PARENTS' EXPERIENCES OF AN INTERVENTION ON PARENT SUPPORT FOR CHILDREN WITH COLOUR VISION DEFICIENCY

by

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Submitted in partial fulfilment of the requirements for the degree

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DECLARATION OF ORIGINALITY

I, Keshini Naidoo (student number: 21619362), declare that the mini-dissertation, which I hereby submit for the degree Magister Educationis 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.

Naidoo

Keshini Naidoo

06 April 2023

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*.

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This Ethics Clearance Certificate should be read in conjunction with the Integrated Declaration Form (D08) which specifies details regarding:

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ABSTRACT

Despite a fairly high prevalence, Colour Vision Deficiency (CVD) is not currently deemed a visual impairment in South Africa, resulting in limited formal guidelines on how to support children with CVD – both at home and in the school context. It is evident that parents may not feel sufficiently equipped with the necessary knowledge and skills to optimally support their children with CVD. Research in the field of CVD therefore requires ongoing attention, specifically in South Africa, where only a few studies have been undertaken.

This study forms part of a broader research project that focuses on the effect of holistic support provision to children with CVD within the home and school contexts. As part of the broader project, I co-developed and implemented a short-term parent guidance intervention in support of children with CVD. Thereafter, I determined the experiences of the parents who had taken part in the intervention. My study builds on that of another MEd student who explored the participating parents' existing support practices as well as their needs and expectations for further guidance on how to better support their children with CVD.

In undertaking my research, I was guided by Bronfenbrenner's (1976) bioecological model of development as a theoretical framework, utilised interpretivism as meta-theory and followed a qualitative methodological approach. I implemented a descriptive case study design and relied on a combination of convenience and purposeful sampling in selecting the case to focus on and four parents to participate. Data was generated and documented by means of four semi-structured interviews and observation, supported by audio-visual recordings, field notes and a reflective journal. Following inductive thematic analysis, I identified four themes and related sub-themes. The themes focus on the value of the intervention for parents, the perceived value of the intervention for the participants' children with CVD, the potential value of the intervention for others, and the suitability of the format and content of the intervention.

The findings of this study indicate the value of a parent guidance intervention on CVD, not only for parents, but also for their children, the teachers of their children, and even the broader society, in terms of a raised awareness of the needs of these children. More specifically, the parents benefited by gaining new knowledge and skills to better support their children with the challenges they face due to CVD. The findings further indicate that such a parent guidance intervention can be offered *via* a social media platform such as WhatsApp, and that the content can take different forms when distributing messages, such as that of informative written messages and infographics which can be supplemented by messages taking the form of videos or quotations. In conclusion, the parent guidance intervention that was implemented empowered the participating parents to fulfil their supportive role more effectively with their children with CVD. The parent participants furthermore shared their newly gained knowledge with others such as teachers, in support of their children's well-being.

KEYWORDS

- Children with Colour Vision Deficiency
- Colour Vision Deficiency (CVD)
- Colour Vision Deficiency awareness
- Intervention development
- Parent guidance
- Parent guidance intervention
- Parent support
- WhatsApp intervention

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DECLARATION

To whom it may concern,

I hereby declare that I language edited the mini-dissertation of Ms Keshini Naidoo, titled: ***Parents' experiences of an intervention on parent support for children with colour vision deficiency***

All aspects of this mini-dissertation were looked at carefully, corrections made and suggestions given with regards to certain wording and sentence structure, however, the academic content was not influenced in any way. The layout and presentation as well as the referencing of this mini-dissertation were edited as per the referencing and technical/style template/guide provided by the client. Final acceptance of all proposed corrections/changes/comments is at the discretion of the author.

Kind regards

Janine Ellis

Janine Ellis

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CHAPTER 1

INTRODUCTION TO THE STUDY

1.1 INTRODUCTION AND RATIONALE FOR UNDERTAKING THE STUDY

This study forms part of a broader research project that focuses on the effect of holistic support provision to children with colour vision deficiency (CVD) within the school context and home environment. As part of the broader project, I co-developed and implemented[1] a short-term parent guidance intervention in support of children with CVD. Thereafter, I explored the experiences of the parents[2] who had taken part in the intervention. My study builds on that of another MEd student who explored the participating parents' existing support practices as well as their needs and expectations for further guidance on how to better support their children with CVD.

CVD is a disorder of vision that inhibits individuals from seeing specific colours or perceiving the differences between colours under normal lighting conditions (Neitz & Neitz, 2011). An individual's eyesight accounts for one of the primary senses, with 80% of what human beings perceive being done through the sense of sight. Therefore, vision plays a vital role in how a person experiences life. CVD has a relatively high prevalence of 8% in males and close to 0.5% in females worldwide (Tanuwidjaja et al., 2014; Wong, 2011), although the prevalence differs between population groups.

It is important that parents of children with CVD support their children to cope with the challenges they face where colour differentiation is important (Colblindor, 2021). As a first step of support, parents must ensure that the school is informed of the diagnosis of CVD as early as possible, for teachers to be able to adapt their lesson plans and teaching material as they see fit (Gallagher, 2003). In addition, parents of children with CVD need to consider how their children view the world and make the necessary adjustments in their own thinking patterns. For example, parents can assist their children with CVD by changing the terminology they use, saying things like 'wear that striped t-shirt to school today' instead of 'wear that red t-shirt today' (Gallagher, 2003). Furthermore, parents can assist their children to identify things more easily within the home environment by making small adjustments such as adding a label indicating 'ripe' to a separate bowl of bananas for the children to read and be able to identify bananas that are ripe and good to eat.

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[1] In collaboration with doctoral student Tegan van der Westhuizen, who focuses on the effect of holistic support provision to children with CVD.

[2] In this mini-dissertation "parent" refers to a woman who takes on a parental responsibility towards a child, specifically a mother.

In South Africa, CVD is under-reported due to, amongst other reasons, limited awareness of the condition as well as limitations in terms of screening tools that can detect CVD (Mashige & Van Staden, 2019). Although some studies have been completed in the field, limited research is available on practical guidelines for parents, specifically regarding parents supporting their children with CVD (Woldeamanuel & Geta, 2018). As parents may not necessarily know how to support their children or may not even be aware of the condition, the child with CVD may not be supported effectively to function optimally at home and during school-related activities.

CVD may have a variety of negative effects on a child's[3] daily functioning, educational achievements, and participation in activities such as sports (Chaparro & Chaparro, 2017). CVD can thus create a barrier to optimal functioning and performance for children. The current study, nested within the broader research project, may promote the awareness of society regarding CVD and what the condition implies. My study can specifically contribute to the development of guidelines for parents to help, guide, and support their children with CVD towards optimal functioning (Leseman, 2002).

Having worked in the special needs field for many years, I have a personal interest in children who experience challenges when wanting to learn and perform. My teaching philosophy includes the belief that every child has the right to support, to the benefit of general functioning and the possibility to perform well (Department of Education, 2001). If all children are supported both at home and at school, they should receive a good education and suitable support, with their needs and unique challenges being attended to, also in the case of children with CVD.

I thus undertook the current study as part of a broader project and the value this implies, yet, also against the background of my personal interest in assisting parents to best support their children with special needs. My initial review of literature on CVD confirmed the need for ongoing research in this area. In this regard, one of a few studies on CVD amongst South African school children (Mashige & Van Staden, 2019) indicates the need to strengthen local research and establish a more comprehensive database on CVD that takes into consideration different races and areas within the South African context. More specifically, a deeper insight is required in terms of individuals living with CVD as well as the needs and challenges they may experience and the ways in which they can be supported both in school and at home.

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[3] In this mini-dissertation, 'child' is used to refer to children in general, yet 'learner' is used when referring to a child in the school context.

1.2 PURPOSE OF THE STUDY

Within the said broader research project, my study can contribute to the existing knowledge base on support provision to children with CVD, more specifically in terms of the role of the parent. To this end, my aim was to explore and describe the experiences and views of parents of children with CVD, following their participation in a parent guidance intervention that focused on guidelines that can be implemented by parents in support of their children with CVD.

Based on the results of a preceding MEd study[4] by Tasleem Kala, PhD student Tegan van der Westhuizen and I co-developed and implemented a parent guidance intervention that was offered to parents over a period of fourteen weeks. We relied on the use of a social media platform (WhatsApp) to offer the intervention and guide parents on how to best support their children in the various aspects of functioning. Following the completion of the intervention, I explored and described the experiences of the parents in terms of the guidance they had received as well as how the parent guidance intervention may be improved.

The objectives of my study were:

- to describe what a parent guidance intervention on how parents can support their children with CVD may entail.
- to explore and describe how the parents of children with CVD have benefited from participating in the parent guidance intervention we developed and implemented.
- to explore and describe how the parent guidance intervention can be improved for future use.
- to explore and describe how children with CVD may have benefited from their parents' participation in the parent guidance intervention.

1.3 RESEARCH QUESTIONS

The following primary research question guided my study: *What is the value (or not) of a parent guidance intervention on how parents can support their children with CVD?*

In order to address the primary research question, I was guided by the following secondary questions:

- What does a parent guidance intervention on how parents can support their children with CVD entail?

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[4] Kala, T. Parental guidance in support of learners with colour vision deficiency. MEd in Learning Support, Guidance, and Counselling.

- How did parents of children with CVD, who participated in a parent guidance intervention, benefit from it?
- How can the parent guidance intervention on parent support for children with CVD be improved?
- How did children benefit from their parents' participation in the parent guidance intervention?

1.4 WORKING ASSUMPTIONS

In undertaking this study, I remained cognisant of the following assumptions:

- The general South African population are not adequately aware of CVD and what the condition implies for children and their holistic functioning.
- The general South African population is probably not adequately informed to attend to the needs of their children with CVD sufficiently, both at home and in terms of school-related activities.
- South African parents do not possess sufficient knowledge and/or skills on how to support children with CVD at home and with school-related tasks.
- A parent guidance intervention may empower parents to better support their children with CVD both at home and with school-related tasks.
- Children with CVD can benefit when their parents support them in terms of their needs.

1.5 CONCEPT CLARIFICATION

In this section, I clarify the key concepts underlying this study.

1.5.1 Children with CVD

CVD is a vision disorder condition where individuals experience trouble seeing colours in the usual way (Hasrod & Rubin, 2016). More specifically, individuals with CVD cannot differentiate between the various shades of one specific or similar colours. This can apply to the red-green, blue-purple, and/or blue-yellow spectrum of colours for such individuals (Chaparro & Chaparro, 2017).

A person can inherit CVD due to a recessive X-gene that is usually (however not always) carried by the mother and manifested in the son; or can acquire the condition at a later stage in life due to a disease, accident, or brain injury (Simunovic, 2016). Children with CVD may find it difficult to distinguish specific colours or may have difficulty with all colours in extreme cases, with the latter resulting in them seeing everything in shades of white, grey, and black (Sullivan, 2011). For the current study, children with any form of CVD are regarded as belonging to this group of individuals.

1.5.2 Parent guidance intervention

Parent guidance interventions refer to parent-based education programmes that aim to improve parenting skills, coping mechanisms, and parent-child relationships in order to impact children's lives and their overall well-being (Jeong et al., 2021). Parents participating in a parent guidance intervention on how to support their children with CVD may thus be empowered to guide and support their children to achieve success in the various areas of functioning, despite children’s inability to see colour as others do (Sanders et al., 2022). By feeling equipped and self-confident to support their children, parents’ efforts may also strengthen the entire family, in addition to specifically benefiting the child with CVD (Okeke, 2014).

Even though a few studies have been completed on parents supporting their children with CVD (Collins, 2013; Meeks et al., 2016), literature in this field is scarce, with limited practical guidelines being available for parents to apply. For the purposes of my study, I co-developed and implemented a short-term parent guidance intervention in support of children with CVD. The intervention was offered *via* the WhatsApp social media platform.

1.5.3 Parent support for children with CVD

Parent support refers to parents’ ability to praise, encourage, and offer physical affection to their children, which indicates to children that they are accepted and loved by their parents (Barnes et al., 2004). In this way, parents hold the responsibility of encouraging their children’s independence and ensuring their social, emotional, and academic well-being as they grow up and develop (Ceka & Murati, 2016). For parents to best support their children with CVD, parents may benefit when guided and empowered with the necessary knowledge and skills.

Being able to access information and keep updated with research on CVD is important for parents of children with CVD. Practical guidelines on how to support these children are, however, limited due to the general limited awareness about the condition in society (Woldeamanuel & Geta, 2018). In the current study, the parent guidance intervention aimed to provide a practical tool and support system for parents, in turn supporting their children in coping with the challenges of CVD and building up the necessary confidence and independence to be able to reach their potential in the various areas of functioning, within the home and school contexts (Sanders et. al., 2022).

1.6 THEORETICAL FRAMEWORK

My study was informed by Bronfenbrenner’s bio-ecological systems theory (Donald et al., 2010). This theory acknowledges the importance of interaction between different role players during the learning and development of an individual (child with CVD), such as the parents, teachers, school, and home environment. More specifically, Bronfenbrenner's (1976)[5] theory foregrounds that developmental outcomes will be reached in interaction with others, with the environment being vital to encourage positive learning (Snowman & McCown, 2013).

I specifically focused on two of Bronfenbrenner's identified systems for my study, namely the microsystem and macrosystem (Bronfenbrenner, 1976). For the microsystem, parents of children with CVD were considered. In terms of the macrosystem, I considered existing policies on the inclusion and accommodation[6] of children with special needs as background information when planning and conducting my study (Department of Education, 2001). The White Paper 6 principles were specifically considered when considering how schools could transform and contribute to the development of a caring and inclusive classroom environment in order to ensure equality, non-discrimination, respect for diversity, honour learning, and strive for excellence, as well as ensuring that resources that are available to children are used as efficiently as possible.

As indicated, Bronfenbrenner's bio-ecological systems theory of development highlights the vital role of an individual's interaction with the environment within multiple systems in terms of the individual's development and functioning (Bronfenbrenner, 1976). According to Bronfenbrenner, various social forces will influence human interaction. An understanding of these forces can thus contribute to an understanding of individual behaviour. Accordingly, Bronfenbrenner views children as contributors to their own development and presumes that children's perceptions of their circumstances will influence their interactions with the environment (Bronfenbrenner, 1976).

1.7 PARADIGMATIC PERSPECTIVES

1.7.1 Epistemological paradigm

For this study, I was guided by interpretivism as a meta-theoretical paradigm (Schurink et al., 2011), thereby acknowledging that reality is based on the personal experiences of individuals, in this case, the parents of children with CVD, who participated in a parent guidance intervention. Interpretivism assumes that there is not one single reality, but that various realities exist, based on personal interpretations by individuals of their experiences through their interaction with others (Merriam & Tisdell, 2015). In viewing the data that was generated through an interpretivist lens, I aimed to make

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[5] I acknowledge that this is a dated source, however, I include it as Bronfenbrenner introduced the bio-ecological systems theory of development. As such, this is a primary source for my study.

[6] In this mini-dissertation "accommodation" refers to modifications to the environment, curriculum, or equipment to make it more accessible to individuals with disabilities.

sense of how the parent-participants experienced the intervention and attempted to support their children at home and with school-related activities such as homework, as a result of their participation in this study (Kawulich & Holland, 2012).

In alignment with the general goal of interpretivist researchers of gaining a deep understanding of certain phenomena in unique contexts, I attempted to gain an in-depth understanding of the potential ways of parents supporting their children with CVD after receiving guidance on this matter (Dean, 2013), with the possibility of these findings being transferable to contexts similar to the one in which I undertook my research. For the purposes of this study, I attempted to ensure transferability by describing the research in detail and presenting the participants' views after confirming with them that my interpretations of their contributions reflect their views (Creswell, 2011). I thus did not aim for generalisability, even though transferability may be possible.

1.7.2 Methodological approach

In undertaking this study, I followed a qualitative methodological approach (Fossey et al., 2002), as my aim was to understand the experiences and perceptions of people (in this case, parents), requiring me to follow an approach that could allow for the generation of rich verbal data by the participants. I aimed to bring the research participants' personal meaning to life, as experienced by them. As a qualitative researcher, I attempted to 'write' a coherent story as 'told' by the participants to represent their views and perceptions, based on their personal unique experiences (Tuli, 2010).

My decision to follow a qualitative approach was thus based on the purpose of understanding people's beliefs, experiences, attitudes, behaviours, and interactions. The rapport that can be established between a qualitative researcher and participants may add to the depth of information shared by the participants when exploring their perceptions and experiences (Creswell, 2014). By establishing sound relationships of trust with the participants, they were encouraged to make open and in-depth contributions (Creswell, 2014). I regard a qualitative approach as suitable for my study, as this approach allowed me to explore participants' unique personal experiences (Schurink et al., 2011). I employed strategies such as reflexivity and member checking in support of the trustworthiness of the findings, which is often regarded as a challenge when undertaking qualitative research. More detailed discussions on the paradigmatic choices I made follow in Chapter 3.

1.8 RESEARCH METHODOLOGY

In this section, I introduce the methodological choices I made for the purposes of the present study. A more comprehensive discussion of these aspects is included in Chapter 3.

1.8.1 Research design

I implemented a descriptive case study design (Schurink et al., 2011). According to Yin (2018), this type of research design entails the in-depth investigation, description, and analysis of a specific phenomenon within a bounded system, as it functions in the real-life context. Based on the aim of my study, the parents of children with CVD who participated in a parent guidance intervention formed a bounded system, with the focus falling on their views, perceptions, and experiences of the intervention and how they could apply what they had gained from it.

A descriptive case study design allows researchers to explore multiple aspects of the phenomena they explore (Rashid et al., 2019). By exploring a bounded system, I was thus able to select participants that could potentially provide rich data, with them being regarded as well-informed in terms of the role of the parent in supporting a child with CVD based on their involvement in a parent guidance intervention (Merriam & Tisdell, 2015). Even though the findings of my study are not generalisable, transferability may be possible to similar research contexts based on the detailed descriptions included in this mini-dissertation (Burchett et al., 2012).

1.8.2 Selection of case and participants

In selecting the case that I explored, I relied on convenience sampling (Stratton, 2021) due to my study forming part of a broader research project, as discussed earlier. Within the focus of the broader project, the need existed to develop and implement a parent guidance intervention and then explore the experiences of the parents who participated. By focusing on this aspect, I could thus conveniently select a case to which I had easy access (Stratton, 2021), as part of the broader research initiative.

