), the task of policies is to change the behaviour, attitudes, teaching practices, as well as the curricular and school environment in order to meet the needs of all learners. In addition, South Africa has progressive national policies, such as the *Education White Paper 6* (Coetzee et al., 2019) and the South African Schools Act No. 84 of 1996 (RSA, 1996), which are in line with the Convention on the rights of persons with disability and the Convention on the rights of the child (Bornman & Rose, 2017). South African policies thereby make education accessible to all (Bornman & Rose, 2017). These policies are, furthermore, based on national and international human rights policies, which strive to have a society that is free of discrimination (Louw & Louw, 2014). Hence, "the policies acknowledge the rights of all individuals to realise their full potential" (Louw & Louw, 2014, p. 253).

The data indicates that teachers in full service schools prefer learners to be referred, and placed in suitable institutions (special schools for learners with VI). The word suitable indicated how full service school teachers perceived their limited ability to accommodate learners with VI. Thus, the policies indicate that full service schools ought to be suitable for learners with VI, however, this may not be the reality. Consequently, policy implementation or the lack thereof has resulted in teachers perceiving specials schools to be a need for learners with VI. Bornman and Rose (2017) said South Africa requires better-resourced full service schools. Therefore, as indicated by the literature, the policies at local level may be restrictive and the application unreliable (Bornman & Rose, 2017). This has probably resulted in teachers seeing special schools as a need. Referral to special schools may be linked to the contextualisation of the schools (see section 4.2.), being full service schools with limited resources in resource-constrained communities. Based on the data and literature, South Africa may have progressive policies, but the implementation of these policies has not yet had much impact.

5.3.3. Primary research question

What are the perceptions teachers have on the needs of learners with VI in full service and special schools in Gauteng?

Table 5.1 contains a detailed summary of the perceptions teachers have of the needs of learners with VI in full service and special schools.

Table 5.1: Answers to the primary research question

Theme	In full service schools, teachers perceive learners with VI to need…:	In special schools, teachers perceive learners with VI to need…:
Theme 1.1	**braille** • braille and braille machines to access the curriculum • lessons in braille to access learning content	**braille** • access to books and materials in braille for teachers and learners to enable learning • adapted learning and teaching support materials (enlarged text and text in braille) to access the

		curriculum, including maps and diagrams • braille machines and paper • assistive devices like rubies and UBC contractions
Theme 1.2	**adapted font size and images** • in learning material, writing on the white board, question papers and prescribed material	**adapted font size, and images** • in learning material, question papers and prescribed material • adapted font type • adapted font and braille • simplified worksheets
Theme 1.3	**assistive devices and technology** • quality audio and visual media	**assistive devices and technology** • ruby's • talking calculators • speech programs and magnifier programs for the computers • Zoom boards
Theme 1.4	**eyewear and assistive devices** • spectacles • white canes to access the classroom	**eyewear and assistive devices** • white canes to access the classroom • magnifying glasses
Theme 1.5	**time** • extra time for learning activities	**time** • extra time for learning activities
Theme 1.6	**colour** • colour has an impact on the ability to see content	
Theme 2.1	**adaptions to the physical environment** • controlled lighting in the classroom • well-arranged classrooms and the school to enable physical access	**adaptions to the physical environment** • controlled lighting in the classroom according to the VI • adapted height and angle of tables according to the VI
Theme 2.2	**appropriate positioning** • placement in the front of the classroom	**appropriate positioning** • learners in special schools are less needy of placement as assistive devices negate placement

	• placement close to the chalkboard	
Theme 3.1	**specialised environments** • specialised environments to enable learning	
Theme 3.2		**monitoring systems** • monitoring systems to ensure learner safety without compromising the development of independence
Theme 3.3	**referral networks** • to ensure access to eye exams • to ensure learners have regular check-ups	**referral networks** • to help the teacher know when to refer learners • to enable teachers to know how to refer learners • to know which professionals can support learners with VI, for mobility and counselling
Theme 3.4	**regular healthcare** • regular check-ups • access to spectacles • regular eye tests	
Theme 3.5		**teachers who can provide individualised support** • when the teacher to learner ratio is low
Theme 4.1	**acceptance** • encouraging peer support • modelled acceptance • respect for learners with VI • emotional support • confidence building	**acceptance** • knowing that every child is unique • support
Theme 4.2		**empathy** • understanding • compassion
Theme 4.3		**parent education** • to enable participation of learners with VI

Theme 5.1	**teachers' ability and training** • teachers to be able to identify problems • teachers to be trained and be able to write and read in Braille	**teachers' ability and training** • training on how to use assistive devices • training to expand their knowledge of braille and contractions • training to know when and how to refer learners with VI • training to expand their knowledge about the various eye conditions. • training to understand the emotional challenges that learners with VI experience
Theme 5.2		**patience** • patient teachers
Theme 5.3	**teachers to be lifelong learners** • teachers to attend workshops to support learners • knowledge about the barrier, placement, classroom arrangements enable access to learning	**teachers to be lifelong learners** • teachers to attend continuous learning and development enables participation
Theme 5.4	**teachers who are adaptable and change their approach** • verbal explanations • relevant resources • observations • demonstrations • to bring closer to imagines	**teachers who are adaptable and change their approach** • to adapt to the changing circumstances • to multi-task to ensure learners can participate • to use creativity and problem solving to adapt their approach • teachers to adapt and simplify the curriculum to enable access
Theme 5.5	**individualised support** • teachers to provide individualised support	**individualised support** • individualised support to receive hands on teaching
Theme 5.6		**ICT skills** • teachers to be computer literate

		• teachers to be taught ICT skills so that they can then teach learners to use the technology available • teachers with ITC skills to know how to use the computer programs available to ensure learners can see the content

To summarise, learners with VI can participate when teachers consider the individual learner as well as the five themes identified in this study. The context and available resources also influence teacher perceptions on the needs of learners with VI, as can be seen by the difference between the needs mentioned in the full service schools and the special schools.

5.4. LIMITATIONS OF THE STUDY

The limitations identified relate to the limitations of the selected research design, the methodology, and the potential biases that could have appeared during the analysis of the qualitative data (Johnston, 2014). One limitation associated with using the unanalysed transcriptions of the PRA posters was my absence during the data collection process, and the subsequent loss of detail that might have occurred. I might have a partial understanding of teacher perceptions (Johnston, 2014). Other specific limitations included time as this mini-dissertation had to be completed in two years. Had there been more time, there would have been analysis of data from more schools in the EU/DHET study. There may be a lack of rigour when using qualitative methodology (Andrade, 2009; Crowe et al., 2011; Choy, 2014; Devetak et al., 2010; Noor, 2008), although measures to improve rigour were explained in Chapter Three.

Limitations relating to the findings of the current study include that the PRA workshops did not involve learners with VI. This study examined teacher perceptions of the needs of learners with VI at only four schools. Working with data from four schools involving teacher perceptions could influence the transferability of the findings to other settings. In addition, the participants that took part during the study had to be able to speak English and be available after school. The data represents these teachers' perceptions. Teachers speaking other languages may have different

perceptions, which may have an impact on the transferability when applied to other contexts where English is not the dominant language.

5.5. RECOMMENDATIONS

5.5.1. Recommendations for practice and training

This study recommends that:

- professionals across disciplines who work with learners with VI ought to engage more or attend training together as one needs to be aware of what is available and can be done within each part of the different systems if one is going to support learners with VI. A recent discussion with an optometrist about full service schools and accommodations that can be made for learners with VI indicated that there is a lack of knowledge about school placement and accommodations on the side of the optometrist. Based on this conversation, I recommend that role players ought to discuss with one another what is available within each system, as this may enhance learning for learners with VI. This can be arranged on provincial level.
- teachers of learners with VI continue with the process of continuous professional development (CPD) where a minimum number of points must be acquired yearly as indication of workshops attended and courses enrolled.
- full service schools should make use of the special schools for learners with VI that have been designated as resource centres to ensure they have the knowledge, skills and resources required. This is already ensconced in legislation, even though not always done.
- special schools continue to present training for other schools about how to support learners with VI, as well as to demonstrate how to use the available technology to help learners access content. This is already ensconced in legislation.
- where possible, it is necessary for special schools to act as resource centres and lend other schools the technology required to support learners with VI.
- a module be initiated at undergraduate and post graduate level for all education students to make them aware of the needs of learners with VI.