The parents of four children with CVD participated in my study, all whose children participated in the doctoral study of Tegan van der Westhuizen and some of whom had participated in the preceding MEd study of Tasleem Kala. As such, I also relied on convenience sampling in selecting the parent-participants, however, the parents were selected based on the assumption that they would be able to provide for information-rich cases who possess sufficient knowledge about the phenomenon (Creswell, 2011; Patton, 2002), thereby implying a component of purposeful sampling. A more detailed discussion on the criteria, which I used to select the participants, follows in Chapter 3.

1.8.3 Data generation and documentation

My study consisted of two phases. During the first phase, I co-developed and implemented a parent guidance intervention *via* WhatsApp messages with the participating parents. The content of the messages was based on the findings of the preceding MEd study by Tasleem Kala. Messages were sent out twice weekly and contained written information as well as information in audio-visual format. Prior to the implementation of the parent guidance intervention, an introductory message was sent to parents, refer to Appendix A. After the implementation of the intervention, I co-facilitated four individual semi-structured interviews with the parents during the second phase of my study, focusing on their experiences of the intervention. In support of the individual interviews, I utilised observation, recordings of the discussions, field notes, and a reflective journal to generate and document the data (Tracy, 2013). For date analysis purposes, the audio-visual recordings were transcribed verbatim.

According to Creswell (2014), semi-structured interviews are used as an exploratory tool in qualitative research. In addition, data generation using semi-structured interviews involves asking questions within a predetermined framework, allowing the participants and facilitator to freely connect and expand on the ideas and discourses shared. Further, a semi-structured interview combines elements of a structured interview with those of a non-structured interview, thereby benefitting both with comparable and reliable data as well as the flexibility of asking follow-up questions when needed (DeJonckheere & Vaugh, 2019). I regard semi-structured interviews as suitable for data generation for this study, as the purpose was to gain insight into participants' perceptions and experiences. As the parents who participated in the parent guidance intervention had experience in the subject area of CVD, they were able to provide information and share ideas on the topics which enhanced the depth of the data I obtained (Dastgeer & Afzal, 2015). As such, participants were encouraged to ask questions, share their honest experiences and perceptions of the intervention as well as how their participation had benefited themselves, their children, and other role players in their children's lives.

Due to the COVID-19 pandemic, recent qualitative studies have gradually moved to virtual rather than one-on-one interviews with participants. I accordingly conducted individual, virtual, semi-structured interviews to generate data, making an audio-visual recording of each discussion that transpired. In support, I observed the participants as they shared their experiences of the intervention and made field notes during and after the semi-structured interviews, including detailed explanations and descriptions of what I had observed and heard. I also included notes on non-verbal cues and gestures I observed, even though this was challenging due to the virtual format of the interviews (Andrade, 2009).

Lastly, I kept a reflective journal to capture my experiences, feelings, reactions, assumptions, speculations, and initial interpretations of the generated data as well as my reflections on the information shared by the participants (Yin, 2018). I aimed to gain somewhat of an insider perspective, allowing the participants to feel safe and share their experiences with me in a personal, open, and authentic manner (Creswell, 2016).

1.8.4 Data analysis and interpretation

I conducted a reflexive thematic analysis (Braun & Clarke, 2022) of the transcripts, my field notes and reflective journal for the purposes of this study. As such, I was not guided by a predetermined theory, structure, or framework when analysing the data but rather allowed the data to provide structure to the themes and sub-themes I identified. In this manner, I attempted to explore and identify recurring ideas, perspectives, and consistencies throughout the data, and make meaning of the participants' contributions (Patton, 2015). This data analysis method assisted me in sorting the data into appropriate categories, thereby strengthening my understanding of the participants' views.

I regard reflexive thematic analysis as suitable for my study as this method of analysis assisted me in categorising the data, give meaning to the categories that ultimately formed patterns and lead to the discovery of themes in the various data sets (Braun & Clarke, 2022). While analysing the data, I remained aware of the possibility that my initial ideas may have needed to be repositioned as the study progressed, resulting in me continually reflecting on the analysis and the themes I identified. I engaged in regular discussions with my supervisor to ensure that the themes and sub-themes captured the participants' views. I also included member checking (Creswell & Miller, 2000), thereby allowing the participants to confirm my preliminary findings as representing their views. A more detailed discussion on the way in which I completed the data analysis follows in Chapter 3.

1.9 ETHICAL CONSIDERATIONS

Throughout the research process, I followed the ethical guidelines that apply to research involving human beings as participants. I obtained ethical clearance from the University of Pretoria's Ethics Committee before commencing with data generation, and all participants were requested to provide written informed consent before they participated (Elias & Theron, 2012). When obtaining their consent, I informed the participants about the methods, procedures, purposes, and duration of my study, the fact that their participation was voluntary and the option to withdraw from the research at any time, should they wish to do so (Elias & Theron, 2012).

In addition to these guidelines, I informed the participants that all data would be dealt with confidentially and anonymously, and that it would only be accessible to authorised individuals, being myself, my co-researchers, and my supervisor (Merriam & Tisdell, 2015). I adhered to the principles of non-maleficence, which implies that no participant was harmed directly or indirectly, wronged, or deceived in any way due to the research they took part in (Terre Blanche et al., 2006). I also aimed for autonomy and respected the dignity of the participants. As such, I ensured that the participants entered the research space knowing that they as well as their contributions, would be treated with respect (Kaiser, 2009).

1.10 QUALITY CRITERIA

For the purposes of this study, I attempted to adhere to the criteria of credibility, transferability, dependability, confirmability, and authenticity as set out by Lincoln and Guba (1985) as well as Lincoln et al. (2018). I was thus guided by the necessary guidelines to ensure that my study yielded trustworthy findings and documented evidence that could be used for related research.

Credibility as the first quality criterion, refers to the degree to which research findings are truthful and thus, to the degree to which research findings and reality are congruent (Leedy & Ormrod, 2015). Firstly, I attempted to obtain credible findings by generating rich in-depth data, keeping a reflective journal, doing member checking, keeping field notes, and relying on crystallisation as well as debriefing sessions with my supervisor (Nowell et al., 2017). Secondly, transferability entails the extent to which research findings can be transferred to or applied to a variety of contexts (Schloemer & Schröder-Bäck, 2018). As previously mentioned, I did not aim to obtain generalisable findings, however, the findings of this study may be transferred to similar contexts, given the rich descriptions I include on the context, participants, and the research process (Austin & Sutton, 2014).

Next, I attempted to ensure dependability (Nowell et al., 2017) as well as confirmability, which relates to the level of objectivity in a research study's results and the extent to which a study can be verified by other researchers (Nowell et al., 2017). Lincoln and Guba (1985) claim that confirmability will inevitably result in reliable findings. In this regard, I attempted to enhance dependability and confirmability by documenting the research process in a logical manner and making use of a reflective journal as well as field notes. Finally, authenticity implies the capacity to provide a reflection of the meaning and experiences that participants had lived and perceived (Lincoln & Guba, 1985). I aimed to adhere to the criterion of authenticity by making sure that the generated information was accurate and that I truthfully represented the participants' reality and experiences of the studied phenomenon (Lincoln & Guba, 1985). For this purpose, I included member checking. Chapter 3 includes a more detailed discussion on the ways in which I aimed to ensure rigour.

1.11 OUTLINE OF THE CHAPTERS

In Table 1.1, I provide an overview of the chapters of this mini-dissertation.

Table 1.1: *Structure and overview of chapters in the mini-dissertation*

CHAPTER	FOCUS
Chapter 1: Introduction to the Study	The first chapter provides some context to the study that I undertook. After stating my rationale, purpose, and research questions, I introduce the theoretical framework and paradigms I selected. I briefly describe the research design and related methodological strategies, and refer to research ethics and quality criteria.
Chapter 2: Literature Review	In Chapter 2, I review current literature on the biological explanation, types, and causes of CVD as well as the challenges that children with CVD may experience as a result of the condition, I describe how children with CVD can be supported and specifically refer to the role of the parent. In this regard, I contemplate the value of guidance to parents as well as the possible format and nature of parent guidance interventions. I conclude by explaining my theoretical framework.
Chapter 3: Research Design and Methodology	I discuss the research process in detail in Chapter 3. I focus on the epistemological and methodological approaches I utilised as well as the research design. I also explain the data generation, documentation, and analysis procedures I employed. In addition, I describe research ethics and the rigour of my research in more detail.
Chapter 4: Results and Findings of the study	In Chapter 4, I present and discuss the themes and sub-themes that I identified. I include excerpts from the raw data as supportive evidence. I then interpret the results by discussing them in terms of the existing literature I had presented in Chapter 2.
Chapter 5: Conclusions and Recommendations	In this chapter, I draw conclusions and address the research questions. I reflect on some challenges I experienced and foreground the potential value of the study. Finally, I formulate recommendations for training, practice, and further research.

1.12 CONCLUSION

This first chapter served as an introduction to my research. I provided a brief overview of my study's aim and objectives, my justification for undertaking the study and the decisions that helped me execute it. I furthermore introduced the theoretical framework, paradigmatic choices, research design, and methodological strategies. I also referred to ethical considerations and the quality criteria I adhered to when undertaking this research.

In the next chapter, I review existing literature relevant to the focus of my study, to provide the necessary background information on the research I undertook. I specifically discuss the biological explanation, types, and causes of CVD, and the associated challenges that children with CVD may experience. I briefly identify how to support children with CVD to function optimally and explain the role of the parent in such support. I discuss the potential value of guidance to parents as well as the possible format and nature of such interventions. In addition, I explain my theoretical framework in.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

In the previous chapter, I introduced and contextualised the current study in terms of the rationale and purpose, guiding research questions and working assumptions. I also introduced my theoretical framework and the research paradigms that guided my study. Finally, I provided an overview of the research process, ethical considerations, and quality criteria that I aimed to adhere to.

In this chapter I discuss existing literature related to the topic of my study. I explore the literature on CVD and understanding CVD within the school and home contexts. I also discuss the types of and accommodations for CVD. Next, I describe the roles parents play in supporting their children with CVD and contemplate the potential value of a parent guidance intervention on this aspect. I conclude by explaining the theoretical framework.

2.2 UNDERSTANDING CVD

CVD has been used interchangeably with the term ‘colour blindness’ to describe poor visual discrimination. It is a genetic, yet not a fatal condition that causes inconvenience to most individuals (Lin et al., 2019). In the case of CVD, a person’s retinal cones cannot differentiate between different wavelengths, resulting in a failure to see colours as most people do (Oduntan et al., 2019; Woldeamanuel & Geta, 2018). The Quality-of-Life Research report describes colour as a powerful tool for encoding and giving value to visual information that is presented in a person’s life, despite any differences in culture or lifestyle. As such, individuals with CVD will each be affected in a unique and personal way, with their needs also differing from each other.

Even though CVD's severity is indefinite and does not cause blindness, the condition will typically result in certain difficulties experienced in everyday life and at work for those who are affected (Oduntan et al., 2019). For instance, CVD may affect the occupations that individuals consider or pursue. At a young age, school-going children may be negatively affected in terms of their school performance and classroom experiences as well as their social and emotional functioning (Mashige & Van Staden, 2019). Therefore, an early diagnosis of the condition is important for teachers and significant others to be able to make the necessary adjustments to teaching methods to ensure optimal learning (Mashige & Van Staden, 2019).

2.2.1 Biological explanation for CVD

CVD is caused by an irregular functioning in the eye cones, resulting in an inability to recognise and perceive differences between certain colours (Mashige & Van Staden, 2019). Two types of photoreceptor cells can be distinguished, namely rods and cones, with each serving different functions in the human eye (Mustafi et al., 2009). Low light levels will cause rods to mediate vision, with the result that rods can only provide vision during night-time, when the light is low. As opposed to rod photoreceptors, cone cells are responsible for daytime vision (Mustafi et al., 2009).

As most of all typical daily activities are performed outside in daylight, or in rooms with light levels above the level at which rods contribute to visual perception (Mustafi et al., 2009), vision is primarily based on cone photoreceptors. In cone-based vision, specialised cone photoreceptors are required to see colour (Kawamura & Tachibanaki, 2008), with the retina transmitting and passing on wavelengths to the brain, enabling the individual to differentiate between colours (Simunovic, 2016). Due to the cones in the retina containing pigments that are sensitive to short, medium, and long wavelengths of light, along the lines of the primary colours, red, blue, and green cones are partially responsible for the retina's colour perception. In addition, colour perception is based on the brain's ability to absorb combinations of wavelengths (Pasmanter & Munakomi, 2022).

As with any other product of anatomical structure, defects are however possible. More specifically, when the retina is unable to discern certain colours, the individual will present with CVD, resulting in the lack of one or more of the pigments required to perceive colour in the way that most individuals would (Lin et al., 2019). Depending on how severe the condition is, certain pigments can prevent the retina from accurately detecting the wavelengths reflected by other pigments, resulting in the individual either perceiving a colour incorrectly or not being able to perceive it at all (Lin et al., 2019).

The Ishihara test is used to diagnose CVD, specifically a red-green deficiency (Pandey et al., 2015). For this test, the individual is asked to identify the outline of a number (or in the case of young children a picture) created by multicoloured dots that have been arranged in an unpredictable way (Geletu et al., 2018). The Farnsworth scheme is another test that is used to diagnose CVD, comprising of the arrangement of coloured objects from lightest to darkest (Pandey et al., 2015).

2.2.2 Causes and prevalence

CVD can be attributed to one of two causes – it can be either congenital or acquired (Simunovic, 2016). Congenital CVD is regarded as an inherited visual disorder, which is non-progressive, untreatable and will remain constant throughout an individual’s life. It is present from the time of birth, incurable, and acknowledged as a visual disorder according to the World Health Organisation (WHO) and International Classification of Diseases (ICD) systems (Simunovic, 2016). Visual disorders, specifically CVD, for the WHO, it is categorised under the range ‘diseases of the eye and adnexa’ (Szyszkowicz. 2022).

Congenital CVD (Woldeamanuel et al., 2018) is often caused by a recessive and X-linked chromosome (Simunovi, 2010). Red-green colour deficiency (refer to Section 2.2.3 for the types of CVD) is the most common inherited form of CVD and is passed onto children *via* the X chromosome (Chan et al., 2014). In males, the red-green vision defect requires a deficient gene on the X chromosome, however, in females, both X chromosomes must be affected (Neitz & Neitz, 2011). Blue-yellow CVD is a condition that is gender-neutral, inherited through a non-sex chromosome, and it affects men and women equally (Hasrod & Rubin, 2016). Women however, often carry only one colour deficient gene for CVD, as a result not presenting with the condition, even though the condition may be inherited by their sons (Neitz & Neitz, 2011).

On the other hand, acquired CVD can develop at any stage in an individual’s life (Chan et al., 2014). This form of CVD represents a symptomatic condition and can be either progressive or regressive (Hasrod & Rubin, 2016). More specifically, CVD can be acquired as a result of ocular and systemic conditions as a side effect of certain medications, or sometimes as a result of the toxic effects of chemicals, an injury, or trauma. In rare cases, ageing can also play a role in the onset of acquired CVD (Hasrod & Rubin, 2016).

Although statistics vary across different groups and populations, the prevalence of CVD in European Caucasians is approximately 8% in men and 0.4% in women, with a prevalence of between 4 and 6.5% in men of Chinese and Japanese ethnicity (Birch, 2012). According to Mashige and Van Staden (2019), the variation in prevalence of CVD across geographical and ethnic groups will probably vary in future as the global population continues to grow (Chan et al., 2014). In addition to Mashige and Van Staden’s (2019) prediction on the prevalence of CVD increasing with an increase in population, its prevalence has also increased among men of African ethnicity over recent years (Birch, 2012).

As indicated in Chapter 1, limited research has been undertaken on the prevalence of CVD across the various population groups in South Africa. A study by Mashige and Van Staden (2019) was conducted among Black school children in Durban, reporting a prevalence of CVD as 4.2% in males and 0.6% in females. This average prevalence of CVD of 2.2% among Black school children in the South African district is comparable to the prevalence of CVD reported on for Southwest and South Nigeria, however, it shows a lower prevalence of CVD than Central and South Ethiopia (Mashige &

Van Staden, 2019). Ongoing research in the field of CVD is important, with my research potentially making a contribution to the emerging body of knowledge.

It is, however, important to keep in mind that many people with colour vision problems are not diagnosed (Mashige & Van Staden, 2019). As such, it can be expected that a limited awareness of CVD and the absence of proper screening methods may cause the condition to be underreported. To be more specific, limitations in terms of vision testing impedes the early detection of all people with reduced colour vision, with up to 30% of the CVD population being unaware of their condition (Hasrod & Rubin, 2016). In this regard, Kvitle (2018) found that 60% of children with trichromacy (refer to section 2.2.3 further on) and 30% of those with dichromacy were unaware of their condition of CVD. This finding may partially be ascribed to CVD tests not forming part of the vision screening of school children around the world (Kvitle, 2018). As a result, children with CVD often remain undiagnosed during their years of schooling.

Despite a high prevalence, CVD is also not formally recognised as a visual impairment in South Africa, resulting in limited formal guidelines being available on how to support children with CVD – both in school and at home. It is evident that teachers and parents may, as a result, not be equipped with sufficient knowledge and skills to best support these children at home and in the classroom. This situation necessitates ongoing research, with the potential of studies such as the one that I undertook equipping parents to better support their children, despite their CVD condition.

2.2.3 Types of CVD

As indicated in Section 2.2.1, a person with normal colour vision possesses three types of retinal cone photoreceptors that assist in the perception of red, green, and blue colours. People with abnormal cones will, however, perceive these colours differently (Chan et al., 2014). Three main types of CVD are distinguished, namely monochromacy, dichromacy, and trichromacy (Chan et al., 2014).

Monochromacy occurs when an individual experiences complete colour blindness. This rare condition is the result of two or three types of cone pigments missing (Khalaj et al., 2014). The condition is generally known as total CVD and is diagnosed when someone cannot see any colour. As a result, all visual stimuli are perceived in black, white, and grey, due to the absence of the red, green, and blue cone pigments, preventing the eyes from absorbing any kind of light (Hasrod & Rubin, 2016). In the general sense of the word, being regarded as 'colour blind' is in fact only correct when an individual has been diagnosed with total CVD, as the other types of CVD entail partial 'colour blindness' and cannot be regarded as total colour blindness (Woldeamanuel & Geta, 2018).