5.5.2. Recommendations for future research

This study recommends that:

- a study examining the needs of learners with VI from the perspective of learners with VI be conducted, as this study is limited to examining teacher perceptions on learners' needs.
- to understand the needs of learners with VI, insight is required into the perceptions of the other role players, as families, other professionals and peers may have different perceptions of the need of learners with VI that were not identified in this study.
- this study examined Gauteng teacher perceptions; thus, to gain a more in-depth understanding of teacher perceptions of the needs of learners with VI, similar studies must be done in other provinces to determine whether similar needs are identified or whether other provinces identify needs that were not identified in Gauteng.
- based on literature and the contextualisation of the schools in Chapter Four, a study be done on full service schools and their ability to accommodate differently-abled learners, as the policies are present but their degree of implementation undetermined.
- many learners with VI have co-morbid conditions, which require additional accommodations and additional knowledge and skills from the teachers. Research exploring the needs of such learners would also be of value in the field of disability.
- the role of culture in understanding VI should be investigated further as culture plays a role in perceptions and the lens through which one sees the world. This study was conducted with teachers who could speak English, and therefore teachers who speak other languages may identify different needs.
- the role of culture in providing support should be researched, as during the literature review, literature indicated that different cultures focus on different aspects of development and children's development is supported differently. Thus, how different cultures provide support to learners with VI may be of value in the field of disability.

5.6. SUMMARY

In this study, I examined and described full service and special school teacher perceptions on the needs of learners with VI in Gauteng, South Africa. As such, this study provided baseline data by means of which to understand the potential needs of learners with VI, in the hopes that the data obtained in this study could be used to inform teaching practice and future research to help learners with VI to participate in the South African education system. The findings of the study highlight that the type of school (full service or special) and the school's context (resourced or resource-constrained) influenced teacher perceptions of the needs of learners with VI.

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APPENDIX A
COMMON EYE CONDITIONS

INTRODUCTION

Appendix A discusses common eye conditions. Different eye conditions require different ways of support. For this reason, teachers' understanding of the eye conditions and their implementing corresponding support enable learners with VI to participate as their individual needs have been met. According to Shih-I Pai et al. (2011), research has shown that uncorrected refractive error is a major cause of VI in children, along with astigmatism, myopia, and excessive hyperopia. Further reported causes of VI involve amblyopia, congenital cataract, and retinal disorders (Shih-I Pai et al., 2011).

EYE CONDITION AND IMPLICATIONS

Common eye conditions form VI, where the needs of learners who are blind and those that have low vision differ (Bornman & Rose, 2017; Landsberg, 2019). Figure 2.1 depicts the structure of the eye and to understand the implications of different eye conditions one needs to be aware that the visual system consists of three components: sight, transmission of image along the optic nerve, and the interpretation of the image in the visual cortex (Bornman & Rose, 2017).

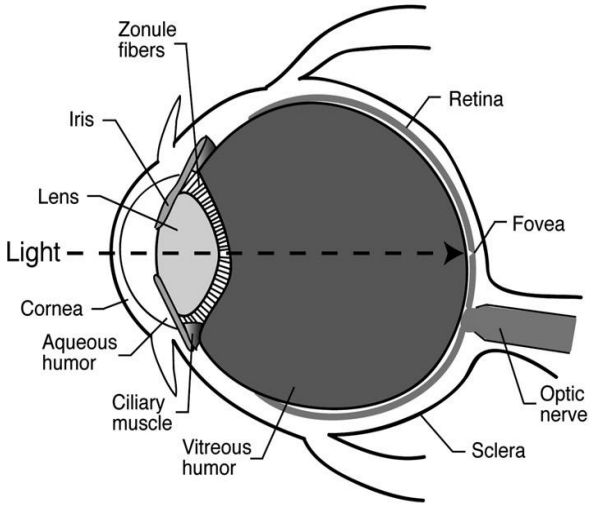

Figure A.1: The eye in cross section, adapted from Bear, Connor, & Paradiso, 1996, p. 216 (as cited in Goebel, Muckli, & Kim, 2012)

1. Amblyopia

According to DeSantis (2014), amblyopia refers to unilateral or bilateral reduction in best corrected visual acuity. Courtright et al. (2011) explain that amblyopia is the result of abnormal visual stimulation that causes abnormal visual development, which results in the reduction in vision (Courtright et al., 2011). Similarly, DeSantis (2014) adds that amblyopia is not attributed to a structural abnormality of the eye or posterior visual pathways. According to Courtright et al. (2011) and DeSantis (2014), amblyopia is caused by stimulus deprivation, strabismus, anisometropia or bilateral high refractive

errors. Courtright et al. (2011) add that the deprivation can be due to cataracts, corneal opacities, or other opacities of the visual axis. DeSantis (2014) explains that in North America, amblyopia can be attributed to the most cases of unilateral reduced vision in children. In addition, Courtright et al. (2011) note that amblyopia is estimated to affect 1-4% of children, and research indicates a high prevalence in medically underserved populations in resource-constrained countries.

According to Courtright et al. (2011) and DeSantis (2014), treatment is the most effective before the ages of eight or nine, when one's brain reaches visual maturity. Therefore, treatment after age nine is less effective and the condition cannot be treated successfully and vision cannot be fully restored in the amblyopic eye (DeSantis, 2014).

Teachers need to identify eye differences, such as milkiness in the eye or squinting, especially in learners in the Foundation Phase. These learners must be assessed by professionals to prevent permanent damage to vision, where possible. In addition, teachers need to seat the learner so that they do not miss information; thus, if the problem is in the right eye the teacher should place the learner on the right side of the classroom so that all the information is presented to the left eye.

2. Refraction error

According to Wojciechowski (2011), a refractive error is an optical defect of the visual system that results in blurred vision. According to Courtright et al. (2011), refractive errors cause the retinal image to be out of focus. The out of focus image is caused by a mismatch between the optical components of the eye (Courtright et al., 2011). Refractive errors are the most common eye disorder (Wojciechowski, 2011). According to Landsberg (2019), the eye has three refraction media, namely the cornea, the lens, and the aqueous humour. The curve of the cornea does not change, but the lens can change depending on the distance of the object from the eye, which is known as the accommodation of the lens (Landsberg, 2019). According to Landsberg (2019, p. 412), a healthy eye allows light to pass through "the cornea, aqueous humour and the lens and these media bend and focus the light on to the

macula". Therefore, a refraction error influences how light passes through the eye. There are three main refraction errors, as follows (Landsberg, 2019):

- Near-sightedness or myopia occurs when light rays fall in front of the macula. Myopia starts in childhood (Courtright et al., 2011) and impacts the learner's ability to see objects at a distance, such as the blackboard; however, the learners can see objects close to them (Courtright et al., 2011; Landsberg, 2019). According to Louw and Louw (2014), prevalence studies indicate that 20% of children have vision problems, amongst which, myopia is the most common. In addition, Wojciechowski (2011) explains that 2.5 billion people will be affected by myopia within the next 10 years.
- Farsightedness or hyperopia occurs when light rays fall behind the macula (Goebel et al., 2012; Landsberg, 2019). As a result, the opposite of myopia occurs, and the learner's close vision is poor (Goebel et al., 2012; Landsberg, 2019).
- Astigmatism is linked to myopia or hyperopia, and occurs due to an uneven cornea (Landsberg, 2019). This type of error causes light rays to fall behind and in front on the macula, not on it (Landsberg, 2019). This would cause the vertical lines of an object to be in focus, or the horizontal lines (Landsberg, 2019).

If refractive errors remain uncorrected during the eye maturation, it may cause amblyopia (Courtright et al., 2011). Therefore, refractive errors can be corrected with glasses or contact lenses if amblyopia has not developed (Courtright et al., 2011). According to Courtright et al. (2011), the chances of developing amblyopic in one eye increase if the eyes have different uncorrected refractive errors. In addition, bilateral amblyopia can develop when the child has extreme refractive error in both eyes (Courtright et al., 2011).

Teachers need to observe the learners: learners who frown when looking at the blackboard, or keep their faces close to their books, or seem awkward with ball games, must be referred for assessment. Teachers can remind learners to put on their glasses. Learners who have not been assessed yet, can be supported by having text read to them, or asking a buddy to read what has been written on the board. Teachers can also give text in large font size to read. In addition, teachers need to ensure that children with myopia and hyperopia wear their glasses. In addition, teachers should

place learners with myopia in the front of the classroom and when doing demonstrations, one should ensure that the learner is as close as possible. Teachers can support learning with magnifying glasses or computer programs that allow the content to be magnified, whereas children with hyperopia require the opposite support to myopia. With astigmatism teachers need to make sure that the learners where their glasses.

3. Cataracts

Cataracts cause the lens of the eye to become cloudy, which is caused by injury, congenital defect or development (Courtright et al., 2011; Landsberg, 2019). According to Courtright et al. (2011), cataracts have gained importance in recent years as a cause of vision loss. Studies conducted in African countries confirm that cataracts in are the most common cause of low vision, and monocular and binocular blindness in the VI population (Naidoo, Sweeney, Jaggernath, & Holden, 2013). Cataracts are the leading cause of surgically treatable blindness in children in several resource-constrained settings as early detection in these settings rarely occurs (Courtright et al., 2011).