The second type of CVD known as dichromacy (or red-green CVD), occurs when a person only possesses two retinal cone types that can perceive colour, resulting in the absence of one colour. Two subtypes can be distinguished, namely deuteranopia which is caused by the absence of green retinal photoreceptors; and protanopia which implies the complete absence of red retinal photoreceptors. In the case of deuteranopia, the green-sensitive cone is not functioning, resulting in the person not being able to take in and perceive green light, thereby seeing everything in shades of green (Gaines & Curry, 2011). The milder form of this condition is known as deuteranomaly. In the case of protanopia, the red-sensitive cone is not present, causing the person to see everything in shades of red, with the milder form being protanomaly (Khalaj et al., 2014).

Lastly, in the case of trichromacy, which is the most common category of CVD, one of the three cones (usually L, M, and S for long, medium, and short wavelengths) are altered in its sensitivity of either red/green, blue/purple, or blue/yellow receptors (Khalaj et al., 2014). This may result in a person having difficulty distinguishing between the colours on these spectrums. It is most common for men to suffer from red-green CVD, caused by problems with either the L or M cones. When only the L cone is stimulated, red is seen, however, when the M cone is stimulated to the maximum and the L cone is stimulated at approximately 80%, green can be seen (Otake et al., 2000). In addition, when the S cone is stimulated, blue can be seen. It follows that individuals who experience challenges with all three cones will be affected on the red-yellow-green spectrum, experiencing associated difficulty differentiating between the various colours that fall into this range (Hasrod & Rubin, 2016).

Even though both males and females are affected by the blue-yellow colour vision defect worldwide, less than 1 out of 10 000 of these cases include blue-yellow colour vision defects (Hasrod & Rubin, 2016). In terms of the blue cone monochromacy, the condition similarly represents a relatively rare form of CVD, occurring in approximately 1 in 100,000 people around the world. Blue cone monochromacy affects males more frequently than females, just as it does in the case of red-green colour defects (Chan et al., 2014).

2.2.4 Possible effect of CVD on learners in school

Due to the lack of effective colour vision testing during vision screenings and school health examinations in South Africa, the probability is high for children with CVD not being diagnosed at an early age (Metsing et al., 2022). For these children, not being diagnosed can have a negative impact on their academic performance, yet, also influence areas such as their socio-emotional functioning and participation in school-related activities.

More specifically, children with CVD can find it frustrating to follow or participate in classroom activities, making basic errors, having difficulty following directions, and even experiencing feelings of anger as a result of frustration (Mashinge, 2019). Underlying to such experiences lies the link between an inability to perceive things as intended, and the inability to reach one's potential (Mashinge, 2019). As the textbooks, worksheets, and educational resources that teachers usually use are not specifically designed for children with CVD, these children are often not sufficiently supported in school (Sanders et al., 2022).

Children with CVD may as a result be disadvantaged when compared to children with normal colour vision who are able to recognise visual data in terms of the colour of objects and information, with this ability being important during classroom activities (Colour Blind Awareness, 2022). Despite teachers' intentions, they may not know how to support children with CVD due to limited related training. In addition, as CVD is not widely recognised as a special educational need by, for example, the South African Department of Education (Department of Education, 2001), teachers may not focus on these children or make the necessary arrangements to accommodate their specific needs.

A common misconception exists that children with CVD will only confuse the colours red and green even though they may find many colours confusing (Colour Blind Awareness, 2022). This misconception can create an additional disadvantage for these children when adjustments in the educational setting only focus on these colours. As colour is widely relied upon when teaching at all levels at school and due to approximately 30% of all children with CVD not being formally diagnosed by the time they enter primary school, many of these children will be disadvantaged throughout their school career, partially due to an unawareness of their needs by themselves, but also by their teachers and society in general (Hasrod & Rubin, 2016).

More specifically, the early school years usually involve a strong focus on teaching through the use and identification of colour, where learners are, for example, requested to use a specific colour to complete a task or, when working on concentration and fine motor skill development and sequence tasks, to thread colourful patterns with beads. Tanuwidjaja et al. (2014) furthermore refers to tasks such as matching the pieces of a puzzle or reading maps as potentially difficult tasks for young learners with CVD due to such tasks typically being based on colour-related cues.

In the higher grades, learners with CVD may struggle with, for example, mathematics, science, geography, reading, sports, art, and food technology due to them not being able to recognise certain information indicated using colour (Mashige & Van Staden, 2019). For example, in chemistry, learners with CVD may not be able to identify the colour of chemical solutions. In biology, they may find it hard to read and interpret stained microscope slides, identify plants, and carry out dissections. In mathematics, these learners may be unable to read pie charts and graphs where colours are used for reference purposes and in art, they may struggle to complete any assignment that involves colour (Mashige & Van Staden, 2019). Learners with CVD furthermore often experience difficulty with tasks involving computer skills, crafts, and hobbies, as colour is generally used during such tasks (Campbell, 2005). These learners may have difficulty seeing what is written on a whiteboard if certain colours are used (Zorn & McMurtrie, 2019). Challenges experienced such as the afore-mentioned may result in a teacher assessing a learner's capability according to criteria that are not appropriate (Hill et al., 2017), with the possibility of these learners obtaining poor academic results and not performing according to their potential.

Children with CVD may furthermore experience difficulties with play, sports participation, dealing with school-related tasks and assignments at home, managing their social environment, and adjusting to other aspects of their lives (Mashige & Van Staden, 2019). They may feel inadequate if they are not sufficiently supported in the classroom and as a result, not perform as well as they are able to (Colour Blind Awareness, 2022). Some of the children may subsequently lose confidence in their own abilities and have difficulty dealing with the school environment, become discouraged or even unwilling to learn, resulting in such children possibly displaying disruptive behaviour.

In addition to the potential effect of CVD on learning and academic performance as well as participation in school-related activities, the emotional and social functioning of children with CVD may be negatively affected. These children may, for example, be teased in class when applying colours incorrectly or asking questions that are relatively obvious to their peers (Chaparro & Chaparro, 2017). Such experiences can influence their self-image as well as their sense of accomplishment and belonging. As a result, children with CVD may lack self-confidence when interacting with peers, which can be intensified through incidences of mockery and the challenges related to social relationships often experienced by such children (Stoianov et al., 2019).

2.2.5 Possible effect of CVD on children in the home environment

Even though colour plays an important role in the way in which the brain interprets information, most people do not consider the importance of colour during daily activities, as they use colour automatically (Neitz & Neitz, 2000). As an ultra-rapid communication system, colour serves as an instant tool for securing information about the world and the environment in numerous daily activities. Children with CVD face unique challenges in everyday life that normally sighted individuals will probably not encounter, in terms of, for example, choosing and cooking food, gardening, playing, watching sport, and selecting clothes.

Cooking may pose a challenge especially to older children with CVD, when preparing different kinds of meat, as individuals often rely on the colour of a piece of meat, chicken, or fish to know when it is completely cooked and edible, with this not being possible for children with CVD. Children with CVD may thus not be able to tell the difference between a piece of meat that is rare and one that is well-done, or between ripe and unripe fruit and vegetables, or food products that are ready and healthy to consume versus products that are not (Colour Blind Awareness, 2022). As a result, children with CVD might, for example, attempt to eat unripe bananas due to their inability to distinguish between green unripe bananas and yellow ripe bananas, with these two options being perceived as different shades of the same colour by many of them (Mashige, 2019). This challenge can negatively affect children's nutritional health, as they may be less inclined to eat fruits and vegetables due to these products’ perceived colour, which may be perceived as undesirable (Sullivan, 2011).

Next, it can be frustrating for people with CVD when red, green, or orange light-emitting diode (LED) displays are used to indicate, for example, when batteries need to be charged, when household apparatus are ready for use, or when equipment is on standby mode (Colour Blind Awareness, 2022; Neitz & Neitz, 2000). For example, many handheld gaming devices have indicator lights that change colour from red to green based on the device being charged or needing to be charged (Sun et al., 2020). In addition to this, when some electronic devices have a low battery, a green light may turn orange or red which will pose a challenge to children with red-green CVD.

As children with CVD perceive the world differently, it is important to pay attention to how lighting and the decoration of the interior of the house may be perceived by them (Mashige, 2019). In addition to the challenges associated with homework, children with CVD may experience difficulties with board games or in sports due to the inability to distinguish between different teams by their coloured tags when participating themselves or when viewing a game (Mashige, 2019). When participating as part of a team, other children may as a result avoid involving children with CVD in their team as they could cost the team a point, with this in turn negatively affecting the self-image and associated levels of self-confidence of the child with CVD (Mashige, 2019).

Other areas where children with CVD may have difficulty functioning optimally include the inability to see a spot on their own or someone else’s skin where there is for example a bee sting, which will as a result, not be identified before swelling occurs (Neitz & Neitz, 2000). Additional challenges they may encounter include the appropriate choice of clothing, in terms of matching colour combinations

(Yuan et al., 2011). Children with CVD may furthermore have difficulty choosing a career path as many careers are excluded due to the condition of CVD. Furthermore, children with CVD seldom receiving guided career advice that includes information on suitable careers as well as careers they may find challenging to pursue (Hathibelagal, 2022). As a result, individuals with CVD may have to let go of their future dreams, with the associated effect on their emotional well-being, for example, due to not being able to become a pilot (Colour Blind Awareness, 2022). Over recent years, however, certain career options have become accessible to individuals with CVD due to accommodating measures being put in place (Hathibelagal, 2022).

As a result of the general public often being unaware of the difficulties faced by those with CVD (Chan et al., 2014), these individuals are typically treated in the same way as people who see colour normally, as if they have the same ability. In addition to society in general, parents as well as teachers may not understand the possible effects of CVD on children, not knowing how to support them within both the home and school contexts (Woldeamanuel & Geta, 2018). In South Africa specifically, it is evident that teachers and parents tend to feel insufficiently equipped to recognise the needs of children with CVD and support them accordingly (Sullivan, 2011).

2.3 SUPPORTING CHILDREN WITH CVD TO FUNCTION OPTIMALLY

As indicated, children with CVD may face a range of difficulties when it comes to colour-related schoolwork, daily life activities and decisions about their future. These individuals will typically face challenges as children, but also during their adult lives, which highlights the importance of identifying and managing ways of supporting them across their lifespan, both at home and in school (Mashige & Van Staden, 2019). However, as alluded to already, it can be assumed that parents as well as South African teachers do not currently receive sufficient training on CVD or understand the implications of the condition for children, nor how to support them.

Within the school context, even though the Education White Paper 6 (Department of Education, 2001) proposes the enablement of education systems that address the needs of all children, the policy is seemingly not yet sufficiently applied in practice in the case of children with CVD. Even though some research has been undertaken on how teachers can implement alternative ways when using colour in the classroom and during school-related activities, many teachers are seemingly not yet implementing such guidelines (Chaparro & Chaparro, 2017). As the focus of my study concerns the way in which parents can support their children, I do not include a detailed discussion on possible guidelines for teachers in this section, however, rather focus on parents supporting their children.

Daily functioning is one of the most affected areas in the case of a child with CVD (Woldeamanuel & Geta, 2018), even though every individual will experience CVD differently, depending on the type and severity of the condition. Certain general guidelines can be followed to support these children by, for example, getting assistance from friends and family when choosing clothes or matching pieces of clothing (Colour Blind Awareness, 2022). Parents can, for example, focus on being descriptive about clothing rather than merely referring to colours, or create a system where children organise their wardrobes in such a way that clothing combinations are pre-packed for easy access, such as a t-shirt and pants being stored on one hanger as a set. In this way, the child with CVD can still be independent and manage their clothing options on their own (Colour Blind Awareness, 2022).

Other advanced methods to accommodate and support children with CVD have become possible through technology, for example, in the form of a smartphone application that assists people to identify colours and choose clothing based on a picture of an item of clothing taken with a mobile phone, with the application assisting the person to identify the colour of the item. In addition, certain mobile phones and laptops have the option to activate sounds or other cues to alert individuals when the electronic device needs to be charged (Wilmer et al., 2017). In the case of laptops brands such as Apple have a supportive setting called ‘differentiate without colours’ allowing users to receive shapes to guide them in identifying colours. Furthermore, with the advancement of technology, smartphones such as iPhone and Android offer a feature where users can rely on colour filters to differentiate between colours, or use a feature known as ‘colour correction’ that can cater for different types of CVD (Fliotsos et al., 2020).

Other guidelines for choosing items such as fruits and vegetables include the use of alternative signs of ripeness rather than relying on colour cues only, for example, teaching a child to choose a pineapple when it feels heavy and smells sweet, or avocados when they feel a little soft at the touch, but not too soft (Gerl & Morris, 2008). For fruits such as bananas, parents can consider sorting the fruit into two marked bowls, assisting children with CVD to know which fruit is ripe and ready to eat. When cooking meat, a chart with suggested cooking times and/or temperatures (for example 50°C for steak and 75°C for chicken) near the stove may guide children with CVD (Colour Blind Awareness, 2022).

In terms of parent support for school-related tasks, computer technology can once again provide supportive tools (as mentioned in Section 2.2.5), with computers and software programmes being utilised to ‘differentiate without colours’ relying on, for example, shapes rather than colours (Fliotsos et al., 2020), labels or prompts when colour is important, in support of their children with CVD. In addition, by ensuring that the lighting in working areas is sufficient, children with CVD may rely on bright natural light as the best possible lighting option when having to differentiate between different colours (Colour Blind Awareness, 2022).

Another option of support, even though this is expensive, is the use of colour corrective glasses such as EnChroma, which was designed to alleviate symptoms of CVD (EnChroma, n.d.). The lenses used in these glasses can alter the perception of colours even though it will not restore normal colour vision (Male et al., 2022). As such, colour corrective glasses will not solve the problem or enable an individual to perceive all colours normally, however, they can assist individuals to perceive most of colours in a way similar to that in which other people perceive them, thereby making their daily functioning a little easier. Even though EnChroma glasses (an example of corrective glasses) may thus assist individuals in identifying colours in certain conditions, people may find them difficult to wear and, in some instances, even disorienting (Geletu et al., 2018). However, people with CVD will usually adapt to wearing the glasses after a while, with possible positive outcomes such as the ability to identify colours and patterns that match when coordinating clothes.

2.4 PARENTS’ ROLE IN SUPPORTING THEIR CHILDREN WITH CVD

It is important that parents of children with CVD support their children’s self-confidence. Parents can do this by making small adjustments in the home environment, allowing their children to experience success and in the process build up their self-esteem. As a first step, it is important that parents can effectively communicate with their children and try to understand how they are feeling in order to know their needs and be able to support them (Breiner et al., 2016). In general, it is important that parents create a healthy lifestyle that is appropriate for their children, by for example, promoting healthy eating, physical activity, a set homework routine where they can assist where needed, and adequate rest (Bassett-Gunter et al., 2020).

Parents can assist their children with CVD to achieve their key developmental milestones by encouraging them, supporting them, and providing information when needed. Parental support ranges from ensuring that children arrive at school well-rested, well-fed, and ready to learn, up to encouraging children to set appropriate expectations for success and gradually become independent (Đurišić & Bunijevac, 2017). It is important that parents display a positive attitude toward school and life in general, as this can carry over to their children. Parents should be available to help their children with homework or projects especially when colour identification is required, and be a positive role model for children to help shape their opinions and attitudes about learning and their condition of CVD (Darling-Hammond & Cook-Harvey, 2018).

To support children with CVD, certain general guidelines can be followed. For example, friends and family can be of assistance when selecting clothes, or alternatively, a child's wardrobe can be arranged in matching sets of clothes (Colour Blind Awareness, 2022). Another guideline relates to the option of teaching children with CVD to use alternative cues rather than only visual cues when choosing items such as fruits and vegetables, as indicated earlier. For example, children can be taught that a potato should be firm to the touch, and that apples should not be soft, as this may indicate that the fruit is over-ripe and no longer good to consume (Lin et al., 2019).

In terms of the red, green, and orange LED displays that are often used in household appliances such as sandwich presses, parents can label the lights with ‘not ready’ and ‘ready’ to assist their children with CVD in their daily functioning (Mashige, 2019). Similarly, for electronic devices, such as mobile phones and laptops where a green light turns orange or red when a battery runs low, parents can assist their children to activate sounds or other cues to make them aware of the fact that the electronic device needs to be charged (Male et al., 2022). Furthermore, technology can be utilised in support of children with CVD in various other ways, as described in the previous section.

Regarding school related-tasks, parents need to ensure that all teachers working with their children are made aware of the condition and the challenges that the children may face (Breiner et al., 2016). To be specific, teachers need to be informed of the challenges that the child may experience with textbooks, worksheets, and seeing colour markers on a white board; and be guided on possible alternative methods that can be used in support of the child with CVD in the classroom (Dalton et al., 2012). By guiding teachers on how to better accommodate children with CVD in the classroom, for example, by allowing peer support when needed or for the child to obtain guided assistance directly from the teacher, children can be supported to succeed (McLeod, 2019). Teachers should furthermore be informed of any special arrangements, for example, that a child will be using labelled stationary that are marked with colours to assist them during activities where colour is involved.

It is also pivotal for parents to ask their children’s teachers to check up on the children regularly, especially during assessment tasks, as they may need additional time or extra help yet not ask for this due to being embarrassed or shy. In addition, parents should encourage their children with CVD to speak up when they are experiencing difficulties so that they can obtain the support they require (Ceka & Murati, 2016). In this regard, it is important that parents are kept updated on their children’s progress in order to resource the necessary assistance and support when required. Finally, parents should also inform their children’s physical education or extra mural teachers about their children's condition and how it may impact them during team play (Chaparro & Chaparro, 2017).

In summary, parents fulfil an important role in their children's achievement. In this regard, children who experience a positive learning and living environment may be able to succeed in school and at home (Ceka & Murati, 2016). Encouragement, motivation, and quality instruction is critical for children’s success and well-being, thereby necessitating daily parental involvement– not only with daily living functioning, but also in terms of their children succeeding in school-related tasks. Concerning possible emotional and social challenges experienced by children with CVD, parents have the responsibility to raise and encourage their children to be self-aware, respectful, know how to manage their emotions, make responsible decisions, and resolve conflicts efficiently. In this regard, parents should strive to create a home environment of trust, respect, open communication, and support. If parents guide their children to develop skills to cooperate and consider others' perspectives, they will be better prepared to form and maintain positive relationships with both peers and adults which may in turn, have a positive effect on their emotional well-being.