Teachers need to observe learners for cloudiness in the eyes to refer for assessment.

4. Strabismus

Strabismus, also known as double vision (Goebel et al., 2012), occurs when the eye muscles do not work together, where as a result, the eyes do not focus simultaneously on an object, resulting in double vision (Landsberg, 2019). Thus, the brain receives two images. One strategy of the visual system to stop double images is to suppress the information from the weaker eye. As a result, this eye can become lazy and lose its function, as it is not being used, which results in amblyopia (Goebel et al., 2012; Landsberg, 2019).

Teachers can observe learners and refer learners who appear to struggle to see.

5. Nystagmus

According to Fu, Bilonick, Feliu, Hertle and Birch (2011), nystagmus can be idiopathic, or it can be associated with retinal disease, albinism, or bilateral optic nerve hypoplasia (ONH). According to Landsberg (2019), nystagmus is the involuntary oscillation of the eye (jerky or rhythmical movements) and it is noticeable when learners are concentrating on near-vision activities like reading as their eyes struggle to focus on a word. Nystagmus frequently occurs with refraction errors (Landsberg, 2019).

Teachers can observe whether eyes are jerky when the learners read, and refer the learners for assessment.

6. Albinism

According to Landsberg (2019), albinism is a genetic deficiency of melanin pigment in the retina, iris, and choroid, and is present at birth. Learners with albinism's eyes and skin are highly sensitive to light and the learner is severely photophobic (Landsberg, 2019). Albinism can occur with refraction errors and nystagmus (Landsberg, 2019). According to Hong, Zeeb and Repacholi (2006), a study on the prevalence of albinism in South Africa found that one in 3900 individuals has albinism, which equates to an estimated population of 11 454; however, another study conducted in South Africa estimated that the estimated population is more than 29 720. The study indicates that the estimated prevalence in Africa ranges from one in every 5 000 to one in every 15 000 (Hong et al., 2006). Thus, the range is vast, and one needs to consider that stigmatisation, culture, and understanding of the conditions may have been a factor in the estimated prevalence (Hong et al., 2006).

Teachers need to ensure that learners' desks are not close to windows to prevent learners from being exposed to direct sunlight. Some windows can be covered by curtains, blinds, or darkened in other ways to control light entering the classroom. Teachers should allow the learners with albinism to stay in class during break time if there is not shade outside for them to be protected from the bright sunlight.

7. Conjunctivitis

According to Azari and Barney (2013), conjunctivitis is a common infection, also known as pinkeye (Landsberg, 2019). Conjunctivitis is an infection of the conjunctiva, which is a thin, translucent membrane that lines the anterior part of the sclera (membrane coving the eye) and the inside of the eyelid (Azari & Barney, 2013; Landsberg, 2019). According to Landsberg (2019), conjunctivitis is treatable, and one's vision is impacted by the infection when an abscess forms on the cornea and leaves a scar which restricts the transmission of light. If the damage to the cornea is severe, it can allow bacteria to enter the eye, which can lead to blindness (Landsberg, 2019).

Teachers' observation can identify learners whose eyes are red or pink and teary. Such learners must be sent for medical treatment for their own eye care, but also because conjunctivitis is contagious. Teachers can make sure that learners wash their hands.

8. Trachoma

According Taylor, Burton, Haddad, West and Wright (2014), trachoma is the most common cause of infectious blindness, and is caused by an ancient organism. Trachoma is preventable as the top cause of preventable blindness in resource-constrained areas that are associated with inadequate hygiene and sanitation, overcrowding, poverty and limited clean water (Taylor et al., 2014; WHO, 2017, as cited in Landsberg, 2019). Trachoma is caused by *Chlamydia trachomatis*, which is a type of bacteria transmitted through flies, direct contact with bodily fluids or contaminated objects like towels (Landsberg, 2019). If the infection is left untreated, it can cause scarring, distortion of the eyelid, and in-turning of the eyelid. This causes the eyelashes to touch the cornea, which leads to blisters forming on the cornea that can result in permanent damage, leading to light sensitivity or blindness (Taylor et al., 2014; Landsberg, 2019).

Teachers can identify eye changes, such as eye itchiness, swelling and discharge, and refer the child to medical care.

9. Glaucoma

According to Courtright et al. (2011) and Landsberg (2019), glaucoma occurs when large amount of aqueous humour is made in the front chamber of the eye and the outflow is restricted. This causes elevated intraocular pressure (IOP), which damages the optic nerve resulting in vision loss (Courtright et al., 2011; Landsberg, 2019).

According to Courtright et al. (2011), paediatric glaucoma can be classified as primary or secondary. Primary glaucoma is caused by a developmental abnormality of the filtration angle of the eye and secondary glaucoma is caused when aqueous outflow is restricted by an additional ocular disease or a systemic disorder such as anterior segment dysgenesis, aniridia or aphakia (Courtright et al., 2011). Primary congenital glaucoma (PCG) is the most common, and can be present at birth or develop at any stage until age three (Courtright et al., 2011; Landsberg, 2019).

Teachers in the early childhood education centres should observe toddlers for different behaviour related to eyes, for example, rubbing the eyes.

10. Macular degeneration

According to Lim, Mitchell, Seddon, Holz and Wong (2012), macular degeneration is a leading cause of blindness in the world. Macular degeneration is a condition that has an impact on the central retina as it affects the sharp central vision, which results in the learner only having peripheral vision with a blank area in the field of vision (scotoma) (Lim et al., 2012; Landsberg, 2019).

Teachers, in consultation with optometrists, or in consultation with the learner, can provide support by using smaller font, so that the remaining vision in the peripheries can be utilised best. The learner can indicate when an optimal font size is reached for him or her.

11. Retinitis pigmentosa

According to Hamel (2006), the retinitis pigmentosa group of pigmentary retinopathies includes all retinal dystrophies that result in a loss of photoreceptors and retinal pigment deposits. This is a genetic condition that occurs when there is too much

pigment in the retina matter, which cause one's peripheral vision to deteriorate gradually (Landsberg, 2019). The learner is left with central vision (tunnel), which can be accompanied by night blindness as well (Landsberg, 2019). The deterioration begins around age six, and by the age of 15, the child will have lost most of his or her vision (Landsberg, 2019). In some cases, the deterioration is slower thus, the child may have partial sight until adulthood (Landsberg, 2019).

Teachers, in consultation with optometrists, or in consultation with the learner, can provide support by using smaller font, so that the remaining vision in the tunnel can be utilised best. The learner can indicate when an optimal font size is reached for him or her.

12. Detached retina

According to Pollreisz et al. (2015), retinal detachment (RD) is a severe ocular disorder, with a prevalence of 12.4 people per 100 000 per year. Retinal detachment is caused by the separation of the neurosensory retina and inner retinal layers from the underlying retinal pigment epithelium (Landsberg, 2019; Pollreisz et al., 2015). It results in a break between the rods and cones and the pigment layer, which causes a hole or tear in the retina, and the vitreous humour leaks between the retina and the choroid, causing further detachment of the retina (Landsberg, 2019). The detached section no longer receives nourishment from the choroid, which causes that section to die, and which leads to blind spots in the visual field, where total detachment results in blindness (Landsberg, 2019).

Teachers should refer learners immediately if the learners complain of bright lights in the eye, or if the learners rub their eyes to improve vision.

13. Retinopathy of prematurity

According to Landsberg (2019), premature babies have an increased risk of developing retinopathy of prematurity (ROP). This condition is a vasoproliferative disorder (Courtright et al., 2011) that can occur when the vascular growth in the retina and the outer layers of the eye are upset by premature birth (Landsberg, 2019). The premature birth causes the veins and arteries in the two outer layers of the eye to start to grow in an unorganised manner, which results in bundles that come together and

detach the retina from the choroid (Landsberg, 2019). According to Landsberg (2019), the major risk factors that can result in ROP are prematurity and low birth weight. ROP is also associated with blood transfusions, additional oxygen, septicaemia, and intraventricular haemorrhage (Courtright et al, 2011; Landsberg, 2019).

Teachers may not prevent ROP, but can support the learner with referrals to specialists.