2.5 PARENT GUIDANCE INTERVENTIONS AS RESOURCE TO PARENTS OF CHILDREN WITH CVD

Even though Collins (2013) as well as Meeks et al. (2016) have done some research on parents supporting their children with CVD, limited practical guidelines are available for parents to apply in support of these children. The scarcity of literature on parental guidance within the context of CVD emphasises the need for ongoing research such as the current study. To be more specific, research of this nature can support parents in terms of the development, guidance, and nurturing of their children while an awareness about CVD amongst parents and the general society may be raised (Lizzeri & Siniscalchi, 2008). By providing parents with suitable resources and ideas, they may gain confidence about the way in which they can support their children.

A possible mechanism that can support a child with CVD entails the support of parents by equipping them with knowledge about their children's condition and providing them with guidelines they can implement (Đurišić & Bunijevac, 2017). To this end, it is important for parents of children with CVD to be proactive and educate themselves about the condition of their children. The more parents understand their children's specific needs, the better prepared they will be to help their children succeed and manage the challenges they face (Ceka & Murati, 2016). Parents must be able to maintain a positive attitude and advocate for their children. This includes the adjustment of their expectations if necessary, acknowledging the fact that their children may act and respond differently than others, and as parents embrace their children’s achievements (Hayes & Bulat, 2017).

2.5.1 Purpose of parent guidance interventions

A parent guidance intervention refers to any parent-based education programme that strives to enhance parenting abilities and effective coping strategies, provides practical guidelines to parents, and fosters a positive parent-child relationships in order to have a positive impact on children's lives and general well-being (Jeong et al., 2021). Teachers and other professionals can provide guidance and support to children; however, parents should always form the primary support system. To this end, a parent guidance intervention can empower parents to sufficiently fulfil their supportive role, by providing them with effective strategies to guide and assist their children in achieving success in all areas of their lives, including children with a condition such as CVD (Sanders et al., 2022).

Through parent guidance interventions, professionals can thus support and guide parents to better support their children (Đurišić & Bunijevac, 2017). Such interventions and tools will more specifically aim to improve parenting skills, problem-solving skills, knowledge, healthy communication, positive emotions as well as parent-child relationships, all of which will have a positive effect on the functioning of children with special needs such as CVD (Breiner et al., 2016).

Even though parent guidance interventions generally focus on the child's needs and how parents can effectively support their children, it can also assist parents in understanding their own behaviour in certain situations that may arise as a result of their children’s specific needs, such as in the case of CVD, and what the effect of certain responses may be on a child (Breiner et al., 2016). As professionals (psychologists, counsellors, or people in other helping professions) can assist parents in changing ineffective parenting strategies and behaviours, children can be allowed and supported to reach their full developmental potential by empowering their parents (Jeong et al., 2021).

2.5.2 Possible format and nature of parent guidance interventions

Traditionally, parent guidance interventions offered by schools often took the form of parent evenings, newsletters, learning materials, or a direct face-to-face meeting. A paper-based delivery method has, however, not been proven to be effective due to unreliability, with material potentially being misplaced, not reaching parents, or simply being forgotten by parents (Sivarajah et al., 2017). In the South African context, with one or both parents working full-time, parent evenings have become difficult, due to parents being challenged by, for example, not having flexible working hours, having to take care of their children, or experiencing financial constraints or even limited access to public transport, with them often not being able to attend in-person meetings (Lingwood et al., 2020). This barrier has led to limited parental participation in school-based parent guidance opportunities in the past (Sibanda, 2021).

For professionals such as psychologists and counsellors, traditional parent guidance has often also taken the form of face-to-face meetings and instant feedback through a conversation. Parental participation is, however, required for any intervention to be effective (Haine-Schlagel & Walsh, 2015), with parents attending intervention sessions and participating with questions and feedback.

An alternative method of delivering a parent guidance intervention involves the use of web-based modes of delivery. Access to online information is increasing and becoming more popular every day. Due to the advancement of technology and increased access to the internet, web-based interventions have thus gained popularity among parents as this method eliminates the need to travel, attend an in-person session, or be available at a specific time in a specific place (Lingwood et al., 2020). A further benefit of this mode of delivery is that parents can access the shared information on any device such as a mobile phone, tablet or even laptop, thereby increasing easy access to information whenever they require it. Furthermore, if such sessions are recorded, parents may revisit the discussions at a later stage, whenever they require to do so (Ventola, 2014).

Recently, COVID-19 lockdown measures resulted in web-based interventions gaining momentum and being considered as alterations to in-person sessions, with the implied advantages already referred to. Recent studies indicate that technology can improve the quality of intervention delivery, increase participation, and encourage the engagement of parents. On the other hand, however, the possibility exists of such an intervention posing technical challenges or parents experiencing language barriers without making this known on a virtual platform (Morrison-Smith & Ruiz, 2020). Web-based interventions could make a substantial contribution to the transfer of knowledge to parents due to improved accessibility to information, reduced financial burdens, and increased efficiency. This can enhance the possibility of information being shared with parents effectively and easily (Darling-Hammond & Cook-Harvey, 2020).

For web-based interventions, the use of mobile phones has become increasingly popular, as guidance and support can be provided to groups of people (e.g., parents) in a quick and accessible manner in this way (Mayisela, 2013). A social media platform that has become popular to share information with groups of people is WhatsApp, which is a free multi-platform messaging application that allows users to send instant messages, create group chats and perform a variety of other functions using only a Wi-Fi connection. Another feature that makes WhatsApp appealing is that it works on a variety of mobile phones and computers, allowing individuals to continue their conversation whenever and wherever they want to and on whatever device they can afford (Appel et al., 2020). WhatsApp groups allow for a widespread, convenient, efficient, and reliable transfer of information to groups of people (e.g., parents), while saving time by sending only one message to multiple parents simultaneously.

Another advantage of WhatsApp is that it can be used to send knowledge or information in various forms such as images, texts, videos or even documents in an easily accessible way (Barhoumi, 2015). Due to the COVID-19 pandemic, the move to virtual modes of communication has sensitised people to the idea of online conversations with no face-to-face contact being the ‘new normal’ (Jandrić et al., 2020). As such, mobile-based parent guidance interventions can easily fit into the daily lives of parents and increase the likelihood of parent participation and engagement. Providing parent guidance through mobile-based interventions and sending messages *via* WhatsApp may add value to research in the field of parent guidance interventions, in addition to the possible contribution to literature on CVD. Based on the possibility of participants sharing information with one another and amongst others (also outside the parent guidance intervention group) a ripple effect can occur with increased awareness of CVD as a practical outcome.

2.6 THEORETICAL FRAMEWORK OF THE STUDY

In undertaking this study, I relied on Bronfenbrenner’s bioecological model of development (Donald et al., 2010), illustrated in Figure 2.1. below.

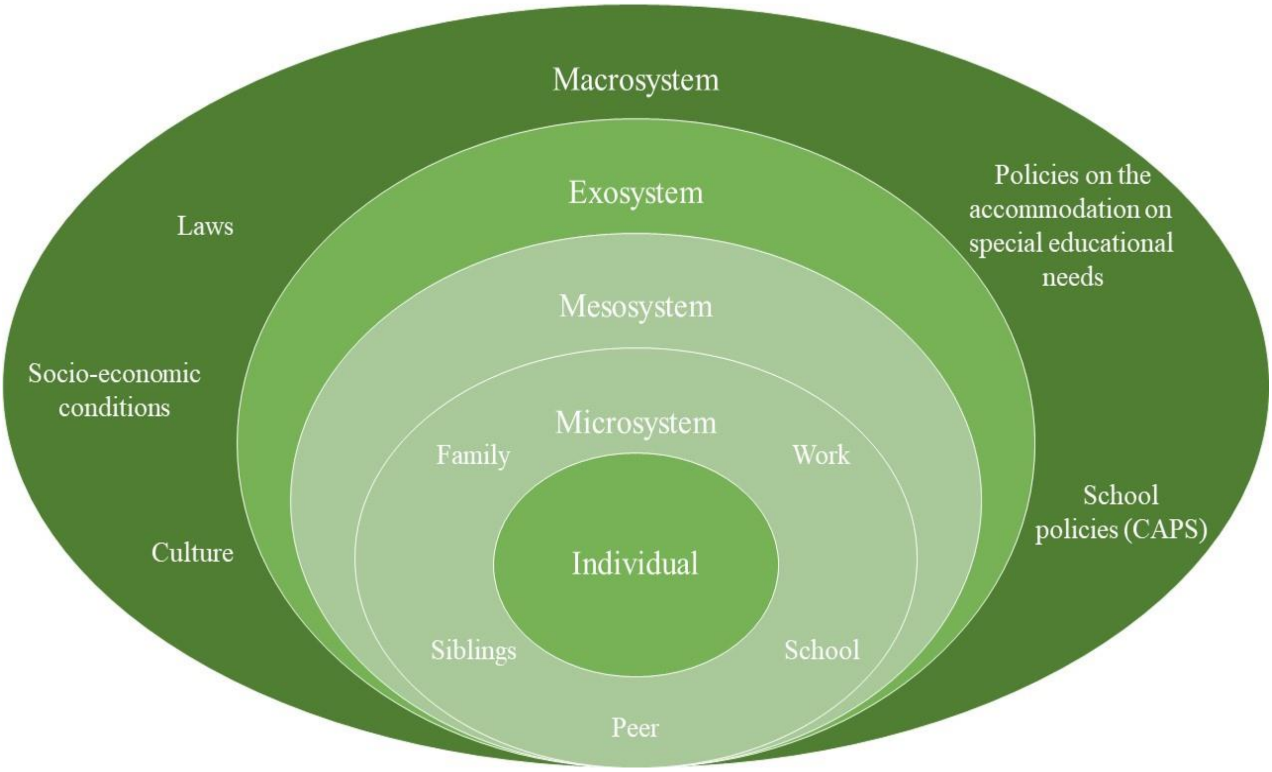

Figure 2.1: *Theoretical framework of the study*

Source: Adapted from Bronfenbrenner’s bioecological model (Donald et al., 2010)

Bronfenbrenner’s theory highlights the importance of interaction between various role players during an individual's (the child with CVD) learning and development processes such as the parents, teachers, school, and home environment, as in addition, it emphasises the significance of the context and environment on the growth and development of individuals (Smit et al., 2020). More specifically, the bioecological model assumes that developmental outcomes in the case of a child will be achieved through the child’s interactions with others, with the environment being pivotal in supporting positive learning and functioning (Snowman & McCown, 2013).

According to Bronfenbrenner (1976), multiple social forces will thus affect human interaction, with an understanding of these forces being important to comprehend the behaviour of an individual (Guy-Evans, 2020). Children are seen as active participants in their own development, with their perceptions of their surroundings influencing their interactions with the environment (Bronfenbrenner, 1976). A key principle of Bronfenbrenner's model, which guided my research, relates to the premise that a single event or change in one of the systems can affect and impact all other systems (Guy-Evans, 2020), meaning that any change in an individual's system (e.g., the implementation of a parent guidance intervention *via* a WhatsApp group) can lead to adjustments in the systems of the individual, families, and school (parents applying what they have gained).

To be specific, I aimed to gain insight into how a parent guidance intervention affected both the parents who participated in my study and their children in the home and school environments (systems). I regard Bronfenbrenner’s (1979) bioecological model as a suitable theoretical framework because of the emphasis on a child’s development and functioning occurring at home and at school when parents and teachers interact and collaborate to support the child to achieve set goals (Guy-Evans, 2020). As stated, Bronfenbrenner places the developing child within several systems, with these being the microsystem, mesosystem, macrosystem, exosystem, and chronosystem (Bronfenbrenner, 1979). For the current study I specifically focused on the microsystem and macrosystem (Bronfenbrenner, 1976).

The microsystem includes some aspects in the child's immediate environment that implies direct involvement with the child, such as the parents, siblings, teachers, and peers at school (Guy-Evans, 2020). Microsystem relationships are bidirectional, which means that a child's beliefs and actions can be shaped by others in the environment, however, can also be influenced by others. Interactions within the microsystem is often personal, and essential for fostering and supporting a child's development. In the context of this study, the parent-participants were taken as interacting with their children, other family members, and their children’s schools (Benjamin, 2015). The advantage of considering the microsystem in this study relates to the possibility of the participating parents passing on the knowledge they had gained on CVD to their children, but also to other family members as well as teachers or other significant role players in their children’s lives (Breiner et al., 2016).

Next, the macrosystem focuses on how cultural factors, including socioeconomic status, wealth, poverty, and ethnicity can influence a child's development (Guy-Evans, 2020). In terms of the macrosystem, when planning and conducting my study, I used the South African national curriculum (CAPS) and existing policies on the inclusion and accommodation of children with special needs as background knowledge that had to be considered when guiding parents on how to support their children with CVD (Department of Education, 2001).

By conveying knowledge and skills to the parents of children with CVD, the parent guidance intervention in this study implied the potential of affecting change within the microsystem, entailing the children's home and school environments (Benjamin, 2015). The parents were provided with information related to their children’s CVD with specific guidelines on the promotion of resilience; social, emotional, and academic well-being; career and future options; as well as parent and child roles which may create awareness and provide knowledge to others. As a result, changes could be facilitated within the microsystem, with these changes potentially flowing out across the various systems, causing some change in the broader system.

2.7 CONCLUSION

As the optimal functioning and success of children with CVD is seemingly at risk, better insight into the condition, what it entails, and how support can be provided is important. In this chapter, I explored CVD in terms of what the condition entails, the biological explanation of CVD, the causes and prevalence of the condition, the types of CVD and the effects of the condition on individuals. Next, I focused on the important role of parents in supporting their children with CVD, after which I discussed the potential value of parent guidance interventions in support of children with CVD. I concluded the chapter by explaining the theoretical framework used for the study.

In the next chapter, I describe the empirical research I undertook. I discuss my selected epistemology and methodology, the research design, and selection. I outline the data generation, documentation, and analysis strategies, and attend to ethical considerations and quality criteria.

CHAPTER 3

RESEARCH DESIGN AND METHODOLOGY

3.1 INTRODUCTION

In the previous chapter, I discussed the existing literature related to the topic I explored. For this purpose, I described CVD and understanding CVD within the home and school contexts. I highlighted the effects of CVD on children and contemplated the role of parents in supporting their children with CVD. I concluded the chapter by explaining my theoretical framework.

In this chapter, I discuss and justify the research design and methodological strategies utilised. I describe the selected paradigmatic perspectives, the research design, and selection procedures. I also explain the data generation, documentation, and analysis, and conclude by discussing the ethical guidelines I followed and how I attempted to ensure trustworthiness.

3.2 PARADIGMATIC PERSPECTIVES

Research paradigms indicate the philosophical assumptions that provide researchers with guidelines to make decisions regarding the research design and justifying these (Maxwell, 2013). In this section, I discuss the paradigms that guided me in undertaking this study.

3.2.1 Epistemological paradigm

I relied on interpretivism as a meta-theoretical paradigm, thereby acknowledging the socially constructed nature of reality based on the personal experiences of individuals (Schurink et al., 2011). Interpretivism assumes that a variety of different realities exist, which are based on the personal interpretations of individuals stemming from their experiences, through interaction with others and the environment (Merriam & Tisdell, 2015). Reeves and Hedberg (2003) note that the interpretivist paradigm represents analyses within contexts. Interpretivism thus concerns the understanding of the world, based on the personal experiences of individuals within specific contexts. This paradigm contends that individuals constantly think about the world according to their so-called ‘cultural framework’ of socially constructed and shared meanings. As such, how people interpret the world will influence how they perceive themselves within the world (Mukherji & Albon, 2010).

Interpretivists adopt the nature of relativism according to which a phenomenon can be interpreted in multiple ways, rather than by establishing an objective truth through structured measurement. As a result, interpretivists tend to spend ample time trying to understand a phenomenon and its complexity in its unique context rather than generalising principles across the population (Creswell et al., 2007). Due to multiple interpretations of events being possible, it is important for the interpretivist researcher to guard against being biased when doing data analysis and interpretations, in order to ensure that findings capture the way in which the participants perceive the world.

It is important to use general, broad, and open questions when generating data through interviews during interpretivist studies, allowing participants to clearly explain what they want to say and do in real-life situations by addressing general questions. In the current study, the interpretivist paradigm enabled me to gain an understanding of the perspectives of parents of children with CVD (Creswell, 2014), more specifically, in terms of their perceptions and experiences of the parent guidance intervention they participated in. An advantage of gaining insight into the way in which parents can be supported through a parent guidance intervention to support their children, enabled me to give meaning and interpret the views of the participants while attempting to understand the phenomenon I set out to explore.

Based on my understanding as an interpretivist, a social reality is a constructed reality by participants, I could thus observe and interpret the social reality in its constructed form (Basit, 2010). My analysis of the data subsequently focused on the meanings ascribed by the participants to their personal experiences of the parent guidance intervention. To guard against potentially biased interpretations based on my personal, cultural, and historical experiences, I included member checking, allowing me to discuss the identified themes with the participants for their confirmation or elaboration (Creswell, 2014).

As an interpretivist, I remained aware of how, and to what extent my surroundings could have potentially influenced my viewpoint. As a result, I did not allow myself to become swayed by the perspectives of the participating parents where it differed from my own perspective, however, rather I focused on being objective when analysing, interpreting, and reporting the perspectives and experiences of the participants. In support of my attempt to remain aware of my own background, I continuously reflected on my interpretations and discussed these with my supervisor and fellow student Tegan van der Westhuizen, before drawing any conclusions. In seeking to gain insight into the subjective meanings ascribed to a given phenomenon by selected individuals, I attempted to respect the unique differences of the participants based on their unique experiences.

Finally, as I aimed to gain an in-depth understanding of a specific phenomenon in a specific context, I did not strive to obtain generalisable results, which is often mentioned as a possible limitation of interpretivist studies (Dean, 2013). In accordance with the views of Dean (2013), I focused on understanding the diverse ways in which parents may support their children with CVD at home and could benefit from parent guidance, to allow for the possibility of my findings being transferable to contexts similar to the one where I undertook my research. To avoid bias and ensure transferability, I regularly reflected on my work by keeping a reflective journal, in which I captured the necessary details of the research process and the insight I subsequently gained (Merriam & Tisdell, 2015).