APPENDIX B
STAKE'S CHECKLIST

Table B.1: Stake's checklist for assessing the quality of a case study report (1995, as cited in Crowe et al., 2011)

Is this report easy to read?	√
Does it fit together, each sentence contributing to the whole?	√
Does this report have a conceptual structure (i.e. themes or issues)?	√
Are its issues developed in a series and scholarly way?	√
Is the case adequately defined?	√
Is there a sense of story to the presentation?	√
Is the reader provided some vicarious experience?	√
Have quotations been used effectively?	√
Are headings, figures, artefacts, appendices, indexes effectively used?	√
Was it edited well, then again with a last-minute polish?	√
Has the writer made sound assertions, neither over- nor under interpreting?	√
Has adequate attention been paid to various contexts?	√
Were sufficient raw data presented?	√
Were data sources well-chosen and in sufficient number?	√
Do observations and interpretations appear to have been triangulated?	√
Is the role and point of view of the researcher nicely apparent?	√
Is the nature of the intended audience apparent?	√
Is empathy shown for all sides?	√
Are personal intentions examined?	√
Does it appear individuals were put at risk?	x

APPENDIX C
INCLUSION AND EXCLUSION CRITERIA

INTRODUCTION

The following section contains the inclusion and exclusion criteria for the themes identified in Chapter Four (section 4.3).

TABLES CONTAINING INCLUSION AND EXCLUSION CRITERIA

Table 1: Inclusion and exclusion criteria for Theme One

THEME ONE Accommodations and concessions to access the curriculum or content		
SUB-THEME	**INCLUSION CRITERIA[10]**	**EXCLUSION CRITERIA[11]**
1.1 Braille	• use of braille • content in braille • teacher and learner ability to use braille • availability of braille machines	• creation of material • availability of material • creation of content
1.2 Enlarged text, visible pictures and size of images	• awareness of role of VI in the ability to see content • adaptions to content in terms of text and size of images • size of print used on the board	• other changes to material
1.3 Assistive devices or technology	• assistive devices found within the classroom that enable access • technology that enables access to content for example apex or voice operated calculators.	• personal assistive devices, for example white canes or eyewear. • individual property of the learners.

[10] Examples of the following are included in this category.
[11] Examples of the following are excluded in this category.

1.4 Eyewear, eyeglasses, magnifying glasses and personal assisted devices	• individual requirements to access content • individual requirements dependent on the eye condition • learners' individual property	• devices found within the classroom • devices found within the school
1.5 Time	• Extra time during assessments • Additional time to complete tasks • Time it takes to complete a task or activity	• time spent in a grade • time spent on a topic
1.6 Colour	• teacher awareness of how colour increases access to content • teacher awareness of how colour decrease access to content • learners' ability to see certain colours • text colour	• images • models or educational media

Table 2: Inclusion and exclusion criteria for Theme Two

THEME TWO **Accommodations and adaptations to classroom and school environment**		
SUB-THEME	**INCLUSION CRITERIA**	**EXCLUSION CRITERIA**
2.1 Structure or physical environment	• lighting • blinds or window coverings • type of desks • desk lights • ramps • spacious bathrooms • arrangement of the classroom • adaptable chairs and tables	• size of the room • placement of learners within the classroom

2.2 Positioning in the classroom	Placement of desks within the classroom • being close to the board • being close to the teacher	• any placement outside the classroom

Table 3: Inclusion and exclusion criteria for Theme Three

THEME THREE Supportive school environment		
SUB-THEME	**INCLUSION CRITERIA**	**EXCLUSION CRITERIA**
3.1 Type of school	Type of school, including • special schools for learners with VI • full service schools that can accommodate learners with VI • only includes Gauteng government schools that form part of the list of schools on the DBE website that accommodate learners with VI	• special schools for other impairments • full service schools outside the EU/DHET study • government schools outside the EU/DHET study that do not accommodate VI • private schools • learning centres
3.2 Monitoring system	Monitoring system, including • CCTV cameras throughout the school • technology that can be used to monitor learners	• learner files • learner progress • staff physically watching learners. • being close to the teachers so that they can monitor learning
3.3 Referral network	Referral network, including • professionals that assist learners with VI accessing personal assistive devices • professionals who teach skills to learners with VI • health professionals who address needs that may influence learning	• teachers who provide extra lessons • access to healthcare services in terms of monitoring eye conditions and the implications of eye conditions

3.4 Access to healthcare	Access to healthcare, including • access to eye tests and monitoring of eye conditions • access to the care one needs in terms of the physical condition	• professionals who work with assisting learners with VI manage associated challenges or learn skills
3.5 Number of learners	• Number of learners within a classroom • teacher to learner ratio within the classroom	• number of learners within a school • number of learners with VI in a school