3.2.2 Methodological approach

As explained by Creswell (2014), qualitative research is used to explore and understand the meanings that individuals attach to various social and human phenomena. Interpretivist practices are widely used in qualitative research, which can facilitate an understanding of a phenomenon (Denzin & Lincoln, 2017). To gain an in-depth understanding, qualitative methodology typically implies the use of emergent procedures and questions, generating data in participants' real-life contexts, following a reflexive approach to data analysis, and taking responsibility for interpreting the data (Creswell, 2014). As a qualitative researcher, my aim was to understand the participants' experiences and perceptions of the phenomenon under study (Creswell, 2014). For this purpose, I maintained a relationship of trust with the participants, with me being a key instrument in generating, documenting, and analysing the data, while adhering to ethical principles throughout my study (Creswell, 2014).

As qualitative research aims to understand the meaning making experiences of human beings within the context of their social worlds, I aimed to bring the participants' personal meaning making to life, as experienced by them (Fossey et al., 2002). As a qualitative researcher, I have thus attempted to provide a coherent story in this mini-dissertation, as 'told' by the participants, to represent their experiences from their own subjective perspectives (Tuli, 2010). In this regard, qualitative research enabled me to report on the unique opinions and understandings of the participants, against the background of a range of meaning making shared by. In this manner, I was able to acknowledge and report on the diversity of the participants' experiences, attitudes, and perceptions (Mukherji & Albon, 2010). The rapport that was established between the participants and myself added to the depth of information they shared with me (Creswell, 2014).

In qualitative studies, the researcher's experiences may influence the interpretations made, resulting in me guarding against the possibility of bias or transferring my knowledge onto the participants (Mukherji & Albon, 2010). I was able to remain aware of my own background and the differences between the participants and myself through continuous reflexivity (Nieuwenhuis, 2016). I thus attempted to safeguard myself against bias through reflexivity and by focusing my attention on existing knowledge, patterns, and emerging themes of the studied phenomenon itself. To this end, I continuously sought to clarify how the participants had made meaning of their experiences and remained open to my understanding and interpretation of their meaning making, being guided by the participants themselves (Nieuwenhuis, 2016).

As qualitative research focuses on an understanding of specific people's views in a specific context regarding a specific phenomenon, another challenge associated with the methodology relates to the generalisability of such studies being limited. I was aware of this potential limitation; however, based on the focus of my study, the guiding research questions, and the paradigmatic approach I relied on, I did not aim for generalisability, as explained in the previous section.

Another potential challenge of qualitative research concerns the possibility of a large volume of data being generated, with the challenge of data analysis being time-consuming (Creswell, 2014). As a result, I approached my study in an organised manner to complete the data generation and analysis as time-efficiently as possible. In following a structured approach, I kept the data sets of the various participants separate and clearly labelled all data files (Nieuwenhuis, 2007). I was also guided by the saturation of data in managing the data generation and analysis process (Creswell, 2014).

Finally, aligned with qualitative research, I kept a reflective journal in which I reflected upon my progress and experiences along with how these contributed to shaping my perceptions and thoughts. I also captured the insights I came to as the research process unfolded. I discussed my emerging thoughts and reflections with my supervisor, who provided directed guidance when required (Creswell, 2016). Furthermore, I employed member checking, involving the participants in a discussion to confirm my interpretation of the data or elaborate where needed (Birt et al., 2016).

3.3 RESEARCH PROCESS AND METHODOLOGY

In this section I discuss the methodological choices I made in planning and undertaking my research. An overview of the research process is provided in Figure 3.1 below.

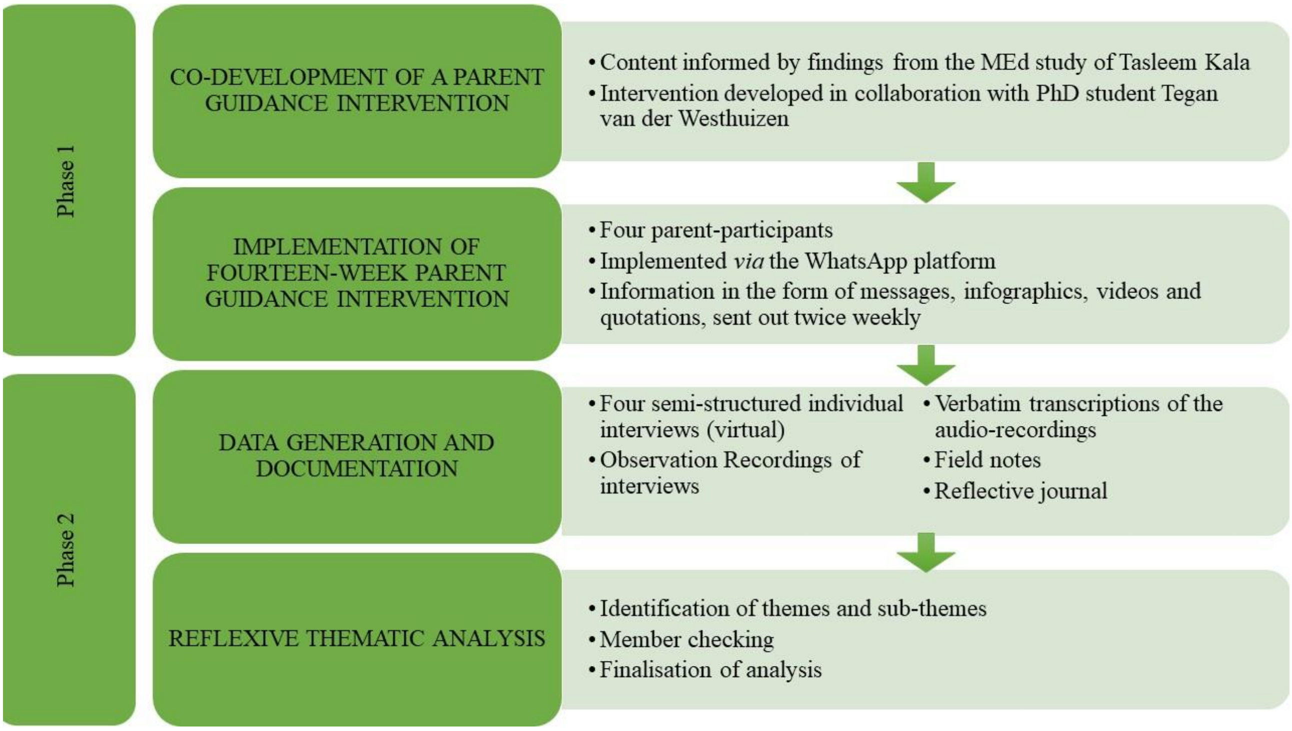

Figure 3.1: *An overview of the research process followed*

3.3.1 Research design

I implemented a descriptive case study design. According to Snape and Spencer (2003), case study research entails the investigation of one or more cases, through various data generation methods. Research using case studies has revealed multiple facets of complex phenomena, allowing researchers to understand them more deeply (Baxter & Jack, 2008). Descriptive case study research involves the analysis of a phenomenon from multiple angles while considering both the uniqueness and complexity of the system in its specific context (Schwandt & Gates, 2017). The phenomenon in its context can thus be understood in a multidimensional, in-depth manner (Schwandt & Gates, 2017), gaining an understanding of real-world behaviour and individual meaning-making (Nieuwenhuis, 2016).

My choice of a descriptive case study design enabled me to explore multiple aspects of the phenomenon under study by focusing on the experiences and perceptions of the parent-participants and utilising various methods namely semi-structured interviews, observation, audio-visual recordings, field notes, and a reflective journal. By investigating a bounded system, I was able to select participants who could potentially provide rich data (Merriam & Tisdell, 2015), based on their presumed understanding of the role that parents can fulfil in supporting children with CVD and how the parent guidance intervention that was implemented could support parents in fulfilling this role.

As alluded to earlier in this study, an advantage of descriptive case study research relates to the possibility of including multiple data generation methods, with the findings representing a rich and in-depth description of the phenomenon under study (Stake, 2008; Yin, 2018). Based on this, I was able to capture meaningful information about the phenomenon I explored, based on the first-hand experiences of the participants, shared with me in an open manner during individual interviews (Rempfer & Knott, 2002). The fact that I obtained the information from several participants enabled me to obtain a comprehensive understanding of the perceptions of the different participants.

On the other hand, challenges often associated with descriptive case study research relate to precision and ensuring credibility of the findings (Andrade, 2009). To this end, I relied on various data generation and documentation procedures and include detailed descriptions of the procedures I employed in this mini-dissertation. I furthermore depended on reflexivity and member checking to produce credible findings. Another challenge associated with case study research relates to limited generalisability of the findings of such studies (Creswell, 2016); however, as indicated before, I did not aim to obtain generalisable findings, but rather to gain an in-depth understanding of the bounded system I explored (Andrade, 2009). Transferability of the findings may be possible, based on the reader’s assessment of the suitability of transferring the findings of this study to similar research contexts, being guided by the descriptions of the research process.

3.3.2 Selection of case and participants

I relied on a combination of convenience and purposeful sampling in selecting the case to focus on and the four parents to participate. As the case that I explored formed part of a broader research project, I relied on convenient sampling in selecting a case that I had easy access to and where I could collaborate with fellow postgraduate student Tegan van der Westhuizen. I similarly had access to the parent-participants through fellow student Tegan van der Westhuizen, resulting in potentially me relying on convenience sampling to select parents who were readily available and easily accessible, yet also relying on a component of purposeful sampling as I selected participants with a specific purpose in mind (Maree & Pietersen, 2016).

According to Etikan et al. (2016), purposeful sampling is used when wanting to identify and select individuals or groups of people who hold knowledge of the phenomenon that is investigated. In the current study, the underlying assumption was that the participants I selected would be able to share information that could address the formulated research questions and achieve the aims of my study (Tracy, 2013). In this way, by relying on both convenience and purposeful sampling, I could select participants who were easily accessible, yet who would be knowledgeable of the topic I explored.

The following selection criteria applied:

- Participants had to be parents of children with CVD
- Participants had to be able to speak English
- Participants had to voluntarily consent to participate in the study
- Participants had to have internet access and be available on WhatsApp and
- Participants had to be available for an online data generation session following the implementation of the parent guidance intervention.

In Table 3.1 below, I provide an overview of the participants of my study.

Table 3.1: *Overview of participants of the study*

PARTICIPANT	GENDER	OCCUPATION	INTERVIEW DATE
1	Female	Entrepreneur	29 August 2022
2	Female	Play Therapist	30 August 2022
3	Female	Doctor	31 August 2022
4	Female	Social Worker	08 September 2022

A challenge associated with both convenience and purposeful sampling relates to the participants not necessarily being representative of the larger population (Neuman, 2014). As I implemented the interpretivist paradigm and followed a qualitative approach, I did not aim to obtain generalisable findings that would represent the perceptions of the whole population. I rather focused on gaining insight into the experiences and perceptions of the specific group of participants who had been involved in the parent guidance intervention that formed part of the broader research project (Nieuwenhuis, 2016). Another challenge that I faced that is often associated with case study research when participants are selected conveniently, relates to the fact that participants may have different and even opposing views and ideas, especially due to them not necessarily being familiar with each other or having similar home settings or children in the same grade. To this end, I ensured that I was thoroughly prepared for the various interviews and was always guided by the interview schedule, staying focused on the purpose of my study, yet also being flexible and making adjustments when needed. I ensured that I listened to the various views and perspectives of all the participants and continuously reflected on these as the study unfolded (Strydom, 2011), in the end looking for similarities in terms of the ideas, themes, and sub-themes that emerged.

3.3.3 Development and implementation of parent guidance intervention

As indicated in Chapter 1, the study I undertook was based on the results of a preceding MEd study by Tasleem Kala[7], indicating topics that parents of children with CVD require knowledge and guidance on. Based on the findings obtained by Tasleem Kala, and in collaboration with fellow doctoral student Tegan van der Westhuizen, I co-developed a parent guidance intervention for parents of children with CVD. To be specific, we developed twenty-eight informative messages that could be distributed *via* the WhatsApp platform, in consultation with my supervisor, and guidance on how to improve and adapt the prepared messages, to ensure that the information sent to the parents would be accurate and address the needs identified in the preceding study.

The content of the parent guidance intervention was structured according to fourteen focus areas. In structuring the content, we aimed to ensure that holistic child development and support would be covered. We furthermore attended to the inclusion of a variety of formats for the information that was subsequently shared with the participants, thereby catering for differences in terms of learning style preferences and preferred modes of delivery for information. We as a result included infographics, written messages as well as supportive material in the form of educational videos and motivational quotations to enhance the support provided to participants.

We used a WhatsApp group to implement the parent guidance intervention, thereby allowing participants to respond, comment, or ask questions as needed. The content was sent out to parents, from 16 May 2022 to 19 August 2022, with messages sent every Monday and Wednesday morning.

Table 3.2 provides an overview of the topics covered in the intervention and specifically in terms of the academic, emotional, and social functioning of children with CVD. The purpose was to support parents by providing them with knowledge on their children's condition as well as providing them with practical guidelines on how to support and guide their children with CVD to function optimally.

Table 3.2: *Overview of topics covered in the parent guidance intervention*

	TOPIC	FOCUS
1	Meaning of CVD	What is CVD: Academic, social, and emotional challenges Effects of CVD on a child’s self-esteem
2	Promoting resilience	Encouraging a resilient mindset Dream, do, and connect concept

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[7] Kala, T. Parental guidance in support of learners with colour vision deficiency. MEd in Learning Support, Guidance, and Counselling.

3	Building confidence and resilience	Supporting your child Focusing on effective communication
4	Your child and how they see the world	Understanding your child Examples of challenges that parents and children with CVD may face
5	Experiencing life with CVD	CVD and emotional and social well-being Recap and topics going forward
6	Emotional well-being	Strengthening emotional awareness and self-acceptance Strengthening the development of a positive self-concept and self-esteem
7	Emotional well-being	Overcoming anxiety and stress Coping with other challenges that may arise
8	Social well-being	Communication skills and the voicing of experiences Healthy relationships and socialisation
9	Social well-being	Dealing with possible teasing and even bullying Dealing with peer pressure
10	Academic well-being	Helping your child enjoy school and perform well Helping your child succeed in class and participate with confidence
11	Academic well-being	Supporting your child to complete school-related tasks Value of extracurricular activities
12	Future goals, dreams, and career choices	Setting realistic goals and working towards reaching a dream Identifying and exploring career options
13	The parent's role vs the child's role	Thriving despite CVD Dealing with frustrations
14	Questions-and-answers	Quotations and videos Questions and answers

3.3.4 Data generation and documentation

According to Denzin and Lincoln (2017), qualitative research is often characterised by using multiple research methods for the researcher to be able to develop a detailed descriptive understanding of the phenomenon under study (Denzin & Lincoln, 2017). For the purpose of this study, I relied on a variety of data generation and documentation methods including semi-structured interviews, audio-visual-recordings, field notes, and a reflective journal (Creswell, 2014). The purpose was to add richness, quality, and depth to the data, by gaining insight into the parents' perceptions using a range of methods and perspectives (Denzin & Lincoln, 2011).

I relied on various data generation and documentation strategies (Schneider & Preckel, 2017), namely individual interviews, observation, audio-visual recordings, field notes, and a reflective journal.

3.3.4.1 Semi-structured interviews

A semi-structured interview is characterised by dialogue between a researcher and a participant, usually taking the form of a flexible discussion that is guided by some questions, yet followed-up with probes and prompts (DeJonckheere & Vaughn, 2019). This method engages participants in an open-ended discussion about a particular topic, allowing researchers to delve deep into the participants' thoughts, feelings, and beliefs (Austin & Sutton, 2014).

For my study, I conducted four virtual interviews of 40 to 45 minutes each. Virtual interviews have gained field over recent years as this method allows researchers to conduct interviews with participants from different locations, using online mechanisms that implies the possibility of easily coordinating different schedules (Keen et al., 2022). Virtual interviews are typically used when people cannot meet face-to-face or when safety limitations are in place, such as during the COVID-19 pandemic. Despite virtual interviews not entailing face-to-face contact, it is still possible and important to establish a good rapport and facilitate open communication between researchers and participants (Creswell, 2016). It is furthermore possible for the researcher to ask participants to elaborate on responses when required, and for researchers to guide the line of questioning. As such, virtual interviews imply the benefit of having access to a larger pool of participants and generating data in a cost-effective and a time-efficient manner (Creswell, 2016).

A potential challenge associated with virtual interviews relates to the participants becoming distracted and not paying full attention when not meeting in person (Creswell, 2016). In order to guard against this potential pitfall, I reminded the participants of the purpose of the interview at the start of each discussion and steered them back to the focus of the discussion when needed. I asked open-ended questions and encouraged the participants to share their experiences openly. For this purpose, I relied on an interview schedule (refer to Appendix C), however, remained flexible in terms of the order of the questions or any unexpected topics that had relevance to my study, yet were not specifically planned to include.

A further potential challenge associated with virtual interviews relates to some participants potentially being tough to engage in conversation, which may be harder than when having a face-to-face discussion. I guarded against this by first establishing a warm and inviting atmosphere and then ensuring that I actively listened to the participants and used probes and prompts, asking follow-up questions for clarification when needed. Another potential challenge associated with individual interviews in general, relates to the possible subjective viewpoints of interviewees that may affect the indirect information that may be shared (Creswell, 2016). During the current study I did not experience this as a challenge as the participants seemingly shared their viewpoints with me openly and appeared willing to clarify any uncertainties when asked to do so.

3.3.4.2 Observation

Interpretivist research often includes observation as a method to gather information about the phenomenon that is explored (Denham & Onwuegbuzie, 2013). Through observation, a qualitative researcher can generate data "using one's senses, especially looking and listening in a systematic and meaningful way" (McKechnie, 2008, p. 573). During this process, it is the responsibility of the researcher as observer, to remain aware of what is happening, seeing it, hearing it, and trying to make sense of what is observed (Stake, 2008). During my study, I made use of non-verbal communication observations which entails the observation of information shared through a participant's body language, facial expressions, gestures, appearance, and tone of voice to address or validate the verbal information that is shared (Denham & Onwuegbuzie, 2013).

Due to the nature of my study and the time of data generation being shortly after the COVID-19 pandemic, I conducted online interviews *via* Microsoft TEAMS, which allowed me to generate data during conversation with the participants (DeJonckheere & Vaughn, 2019). Even though observation is more challenging during online interviews than in the case of face-to-face interviews, I carefully attended to non-verbal cues such as gestures that I could observe during my conversations with the participants (Clough & Duff, 2020). During the virtual interviews, I thus remained attentive to the body language and gestures of the participants when they spoke. In this way, I aimed to obtain somewhat of an insider perspective, allowing the participants to feel safe and share their experiences with me in a personal, open, and authentic manner (Creswell, 2016).

In terms of the challenges often associated with observation, it is important to keep in mind that researchers may be biased during observation. As interviews are used to gain insight into a person's subjective experiences and perceptions, I remained cautious of this potential pitfall, and guarded against being influenced by my own ideas and perceptions. Another challenge that I experienced relates to the fact that the observation of non-verbal cues can sometimes be less precise than verbal communication, especially during virtual interviews, which may increase the likelihood of misinterpreting the contribution of a participant (Venter, 2019). I guarded against such misinterpretations by clarifying the participants' responses when needed, and by including member checking. Finally, virtual interviews posed some challenges in terms of building connections and rapport with the participants (Morrison-Smith & Ruiz, 2020). To mitigate this, I warmly greeted the participants and spent some time on general inquiries about their well-being at the start of each interview in order to establish sound relationships of trust. I listened attentively and ensured that the participants had no questions or further comments to share at the end of the interviews. As an additional measure, I conducted regular reflections and discussed my observations with my co-researcher and supervisor, documenting my observations as detailed as possible in my fieldnotes.

3.3.4.3 Field notes

Creswell (2016) defines field notes as the documentation of observations by the researcher. Qualitative researchers will typically capture descriptions of the data generation process, the participants' behaviour and responses, the research location, and events that occur. Furthermore, reflections on the research process as well as patterns in the data may be documented (Sutton & Austin, 2015). As such, field notes provide written records of studies and can allow researchers to re-visit the data generation process when required. Qualitative researchers will typically compile field notes in the first person, using their own words and compiling the notes spontaneously. In this way, field notes should be written shortly after a data generation session has been completed in order to record events as precisely as possible (Stutton & Austin, 2015).

Field notes enabled me to document the participants' perceptions and experiences, as shared by them during the individual interviews (Silverman, 2017). Additionally, I was able to note some ideas and consistencies that I observed and started making meaning of, after the participants had shared their views with me (Patton, 2002). As a result of keeping detailed field notes, I was able to gain insight into the participants' experiences, thereby obtaining an understanding of the phenomenon I set out to explore (Silverman, 2017). Appendix I includes examples of the field notes I compiled.

In terms of possible challenges, I found it challenging to compile notes while conducting the virtual interviews, resulting in me experiencing difficulty to document everything that the participants said or implied. It was hard to capture a holistic view of what transpired during the interviews in the form of field notes, even though I made notes of what I deemed to be important during the interviews (Silverman, 2017). As a result, I continued making notes once the interviews had ended, elaborating as far as possible in order to capture what had transpired. I also maintained a reflective journal where I captured my own perceptions and meaning making of what had transpired in the field.

3.3.4.4 Reflective journal

A reflective journal is often used in qualitative research, allowing researchers to record their thoughts, feelings, possible fears, and insights as a study progresses. A reflective journal is a multidimensional instrument that can take on various forms (Bashan & Holsblat, 2017). It captures the process of learning by examining one's own assumptions and practices as well as those of others. This involves being aware of one's thoughts and feelings and being able to critically evaluate these (Mortari, 2015).

In the field of qualitative research, a reflective journal entails a written record by the researcher, with the researcher's actions, feelings, and viewpoints on and during the research process being captured (Sutton & Austin, 2015).

An important reason for maintaining a reflective journal in qualitative research is to ensure a rigorous research process. My reflective journal (included in Appendix H) enabled me to document and keep track of my personal journey by reflecting on the research process throughout the study. I was able to document, explore, and analyse my thoughts, feelings, and experiences in a comprehensive manner, and contemplate the responses and reactions of the participants. In addition, I could note the new insights or preliminary ideas that subsequently informed the findings and conclusions.

Another advantage of including a reflective journal relates to the fact that I could revisit or reassess my thoughts whenever needed (Creswell, 2016). Furthermore, I was able to maintain an audit trail that provides proof of the results and may enhance the rigour of the study (Korstjens & Moser, 2018). My reflective journal also assisted me in reflecting on my personal biases and ideas about the topic, the participants and what they shared during the interviews.

A potential challenge that is associated with reflective journals entails the possibility of subjective notes and reflections as well as the time-consuming nature of this method (Chan & Lee, 2021). In order to guard against these challenges, I remained aware of any potential bias and subjectivity and communicated with my fellow researcher and supervisor about my reflections to avoid being bias and subjective when documenting my experiences and perceptions (Ortlipp, 2015). I ensured to set sufficient time aside for journaling on a regular basis. Closely related, I briefly noted my reflections while in the field, yet elaborated on these after completing the relevant data generation session (Ortlipp, 2015). Audio-visual recordings supported me in implementing this strategy.

3.3.4.5 Audio-visual recordings

According to Creswell (2014), qualitative data generation sessions can be captured through audio-recordings, video-recordings, and photographs. I made use of audio-visual recordings which is a functionality offered by the TEAMS platform, where I audio-visual recorded the semi-structured individual interviews and then transcribed them verbatim (refer to Appendix G), for data analysis purposes (Creswell, 2016). The audio-visual recordings enhanced the trustworthiness of my reported findings and provided me with a record that could be re-visited at any time during the data analysis process (McMillan & Schumacher, 2014). In further support, the audio-visual data that I relied on was supported by my observations, field notes, and reflective journal.

An advantage of using audio-visual recordings as a data documentation strategy is that this method enables a researcher to focus on the data generation session without having to make vigorous notes while conducting an interview. It is thus possible to rather focus on and attend to the participants and what transpires, by actively listening to responses and prompting and clarifying uncertainties when needed (Rutakumwa et al., 2020). However, if recordings do not work due to say technological challenges, data will be lost, which once again necessitates the compilation of field notes during and/or after an interview, in support of the audio-visual recordings that are made. Audio-visual based data capturing may also pose a challenge when participants are resistant to being recorded (DeJonckheere & Vaughn, 2019). As all the participants in my research consented to be recorded, I did not experience this challenge. Prior to conducting the interviews, I also tested the recording devices to ensure that they were working correctly to limit the possibility of encountering the afore-mentioned challenge during the interviews.

An advantage of having access to the transcriptions of the recorded interviews relates to the possibility for both myself and my supervisor to view and analyse word-for-word records as well as detailed timelines of what had transpired (Tessier, 2012). Additionally, verbatim transcriptions enabled me to immerse myself into the data that were generated (Hill et al., 2022). Finally, this strategy assisted me during the data analysis phase to organise and categorise the data, helping me to uncover new insights and identify themes and sub-themes.

The process of transcribing the interviews verbatim was, however, time-consuming. I addressed this challenge by setting time aside after each individual interview to transcribe the participant's interview, taking short breaks in between to ensure that I remained focused (Sutton & Austin, 2015). Additionally, as the interviews involved the participants and due to the interviews being conducted virtually, my co-researcher and I at times found it challenging to comprehend the flow of the conversation, especially when people spoke simultaneously. I attempted to overcome this challenge by listening to the interviews multiple times in order to ensure that my transcriptions were as clean as possible while remaining true to the original audio-visual recordings (McMullin, 2021).

3.3.4.6 Data analysis and interpretation

I conducted reflexive thematic analysis of the transcripts of the interviews, my field notes and reflective journal. In this manner, I completed a process of categorisation, summarising, and reconstruction, making sure that I encapsulated and represented the core aspects of the participants' perceptions to the readers (Ayres, 2008). In following the guidelines for reflexive thematic analysis of Braun and Clark (2022), I first had to familiarise myself with the data, thereafter create initial codes, then find themes, review the themes, define, and name the themes and finally, compile a report on the themes and sub-themes that I had identified.

I commenced with the data analysis by consolidating all the generated data, reading, and rereading everything a few times. By reading through the data multiple times, I could familiarise myself with the data while starting to identify prominent ideas, trends, and consistencies that recurred in the data set (Patton, 2002). Next, I sorted the data into suitable categories, thereby strengthening my understanding of the views of the participants. I aimed to identify recurring patterns and eventually themes and sub-themes that were present across the various data sets (Braun & Clarke, 2022). I manually coded the data according to the patterns that were revealed (Creswell, 2016; Javadi & Zarea, 2016; Saldaña, 2016), by categorising and combining codes from similar categories to identify themes and sub-themes that could enable me to address the research questions (Creswell, 2016).

While refining the initially identified themes and sub-themes, I focused on remaining flexible, which, according to Nowell et al. (2017), is a key feature of thematic analysis. To be more specific, thematic analysis is not based on a specific theory and can thus be adapted to identify what becomes clear from the data. Against the background of the limited existing literature currently available on possible supportive guidelines for parents of children with CVD (Stoianov et al., 2019), this approach to data analysis is regarded as suitable for the current study, since the analysis was not guided by a predetermined theory, allowing me to gain an authentic understanding of the participants' views.

Braun and Clarke (2022) assert that thematic analysis, however, also implies some challenges. One of the potential challenges relates to possible contradictions being identified in the data, which could make the interpretation and reporting of findings difficult (Kawulich & Holland, 2012). In addition, during the process of coding, new information and insights may be brought to light, potentially resulting in the initial research plan having to change (Schurink et al., 2011). I remained aware of these potential challenges and continually reflected on the analysis I had completed and the themes I had identified. Additionally, to ensure that the themes and sub-themes captured the views of the participants, I engaged in regular discussions with my supervisor as well as co-researcher Tegan van der Westhuizen. Furthermore, I included member checking (Creswell & Miller, 2000) to allow the participants an opportunity to confirm my findings as being representative of their views or to elaborate where they saw fit (consult Appendix D).

The member checking was done with all four participants *via* the online platform TEAMS, with fellow researcher Tegan van der Westhuizen and my supervisor also attending the interviews. After providing the participants with an overview of the topics that were covered during the intervention as well as my analysis of their contributions on their experiences of the intervention (refer to Appendix D for the presentation I used), I requested the participants to confirm the identified themes and sub-themes, or to elaborate as they saw fit.

3.4 ETHICAL CONSIDERATIONS

I obtained ethical clearance from the University of Pretoria's Ethics Committee (https://www.up.ac.za/healthethicscommittee, 2023) before commencing with data generation (refer to Appendix I). I also obtained informed consent from all the participants, after informing them about the study's purpose, methods, procedures, expectations from them as well as of me as the researcher, and the duration of the study. As Denzin and Lincoln (2017) note, participants who consent to take part in studies have two essential rights, pertaining to the principles of their participation being voluntary, and their right to receive information about a study before deciding whether to participate or not (Denzin & Lincoln, 2017). When obtaining informed consent, I thus ensured the participants that they could withdraw from the study at any time, as participation was voluntary (Barrow et al., 2022).

In addition, I respected the principle of confidentiality which entails that a researcher should be fully aware of the participants' identities, yet protect their identities from being discovered by others. In this way, I aimed for autonomy and to respect the dignity of the participants throughout my study. I ensured anonymity of the participants by removing their names and making use of aliases for the purpose of this mini-dissertation, and to prevent data and participants from being linked (Saunders et al., 2015). Participants were assured that any data provided would be dealt with confidentially and professionally, with only myself, co-student Tegan van der Westhuizen, and my supervisor having access to the data (Merriam & Tisdell, 2015). All electronic data has been protected through password protection.

Next, I respected the principle of non-maleficence which entails that no participants will be harmed directly or indirectly, or wronged or deceived in any way due to their participation in a study (Terre Blanche et al., 2006). As such, I informed the participants about the purpose and process of my study, not concealing any details from them (Barrow et al., 2022). As the data generation was conducted through virtual interviews, no harm to the participants was foreseen.

Finally, I adhered to the principles of trust and respect by ensuring that the research participants were truthfully informed about the study and respecting them throughout the research process (Neuman, 2014). In order to ensure this, I focused on collaboration and open communication with the participants and aimed to address any potential power imbalances between the participants and ourselves as researchers by viewing them as co-researchers and conveying this to them during the interviews. I guarded against possible deception and maintained a transparent and open relationship with the participants, detailing the research process and procedures; and encouraging and valuing all contributions (Barrow et al., 2022).

3.5 QUALITY CRITERIA

I aimed to uphold Lincoln and Guba's (1985) five quality criteria in support of trustworthiness and scientific rigour. I thus attended to credibility, transferability, dependability, confirmability, and authenticity.

As qualitative research assumes that participants will reveal multiple realities, the researcher's role is to portray a true and credible representation of the reality as revealed by the participants (Johnson et al., 2020; Seale, 1999). According to Johnson et al (2020), credibility is a measure of the true value of qualitative research. As credibility depends on the researcher as the instrument, this criterion rests on the ability and effort that a researcher puts into a study (Patton, 2002). I attempted to enhance the credibility of my study by providing rich descriptions of each participant's experiences and perceptions, aiming to provide the readers of this mini-dissertation with a detailed understanding of the research process that was followed (Ferreira & Bock, 2006; Patton, 2002; Seale, 1999). I thus relied on triangulation, observation, and compiling rich descriptive notes in a reflective journal (Korstjens & Moser, 2018). I also employed member checking and engaged in regular debriefing sessions with my supervisor to enhance the credibility of the findings (Terre Blanche et al., 2002).

Next, I attempted to adhere to the principle of transferability, which implies consistency and reliability of the research results and the extent to which a research process can be audited and evaluated by someone outside of the research team, with the results remaining consistent with the data (Nowell et al., 2017). I attempted to enhance transferability by making use of triangulation and crystallisation, using multiple sources of data by relying on semi-structured interviews, observation, field notes, and a reflective journal.

The third criterion I strove to adhere to is dependability. According to Leung (2015), the consistency of data generated during a study and whether the results will remain the same if a study were to be repeated, are indicators of dependability. I attempted to ensure dependability by providing a comprehensive account of the entire research process in this mini-dissertation (Roberts et al., 2019; Seale, 1999). I made audio-visual recordings of all the interviews, compiled verbatim transcriptions, and documented detailed field notes as well as personal reflections on the study. To this end, I maintained an audit trail and included evidence of this in the relevant appendices of this mini-dissertation (Lincoln & Guba, 1985; Seale, 1999). I relied on the audit trail to assist me in producing a trustworthy report that reflects the research methodology and progress of the research study.

Fourthly, I aimed to adhere to the principle of confirmability, which refers to the accuracy of the data generated during a study, with the researcher holding the responsibility to accurately reflect the views and experiences of the participants as captured in the data (Lincoln & Guba, 1985; Patton, 2002). As a study that yields 'objective findings' is regarded as a confirmable study; I attempted to enhance the confirmability of my study through triangulation and member checking, and employed the strategy of reflexivity by continually reflecting on the research process as well as my own bias and pre-conceived ideas, guarding against this from having an influence on my research (Nowell et al., 2017). Furthermore, in support of confirmability, I relied on the input of my supervisor in analysing the data and that of the participants during the member checking I had completed, to ensure that the findings capture the contributions of the participants (Nowell et al., 2017; Seale, 1999).

Lastly, I aimed to adhere to the principle of authenticity, by portraying the views and opinions of the participants in a fair and honest way in this mini-dissertation, thereby providing an accurate reflection of their experiences and perceptions (Seal, 1999; Sutton & Austin, 2015). According to Patton (2002), a naturalistic approach in qualitative studies can enhance the authenticity of a study, in the sense that "the researcher does not attempt to manipulate the phenomenon of interest" (p. 39). I attempted to ensure authenticity by conducting member checking (Birt et al., 2016) and including quotations from the research participants in Chapter 4 where I present the results, to share the participants' experiences and perspectives in their own words. In addition, I audio-visual recorded the semi-structured interviews to be able to revisit and/or reflect on the contributions if needed, during any time of the research process.

3.6 CONCLUSION

In this chapter, I explained the paradigmatic approaches and research design that guided my study. I also discussed the data generation, documentation, and analysis procedures in detail, and indicated how I aimed to conduct ethical research. Lastly, I explained how I attempted to meet the necessary quality criteria in support of obtaining rigorous qualitative findings.

In the following chapter, I present the results and findings of the study. I discuss the results in terms of the themes and sub-themes I identified during the process of data analysis. Thereafter, I present the findings by comparing the themes I identified with the literature presented in Chapter 2.

CHAPTER 4

RESEARCH RESULTS AND DISCUSSION OF FINDINGS

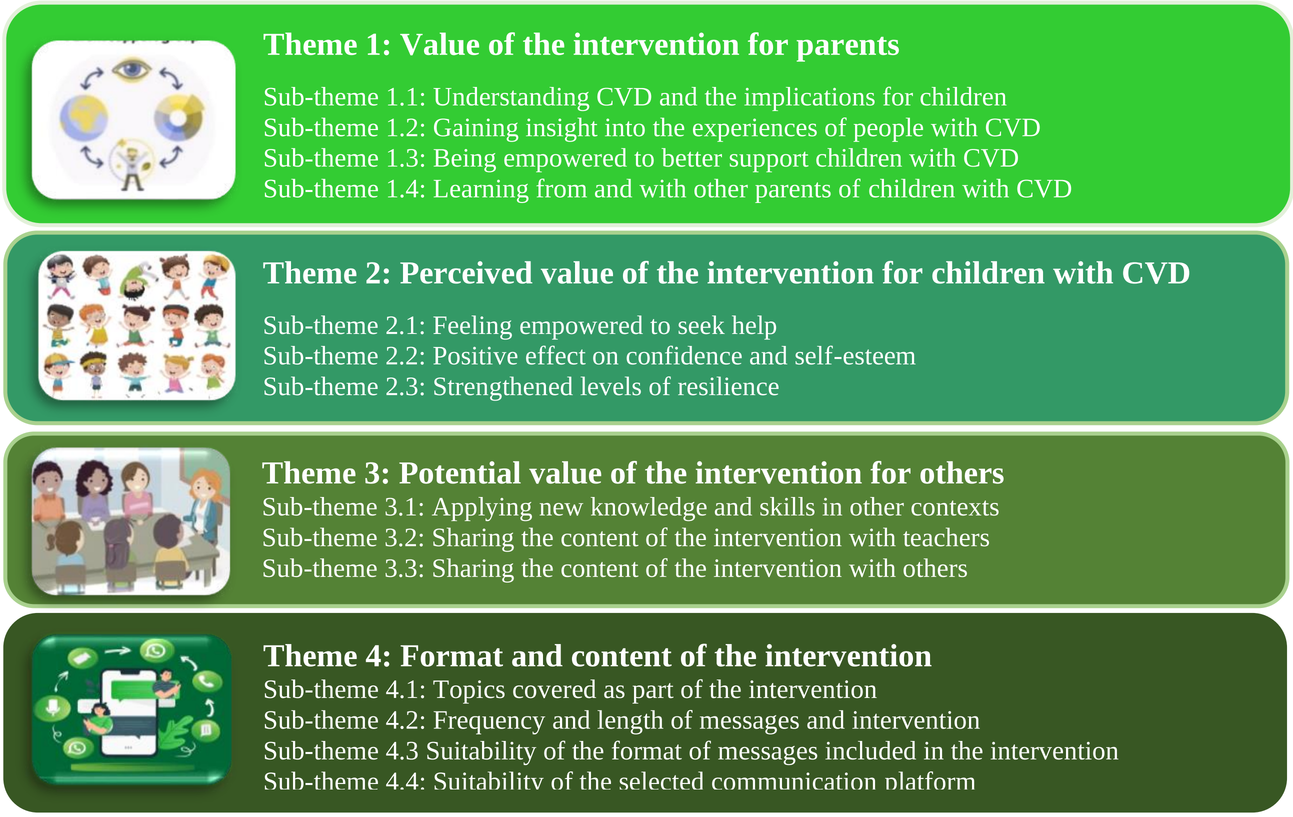
4.1 INTRODUCTION

In Chapter 3 I discussed the research process. I explained the paradigmatic perspectives and described the research design and selection of participants. Next, I elaborated on the data generation, documentation and analysis method, ethical considerations, and quality criteria.