Table 4: Inclusion and exclusion criteria for Theme Four

THEME FOUR **Emotional support for well-being**		
SUB-THEME	**INCLUSION CRITERIA**	**EXCLUSION CRITERIA**
4.1 Acceptance by teachers, peers, parents, and/or self	Acceptance, including • buddy • support • human dignity • respect • no discrimination • emotional support • peer assistance	• policies • community acceptance
4.2 Empathy	Empathy, including • understanding • compassion	• aspects outside of the classroom • acceptance • support
4.3 Parent education	Parent education, including • refers to parents receiving information about how to support a child with VI • equipping parents with the tools necessary to support a learner with VI	• parenting seminars or information about children in general • who should provide the education to parents • content that parents should be taught

Table 5: Inclusion and exclusion criteria for Theme Five

THEME FIVE Competent teachers		
SUB-THEME	**INCLUSION CRITERIA**	**EXCLUSION CRITERIA**
5.1 Initial teacher training	Teacher education, including: • qualifications • ability to identify problems • training on assistive devices • knowledge on when to refer • experience • learn and use braille • knowledge on eye conditions	• any training, knowledge and experience not related to support of learners with VI in schools
5.2 Temperament	Temperament, including, • teachers temperament • temperament of staff within a school	• reference to temperament of someone who is not a teacher
5.3 Teacher education and training	Teacher education and training • workshops • well-arranged classrooms	• CPD training not relevant to teaching and supporting learners with VI
5.4 Teacher approaches and methods	Teacher approaches and methods, including: • knowledge on how eye conditions affects one's approach • Physical care	• any other help provided to learners
5.5 Assistance from teacher	• individualised attention and support	• support given to the whole class
5.7 Information and communication technology (ICT) skills	Teacher ICT skills, including: • teacher's ability or competence to use technology	• learners' skills • learners' ability to use technology • learners' personal access

	• to teach ICT skills to learners that enable them to access content and learn • confidence in using different devices to facilitate learning • technology within the school	

APPENDIX D

FOUR EXAMPLES OF TRANSCRIBED POSTERS

FULL SERVICE SCHOOL ONE:

LEARNERS WHO ARE VISUALLY IMPARIED/BLIND: 2

WHAT CAN TEACHERS DO?	WHAT DO LEARNERS NEED?
Teachers should use large fonts when writing on the board;	Learners should sit in front so that they can see clearly what is written on the board;
Teachers should not discriminate these learners and teach other learners to respect them;	Large font (question papers);
Teachers should be attend [12]workshops about how to deal with such learners;	Learners should be assisted in terms of spectacles;
	Walking stick

[12] The spelling and tense was not altered and the transcriptions of the posters reflect what the participants wrote.

FULL SERVICE SCHOOL TWO

WHAT DO LEARNERS NEED? SCHOOL CONTENT - 1

WHAT CAN TEACHERS DO?

Identify learners according to their problems;

Refer the learner to the relevant institute;

Support the learners so that they can feel dignified or valued.

LEARNERS WHO ARE VISUALLY IMPARIED/BLIND

Learners need love, support and inclusivity in class;

Support resources like braille and walking sticks;

Experienced and qualified teachers to help them.

SPECIAL SCHOOL ONE

LEARNERS WHO ARE VISUALLY IMPARIED/BLIND: 2

WHAT CAN TEACHERS DO?

Braille book- teachers;

Adapt book, make notes;

Teachers provide large prints for those with low vision;

Teacher need to know learn how to use, write and read braille.

WHAT DO LEARNERS NEED?

Braille machines

Brailled books;

Learners with low vision to be able to enhance their capabilities of what they do;

Get assistance devices such as magnifying glasses;

Be tought ICT skills(computer skill is a need)

Transition processes (orientation mobility);

Parents to be more educated (equipped) to be more helpful understanding their kids;

Acceptance= emotional, mentally.

SPECIAL SCHOOL TWO

LEARNERS WHO ARE VISUALLY IMPAIRED/BLIND SCHOOL CONTENT: 1

WHAT CAN TEACHERS DO?

- Think out of the box, creative problem solving;
- Multi tasking;
- Adapt to changing circumstances;
- Knowledge of eye conditions;
- Braille (UBC contradictions);
- Knowledge of specific emotional challenges that go with visual impairment;
- How to refer.

WHAT DO LEARNERS NEED?

- Assistive devices (braillers; ruby's (digital magnifiers)
- A camera and monitor system in class;
- Adapted LTSM (enlarged and Braille) font must be adapted as well(arial);
- Braille paper and writing books with boarder and darker lines;
- Special lighting and blinds to adjust natural lighting;
- Canes and mobility training for blind learners;
- Speech programmes and magnifiers programme for computers;
- Diagrams in Braille (maths, map work etc).