In this chapter, I present the results of my study in terms of the identified themes and sub-themes. I include examples of the participants' verbatim responses and excerpts from the data to support my discussion. I subsequently present the findings of the study, by relating the themes and sub-themes to existing literature, indicating similarities and contradictions.

4.2 RESULTS OF THE STUDY

In this section, I discuss the themes and sub-themes I identified through reflexive thematic analysis. Figure 4.1 below, provides an overview of the results of the study.



Theme 1: Value of the intervention for parents
Sub-theme 1.1: Understanding CVD and the implications for children
Sub-theme 1.2: Gaining insight into the experiences of people with CVD
Sub-theme 1.3: Being empowered to better support children with CVD
Sub-theme 1.4: Learning from and with other parents of children with CVD

Theme 2: Perceived value of the intervention for children with CVD
Sub-theme 2.1: Feeling empowered to seek help
Sub-theme 2.2: Positive effect on confidence and self-esteem
Sub-theme 2.3: Strengthened levels of resilience

Theme 3: Potential value of the intervention for others
Sub-theme 3.1: Applying new knowledge and skills in other contexts
Sub-theme 3.2: Sharing the content of the intervention with teachers
Sub-theme 3.3: Sharing the content of the intervention with others

Theme 4: Format and content of the intervention
Sub-theme 4.1: Topics covered as part of the intervention
Sub-theme 4.2: Frequency and length of messages and intervention
Sub-theme 4.3 Suitability of the format of messages included in the intervention
Sub-theme 4.4: Suitability of the selected communication platform

Figure 4.1: *An overview of the results of the study*

4.2.1 Theme 1: Value of the intervention for parents

This theme, with four related sub-themes, captures the participants' experiences of the parent guidance intervention in terms of its value, more specifically the new knowledge and skills they gained to support their children with CVD. Table G-1 in Appendix G provides an overview of the inclusion and exclusion criteria I relied on in identifying the theme and sub-themes.

4.2.1.1 Sub-theme 1.1: Understanding CVD and the implications for children

All the participants acknowledged the importance of understanding CVD, what it entails, and what it implies, emphasising the possible effect on a child of the inability to see certain colours. Although some parents displayed an adequate understanding of CVD and the implications for their children, other parents seemingly had a limited understanding of these aspects. The participants, however, reportedly gained a better understanding of the condition as a result of the parent guidance intervention and the interviews that took place assisted parent participants in better understanding their child's CVD. Participant 1, for example, mentioned that, *"For me it really opened my eyes because I did not think of things like career choices and things like that when it came to being colour vision deficient"* (P1[8]). In support, Participant 4 commented on the value of *"…understanding how colour blindness actually work physically"* (P4), to know how to help her child to also understand CVD in a simple way. Participant 2 further remarked that, *"I never anticipated the school or his peers to make him feel so different"* (P2), thereby emphasising some implications for a child with CVD. These contributions attest to the participants gaining insight as a result of the parent guidance intervention, as also supported by the following field notes: *"Finally understanding the way their child's life is altered due to colour – classroom, books etc"* (FN, 30 August 2022).

Following the interviews with the various parents, I reflected on their improved understanding of CVD and the implications of the condition on children in the following way: *"The intervention helped to open their eyes to the broader aspects of CVD and how it affects the various functions in various areas of their children's life"* (RJ, 07 September 2022). The participants indicated that, even though the severity of CVD is indefinite and does not result in blindness, those who are impacted will most probably encounter obstacles in everyday life. In this regard, Participant 1 mentioned that, *"I did not realise also when it comes to like graphs, like doing geography and things like that, that it can also*

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[8] Henceforth, the following abbreviations will apply: P = Participant; FN = Field notes and RJ = Reflective journal. Responses are provided verbatim and have not been edited.

affect them, so it really did open my eyes to a lot more things that I was not aware of" (P1), thereby indicating some of the insight gained as a result of the parent guidance intervention.

Another implication of CVD that three of the four participants mentioned relates to their children being bullied or teased at school, being a prominent possible implication of CVD. Participant 1 indicated that, *"I didn't realise that kids can actually get bullied"* (P1). In support, Participant 2 stated that, *"I never knew that other children were asking him "what colour is this?" or "what colour is that?" and that they made him feel so different"* (P2), whereas Participant 3 indicated that her child was being mocked at school, explaining that, *"This one child kept on mocking my child and I asked the school why they allowing this"* (P3). In support of the parents' experiences, I commented as follows in my reflective journal: *"Children with CVD are treated differently and often teased and mocked...The need for peer and societal awareness is crucial to combat this and help people understand CVD which will decrease external implications such as bullying and being mocked for being different"* (RJ, 31 August 2022).

Most of the participants were seemingly not significantly informed that CVD could affect their children's career choices. Based on the participants' contributions in this regard, I commented that, *"Parents seemed to be aware of the current challenges that their child may face but are unaware of the broader aspects such as career choices and the idea of the emotional challenges of not being able to work towards their dream careers that they may not be able to pursue due to the condition of CVD"* (RJ, 29 August 2022), thereby highlighting a few areas of influence on children with CVD.

4.2.1.2 Sub-theme 1.2: Gaining insight into the experiences of people with CVD

Even though the participants seemingly held some understanding of what CVD entails, their insight into the experiences of people (their children) with CVD appeared to be fairly limited. All four of the participants, for example, demonstrated a limited understanding of how individuals with CVD may perceive their world, apparently only gaining the necessary insight through the parent guidance intervention. To this end, Participant 1 summarised her experience of gaining insight by referring to some of the visual images we used in the intervention, stating that, *"When you look at it, why? Why are the pictures that you sent so dull? and then I realised that this is how colour vision deficient people see the world ...so, they actually opened my eyes"* (P1). Participant 2 reported her experience as follows: *"I asked my child to pass me the R20 note, and I said to him, the brown one and he looked at me all confused and said but they all look the same…oh my goodness, of course you can't see the colours"* (P2). In support of this contribution, I commented that, *"After 17 years of living with a child who has CVD challenges, parents still sometimes forget how CVD affects the child's ability to* *perceive – such as money R10, R20, R50 and R100 that use different colours to differentiate them"* (FN, 30 August 2022). I further reflected that, *"…although parents live with their children who have CVD and some also live with their husbands who are faced with challenges of CVD, they still seemed to have a limited awareness of how CVD affects multiple areas of how an individual perceives the world around them"* (RJ, 07 September 2022).

My reflections correlate with the experiences of Participant 1, who seemed aware of some of the challenges experienced by individuals with CVD, however, seemingly held a limited understanding of the exact multitude of challenges that are possible, specifically in terms of academic performance and career choices. I reflected on these apparent experiences in the following way: *"…even though parents were aware of the basic experiences and challenges that their child with CVD faced, their knowledge seemed limited to specific subjects such as "art" however, some did not consider the implication colour has on perceiving food, clothes and participating in sports as well as school subjects such as maths and geography"* (RJ, 29 August 2022). In terms of everyday living, Participant 1 reported that, *"I am more aware about toothbrushes and everything now. It's like, okay a purple and a green toothbrush may look similar"* (P1), as well as, *"…when I'm buying him clothes now, I am also more aware of the colours that I buy for him … I didn't really bother about in the past"* (P1), thereby highlighting an increased sensitivity and understanding of the challenges that her child faced as a result of CVD.

It further became evident that the parent-participants held a limited understanding of the possible effect of social and emotional challenges experienced as a result of CVD, yet that the parent guidance intervention provided them with some insight in this regard. Participant 2, for example, indicated that, *"The emotional stuff was really good. As I said I wasn't aware that my child was felt to be made different at school…we didn't ever feel like he was different to us at home...I never anticipated the school or his peers to make him feel so different"* (P2). Furthermore, as a result of the parent guidance intervention, the parent-participants became aware of the possibility of their children with CVD being teased, mocked, and bullied by peers. Participant 2 foregrounded the value of the intervention by saying that, *"…a better understanding or a deeper understanding of the emotional effect it has is what was really valuable"* (P2).

During the interview with Participant 3, it became clear that the parent guidance intervention enabled parents to gain insight into the type of support they could offer their children for daily functioning and in support of their well-being. In this regard, Participant 3 remarked that, *"One thing that we used a lot was about how you relate to your child, that for me was the most important"* (P3). In confirmation of this contribution, I noted that, *"Understanding children's challenges and daily functioning in life helps parents to relate to their children and assists parents on being better able to support their children with CVD"* (FN, 30 August 2022).

4.2.1.3 Sub-theme 1.3: Being empowered to better support children with CVD

Reflecting on the value of the parent guidance intervention to empower parents to better support their children with CVD, I noted the following: *"…empowering parents with knowledge and insight on how their child perceives the world around them allows for them to understand how to accommodate and support their child as well as empowers parents to share this information…"* (RJ, 31 August 2022). I further summarised my reflections on the contributions of the parent-participants in the following way:

> *"Although parents seemed to have a well-established knowledge of CVD, what causes it and how they can support their children there were many aspects of the intervention that were new knowledge and insightful for them. This new gained knowledge and insight helped them to understand the holistic needs of their children, the challenges they may face in various aspects of their life as well as how to implement simple guidelines to assist and support their children"* (RJ, 31 August 2022).

According to Participant 3, the parent guidance intervention had value in guiding the parents on how to communicate with and relate to their children with CVD. A participant, for example, referred to the value of gaining various skills, saying that, *"One thing that we used a lot was about how you relate to your child. That for me was the most important. Learning about how you discipline, how you reinforce or being very positive or more negative"* (P3). This participant elaborated on the importance of positive reinforcement and the implementation of this in practice with children, indicating that, *"It was very good for reinforcement to make sure that you actually do implement it and also that you discuss it with your partner"* (P3). This view that the empowerment of parents with knowledge on CVD assisted them to better support their children with CVD was confirmed by Participant 1, who voiced that, *"…empowering him to stand up for himself…and that you feel confident to take that role of the parent empowering the child"* (P1).

Following the interviews with the parents, I reflected on their understanding of the implications of CVD on their children in the following way: *"Although participants had some understanding of what CVD was and how it may affect their children, all participants felt that the academic, social, and emotional wellbeing topics were areas they lacked knowledge on"* (RJ, 07 September 2022). It was clear that the parent-participants did not only gain better insight into the potential effect of CVD on their children's social and emotional functioning, but that they were also able to implement their newly gained knowledge in practice, following the parent guidance intervention. The parent-participants reportedly felt better equipped to guide their children to understand their condition, know that they are unique and voice their needs to others. In this regard, Participant 3, for example, stated that, *"We had this whole self-image conversation this afternoon…and we spoke about resilience…It really empowered him to understand this is where I come from, this is who I am, and this is how I'm going to deal with this instead of just crying"* (P4). The same participant was reportedly able to support her child on a practical level as a result of the intervention by contacting the school after continued incidents of mocking. The participant explained:

> *"A child kept on mocking my child, and I asked the school why they are allowing this and whether they going to do something or if I should take it to the parents directly…the next day they called in all the grade sixes…spoke to them about mocking the glasses and mocking people about being different…the school went a step further and actually I think the kids benefited from that"* (P3).

In this way, the empowerment of the parent-participants seemingly resulted in them supporting their children at home as well as when challenges were experienced at school. According to the participants, they could specifically apply the guidelines in support of their children of a younger age. In this regard, Participant 4 shared that, *"My child is 13 at the moment, so he was diagnosed when he was 6…and you know what, if I had this information 13 years or 6 years ago in the past, it would have helped me a lot to deal with the teachers and to deal with everything"* (P4). Other participants confirmed this view, indicating that early intervention and access to guidelines such as those covered in the parent guidance intervention could benefit parents and assist them to support their children more effectively. Participant 1 summarised this view by saying that, *"Getting something like this when he was younger, it would have been amazing"* (P1). Based on the participants' contributions, I reflected that, *"Parents being able to access the intervention and implement the guidelines with their children from a young age would have benefitted from the intervention a lot more than those with older children who have adapted and learnt to deal with their challenges of CVD"* (RJ, 29 August 2022).

Overall, the parents who participated apparently employed the intervention guidelines with their children, as captured in the following contribution of Participant 4: *"My youngest one is 7 and is also colour blind. So, I can use this with him now"* (P4). In summary, I reflected that, *"The guidance and support that the intervention can provide to parents can be useful and valuable for years to come. Early intervention using the parent guidance intervention will be beneficial to children with CVD and children with other special need challenges"* (RJ, 29 August 2022).

4.2.1.4 Sub-theme 1.4: Learning from and with other parents of children with CVD

The participants seemingly valued the fact that they formed part of a group of parents who shared similar experiences and could identify with each other. In this regard, Participant 2 stated that, *"It's nice to know that we belong to this group"* (P2). In elaboration, Participant 3 indicated that the support from other parents who have experienced similar challenges and successes with their children formed a source of support to others who may have experienced something similar, allowing parents to relate to one another and support each other. Participant 3 went further in saying, *"You feel that other parents go through the same things and that there are other kids that are also getting mocked because of their glasses"* (P3). In this way, the use of a WhatsApp group seemed to offer the parents' easy access to professional support with them being able to conveniently ask questions on the group to receive advice and guidance. In this regard, Participant 3 stated, "What I liked about the WhatsApp group was the interaction, like I had the question about the glasses and immediately I got professional help on how to approach my son wearing the glasses to the teacher the children in the class so that actually was fantastic" (P3).

Participant 4 suggested a continued support group for parents of children with CVD, saying that, *"...maybe a support group for the parents instead of just information"* (P4). In elaborating on the function of such a support group, this participant suggested that, *"...parents can share their views on how they experience or if there's a problem, maybe put it on a group, allowing more support from parents to support each other"* (P4). Therefore, the parent guidance intervention seemingly provided the participants with a platform to connect with other parents who shared similar experiences and could become positive support mechanisms for each other. To this end, I noted the following: *"...need for a parent support group amongst parents with children who have CVD was mentioned numerous times during the interviews, therefore suggesting the need for a group where parents can support one another and share the experiences or challenges"* (FN, 07 September 2022).

In addition to receiving information as part of the parent guidance intervention, the participants seemingly valued the potential support they could provide to each other, being able to learn from the experiences of other parents. Following the interviews with the parents, I reflected on the possible benefit of a parent support group for parents of children with CVD, in the following way:

> *"Being a parent of a child with CVD is challenging however, being a parent with limited knowledge, lack of support and guidance can make parenting even more challenging. Having access to a parent support group to connect, share experiences and help guide each other when it comes to children with CVD, or any special needs is a huge area of support for all parents. Sometimes being able to connect and relate to other parents who are living under similar circumstance can help parents understand and learn from each other on how they can*

> *approach and support their child more effectively after getting different opinions and experiences. Sharing their stories and experiences will give other parents hope, insight, guidance, and encouragement for their child with special needs"* (RJ, 07 September 2022).

4.2.2 Theme 2: Perceived value of the intervention for children with CVD

This theme reports on the data that relates to the perceived value of the parent guidance intervention for children with CVD. The sub-themes that apply focus on the value of the intervention for children with the condition in terms of them being empowered to seek help, their levels of confidence and self-esteem as well as their levels of resilience. Refer to Table E-2 in Appendix E for the inclusion and exclusion criteria that guided me.

4.2.2.1 Sub-theme 2.1: Feeling empowered to seek help

The parent guidance intervention appeared to have alerted the participants to the importance of supporting their children to build their confidence and stand up for themselves, with the desired positive outcomes. Participant 1, for example, mentioned that, *"He's been battling and then he was like this is too much pressure with the sport and with academics and they sorted him out and they made a programme for him. So, he called a meeting with the teachers without me knowing to go and sort out the issue, and it was sorted. I was actually proud of him for standing up for himself"* (P1). Closely related to what Participant 1 shared, I captured the following ideas in my reflective journal: *"...by empowering parents we give them the knowledge and tools to empower their children to face the challenges that may arise from being colour vision deficient. We help parents to teach their children how to help themselves and better support parents to help their child find ways to approach the challenges they face in a way that will support their well-being"* (RJ, 07 September 2022).

Another example of a child with CVD being empowered to ask for help was provided by Participant 4, who explained that her child *"... was crying a lot because he had an art project that he had to do at school and there were colours involved, and he used the wrong colours...he got 50% and he got zero for the colours part...she doesn't know he's colour blind"* (P4). However, as a result of guiding and supporting the parents through the parent guidance intervention, Participant 4 could reportedly empower her child to address this challenge, standing up for himself and voicing his needs. The participant explained that, *"I told him okay, but what are we going to do now? how do you want me to deal with this? ...So, he's in a space that he said he is going to go on Monday to talk about this with the teacher...it's really empowered him to understand this is where I come from, this is who I am and this is how I'm going to deal with this instead"* (P4). In this regard, I commented that, *"Parents started to understand that if as a parent you are empowered, they are able to empower their children to confidently seek assistance when they are faced with challenges"* (FN, 07 September 2022).

4.2.2.2 Sub-theme 2.2: Positive effect on confidence and self-esteem

According to the participants, their children's levels of self-confidence and independent functioning increased as a result of the guidelines they as parents received and started implementing following the parent guidance intervention. By being supportive and realistic in their expectations of their children, the participants were allegedly able to support their children's well-being and specifically, their levels of confidence and self-esteem. In this regard, Participant 4 mentioned that, *"The whole part on self-esteem and self-resilience, it also helped…I worked on a lot of that with my children"* (P4). This participant elaborated on the outcome of her implementation of the guidelines taken from the intervention with her youngest child, saying the following: *"It really helped self-image wise to help him to be a voice for himself, to go to the teacher and say this is my problem I am having or to put his hand up and say I can't see the colours …with this process, the teacher immediately gave him a colour buddy, so he has his own colour buddy, and he feels very proud about it"* (P4). Therefore, by empowering the parents to understand their children's needs they could seemingly support their children to become more self-confident and address some of the challenges they faced by, for example, voicing their needs to access support at school. Participant 4 confirmed this result by stating that, *"He is looking at his challenge in a very different way than he did previously and that is the stuff that I used from the group"* (P4).

Participant 3 also shared positive outcomes of her implementation of the guidelines provided as part of the parent guidance intervention, saying that her child *"…definitely felt less anxious and a bit more optimistic"* (P3). These experiences reportedly related to the participant's implementation of the guidelines on positive reinforcement, accommodating the needs of her child and increasing the chances of positive outcomes being repeated in the future. As such, the intervention seemingly equipped the parents with the necessary knowledge on how to build their children's self-esteem through positive reinforcement, thereby supporting their children to develop the necessary skills to deal with the challenges they faced and strengthen their levels of confidence. I reflected on this result in the following way: *"Children cannot really develop a real self-esteem and confidence in themselves without feeling like they are fully capable and able to handle challenges on their own, and the only way this is possible is if parents allow their children to experience coping with challenges and uncomfortable feelings on their our own"* (RJ, 07 September 2022).

Another aspect that may support a child's confidence relates to the ability to perform as expected. In the case of a child with CVD, this may imply the ability to see a fraction of what a normal sighted person typically sees using, for example, corrective glasses. In this regard, Participant 1 mentioned that her child had a positive experience with the EnChroma glasses he started wearing, as part of the holistic support offered to the child-participants in fellow student Tegan van der Westhuizen's study. Participant 1 stated that, *"His coolness factor went up when he got the glasses, and he was excited to get them and explain them to others…I think for him it was like a conversation piece*" (P1), and further that, *"He would wear the glasses and then he would say he could not believe this thing looks the way it does… he loves them, so as I said, it really did up his game"* (P1). In this regard, I noted that, *"Colour corrective glasses such as EnChroma glasses benefited the child in seeing things differently"* (FN, 07 September 2022).

Participant 4 shared a similar positive experience with the corrective glasses, mentioning that, *"The glasses helped him a lot…he was quite focused on the glasses because he said he could see the colours much more clearly and distinguished from other colours than before the glasses, so that really helped"* (P4). In support of these contributions, I noted that, *"Although EnChroma glasses will not cure or solve the challenge of CVD, it allows for individuals to have a chance at perceiving the world around them in a vibrant and colourful way which in turn will impact their confidence and social and emotional well-being*" (RJ, 07 September 2022).

4.2.2.3 Sub-theme 2.3: Strengthened levels of resilience

The participants mentioned the value of the parent guidance intervention for building their children's levels of resilience. Participant 4, for example, mentioned that, *"The focus was really on self-image and how does the child cope and build resilience and how does he adapt to this world, and yes, it helped and covered everything"* (P4). In this regard, I noted the following: *"By sharing information to empower a parent, they are able to have conversations with their children about self-image and resilience which in turn will help children make the decision to speak up for themselves and problem solve on their own"* (FN, 07 September 2022).

Even though some of the participants did not specifically mention strengthened levels of resilience as a benefit of the parent guidance intervention, this was implied by their contributions on the confidence and self-esteem of their children, with their associated trends to speak out and obtain help when required. In this regard, Participant 1 mentioned that, *"He called a meeting with the teachers without me knowing to go and sort out the issue and it was sorted, you know, because he was really not coping, it was just too much for him...I was actually proud of him for standing up for himself"* (P1). In another example, Participant 3 indicated that her child was being mocked at school, however, that the intervention empowered her to guide her son to understand that it is not acceptable to bully, tease, or mock people who are different to others. In this regard, Participant 3 mentioned that,

"...maybe some children benefited from it and hopefully the kids will think twice before mocking a child for being or for having a disability" (P3). To this end, I reflected as follows: *"Empowering parents with knowledge on how to help develop their children's resilience helps them to teach their child how to be resilient and have healthy coping mechanism to use during challenging situations in order to overcome the challenges"* (RJ, 07 September 2022). In confirmation of this, I also noted the following: "Children become empowered and comfortable with themselves, enough to stand up for themselves when they are empowered by their parents" (FN, 07 September 2022).

4.2.3 Theme 3: Potential value of the intervention for others

Theme 3, along with its related sub-themes, captures the participants' views on the potential value of the parent guidance intervention for others. It focuses on how the knowledge and skills can be applied in other contexts, how the content can also be shared with teachers and how it may benefit others. Refer to Table G-3 in Appendix G for the inclusion and exclusion criteria that apply to Theme 3.

4.2.3.1 Sub-theme 3.1: Applying new knowledge and skills in other contexts

The parent-participants seemingly perceived the topics and information shared during the parent guidance intervention as having a broader application value than only within the context of their children with CVD. In this regard, Participant 1 suggested the following: *"I think you can also apply some of those principles to not colour vision deficient kids...my friend has a daughter who is a dyslexic, so some of the things...you can apply it to some other kinds of challenges"* (P1). This idea was supported by Participant 3, who indicated that, *"It was definitely meant for colour blindness, but you get so much more out of it than that, definitely everyone will benefit from it"* (P3). In further confirmation, I reflected as follows: *"I was pleased to hear that the participant felt that the intervention could easily be transferred to other children with other challenges or disabilities...my intention was not to aim for transferability but rather to allow participants to make that decision on their own"* (RJ, 31 August 2022). I also commented that, *"The information in the intervention was transferable to other challenges and special needs contexts thus it could be used to assist other children and not just those with CVD"* (FN, 29 August 2022).

Although the intervention was specifically developed to assist parents of children with CVD, the topics and guidelines that were shared with the participants were seemingly experienced as transferable to children with other special needs. Participant 1 mentioned the following in this regard: *"I think you can also apply some of those principles to not only CVD kids because my friend has a daughter who is a dyslexic, so some of the things I was like okay, you can actually extract some of that information and apply it to some other kind of a challenges or disabilities"* (P1). Participant 2 shared this view and indicated that, *"It was general, it was not only for those with colour blindness it could be used for people or children with other challenges, but it could also be used in a variety of contexts"* (P2). Participant 4 confirmed the idea that the intervention held the potential of assisting various individuals. In this way, the participants also mentioned the application value of what they had acquired with their other children, for example, Participant 4, who indicated that, *"My youngest one is seven and is also colour blind. So, I can use this with him now. So, I used it for both boys"* (P4). The participant further elaborated by saying that:

> *"So, I could use this knowledge to help him…with the little one it really helped a lot. It really helped self-image wise to help him to be a voice for himself, to go to the teacher and say this is my problem I am having or to put his hand up and say I can't see the colours could anyone please help me. So, with this process, the teacher immediately gave him a colour buddy, so he has his own colour buddy, and he feels very proud about it"* (P3).

Based on the participants' contributions, I reflected on the value of the intervention as follows: *"I realised that by empowering parents we give them the knowledge and tools to empower their children to face the challenges that may arise from being colour vision deficient"* (RJ, 07 September 2022).

4.2.3.2 Sub-theme 3.2: Sharing the content of the intervention with teachers

All four of the parent-participants were of the view that all the information included in the intervention could be shared with teachers to raise their awareness, especially during the foundation phase. The participants seemingly regarded it as important to inform teachers about CVD for them to be able to assist and support children with CVD in the classroom. In this regard, Participant 1 reported that she had shared the information with her child's teachers and that this assisted in raising their awareness. The participant said: *"It just obviously created more awareness, especially at school…in terms of the teachers, because a lot of teachers don't understand CVD"* (P1). According to this participant, *"There definitely needs to be more awareness raised at schools, especially at the foundation level because it can really interfere with kids…and more information needs to be given to teachers about everything involving CVD"* (P1). I commented on this idea in the following way: *"There is an emphasis on the need for teachers and schools to become more aware about CVD and the challenges children with CVD face. In this way they will be better able to support and accommodate these children in the classroom"* (FN, 30 August 2022).

Participant 2 shared the view that limited awareness and understanding prevails around the prevalence of CVD in the classroom and society in general, and what this would imply for school-going children. According to Participant 2, all the information included in the parent guidance intervention had to be shared with teachers to enable them to better understand CVD and know how to support children within the context of the classroom. This participant said that, *"…basically, the whole intervention. There is just so much awareness needed, I mean seeing that people don't even know about the prevalence in schools"* (P2). This participant further recommended the compilation of a booklet based on the intervention that could be tailored to raising the awareness of CVD amongst teachers (and others) to better support children with CVD. This suggestion is captured in the following words: *"I would do a booklet for children, parents, and teachers because it comes from a different perspective"* (P2).

In confirmation of this suggestion, Participant 3 also recommended that, due to the holistic nature of the parent guidance intervention, all the information had to be shared with teachers. The participant reported that, *"I already sent some of your info through to the teachers and hopefully they will also implement that in their classes even if it is just in general for the other kids as well"* (P3). In adding to what Participant 3 indicated, I noted that, *"…the intervention information with her youngest son's teacher on the correct lighting and seating that would accommodate her child's CVD and the teacher immediately accommodated his needs which indicates that if teachers are informed and become more aware children with CVD can be accommodated in the classroom"* (FN, 07 September 2022).

Participant 4 shared a similar view, once again highlighting the apparent lack of awareness about CVD amongst teachers and in schools. As in the case of some of the other participants, this participant had reportedly shared some of the topics covered in the parent guidance intervention with her child's teachers. The participant specifically referred to *"…the videos and the information that you put on the group, I took it to the little one's teacher and explained to her that we need to seat him at a place where there is more sufficient light and stuff like that…"* (P4). This participant once again suggested that all the topics included in the intervention should be shared with teachers, in the following way: *"I think that the content that they can be used in the classroom…in the most understandable way on how it works and how to accommodate these children in the classroom"* (P4).

By sharing the intervention information with her child's teachers, Participant 4 reportedly facilitated an awareness amongst the teachers on how to accommodate children with CVD in the classroom, resulting in them taking some positive action, as captured in the following comment: *"She immediately moved him and so she is much more aware of the need to accommodate these children in a certain way in order for them to be part of the class"* (P4). This sharing of information seemingly enhanced the parent-teacher communication and relationship, as mentioned by Participant 4, who stated that, *"…communication between me and the teacher improved a lot because there is much more openness and the information on how to deal with it in the classroom…that really helped a lot"*

(P4). To ensure that the teachers are aware of her child's CVD, Participant 4 went further and indicated that she would take it upon herself to ensure that the information about her child's CVD is placed on file to ensure that new teachers are this. She stated that, *"When there is a new teacher who goes through the file and sees the booklet, then they can see yes, he's colourblind...So, she can go through it and see this is how he sees this world"* (P4). In this regard, I made the following comment in my field notes: *"It is evident that it is crucial for teachers should also be more involved in these kinds of interventions to increase awareness and help support children with CVD in the classroom"* (FN, 31 August 2022).

4.2.3.3 Sub-theme 3.3: Sharing the content of the intervention with others

The participants seemed concerned about the general lack of awareness about CVD in society, as this implies that people (children) with the condition may not be supported effectively. Participant 1, for example, referred to, *"...so many kids are not diagnosed...people are not aware of it"* (P1). To avoid incidences of, for example, bullying and teasing, the participants emphasised the importance of a raised awareness amongst others, as captured in the following reflection: *"Encouraging and creating awareness among peers about CVD can help children who face CVD challenges academically, emotionally, and socially. Thus, this will have a direct positive influence and impact on a child's daily functioning"* (RJ, 07 September 2022).

In addition to mentioning the importance of sharing information with teachers, the participants emphasised the value of informing other parents, professionals, and society in general, about CVD and what it implies. In this way, the parent guidance intervention seemingly empowered parents with knowledge on CVD, equipping them to in turn raise awareness amongst others in society. To this end, I captured the following ideas in my reflective journal, following the data generation interviews: *"The more individuals share knowledge and experiences with each other, the more awareness will be created to help individuals with CVD cope and be accommodated into inclusivity*" (RJ, 07 September 2022).

4.2.4 Theme 4: Format and content of the intervention

Theme 4 captures the experiences of the parent-participants concerning the format, content, and implementation of the parent guidance intervention they were involved in. The four sub-themes relate to the topics covered, the frequency and length of the messages, the format of the messages, and the selected communication platform. Table E-4 in Appendix E provides an overview of the inclusion and exclusion criteria I relied on for this theme.

4.2.4.1 Sub-theme 4.1: Topics covered as part of the intervention

During the parent guidance intervention, fourteen topics were covered over a fourteen-week period, as explained in Chapter 3. When reflecting on the topics that had been included in the intervention, Participant 2 stated that, *"…the intervention was brilliant. It was really well constructed and had so much valuable information"* (P2). Participant 3 shared a similar positive perception of the intervention and its context, stating that, *"I think the whole intervention…it was so comprehensive, and it was like a little puzzle, the one built on the other one"* (P3). In this regard, I commented that, *"Specific topics were chosen that linked to CVD and built on each other every week to help parents understand their children with CVD and to help them implement the guidelines with ease"* (RJ, 07 September 2022).

Participant 1 indicated that the intervention assisted her in gaining a better understanding of how her child perceives the world. She mentioned that, *"…getting more information about it and also how they see the world because I was a bit irritated…why are the pictures that you sent so dull? and then I realised that this is how colour-vision-deficient people see the world and I was becoming irritated by why it was not bright enough…they actually opened my eyes"* (P1). In terms of other topics covered in the parent guidance intervention that held value, most of the participants indicated that the content about accommodating their children within the classroom and learning how to effectively communicate with teachers to support their children were beneficial. In this regard, Participant 4 mentioned that, *"…learning about how to accommodate the child in the classroom as well, communication between me and the teacher, it changed totally so she understands where he comes from…especially for the little one and with self-image we can give her the information and make suggestions…there is much more openness…that really helped"* (P4). I reflected on these contributions in the following way: *"…the intervention helped to open their eyes to the broader aspects of CVD and how it affects various functions in various areas of their children's life"* (RJ, 07 September 2022). I further noted that, *"Majority of participants felt that the topics shared during the parent guidance intervention was of value"* (FN, 31 August 2022).

4.2.4.2 Sub-theme 4.2: Frequency and length of messages and intervention

Participants were informed at the beginning of the intervention that information would be shared with them *via* a WhatsApp group twice weekly on Monday and Wednesday mornings. In terms of the frequency of the information shared with the participants, Participants 3 and 4 regarded the frequency as suitable. According to Participant 3, *"I could do it even three times a week, it was perfect for me. I like getting information"* (P3). Both these participants seemingly appreciated the fact that they had been informed when messages would be sent and that it was on a regular basis and fixed days of the week. In this regard, Participant 4 stated that, *"I think what helped was we knew when the messages are coming to us in the week. So, you were prepared for that you know"* (P4). In this regard, I noted that, *"Frequency of messages sent in group was good, and the participants were happy even mentioning that they could do three days a week"* (FN, 31 August 2022).

Participant 1 however voiced another opinion, despite her appreciation for the information she received, by indicating that she would have preferred the frequency of the messages to have been reduced to once per week. This participant seemingly experienced the information as too much to review, resulting in her often feeling overwhelmed and not able to read through all the information, given her specific schedule. In this regard, she said the following: *"Twice a week was a bit much for me personally because sometimes there's too much to read and I would keep it and I wouldn't read it straight away...maybe once a week would have been better for me to get those messages"* (P1). In this regard, I noted that, *"The frequency of messages was to be too much, the participant would have preferred for messages to be sent once a week as messages were too lengthy and the amount of information in the infographics were too much to get through"* (FN, 29 August 2022).

Participant 2 shared yet another view, indicating that, although she was aware of, and expected to receive the messages and information twice per week, she would have preferred it if the information was sent more frequently, for example three times per week instead of twice a week, but that shorter messages could be considered. In this regard Participant 2 mentioned that *"Three times a week and less content. I do think maybe it can be shorter because some people do not like to read a lot…you get a better picture when it's a shorter message"* (P2). I reflected on these experiences and ideas in the following way in my reflective journal: *"…some participants struggled to get through the information as there was too much information presented within the infographics…we may have overwhelmed them and could have perhaps opted to shorten the information in the infographic, concentrating on the most important aspects to share with parents"* (RJ, 07 September 2022).

In terms of the length of the entire intervention of fourteen weeks, all four participants indicated that this was suitable and provided for insightful information. They were of the view that the parent guidance intervention could continue in future and that they would like to continue being part of the intervention if it were to continue. In this regard, Participant 2 said that, *"The length of the intervention, it could have been almost something that never ends because we need information so it shouldn't end"* (P2). This view was reiterated by Participant 3 who mentioned that, *"It was wonderful. I love info so we can continue forever if I had it my way"* (P3). Considering that research on CVD and how parents and teachers can support children with CVD is evolving, I reflected on this idea in the following way: *"…as CVD research is updated there should be a way for parents and teachers to be able to continually update their knowledge on CVD and how they can better support their child"* (RJ, 07 September 2022).

4.2.4.3 Sub-theme 4.3: Suitability of the format of messages included in the intervention

According to all the participants, the use of written messages, information sheets, infographics, videos, and quotations worked well and formed a good combination for receiving information. The quotations that were sent along with written messages and/or infographics were specifically selected to elicit positive emotions and reinforce the written messages that were sent. When referring to these, Participant 2 mentioned that, *"The little saying like, you different in your own way and stuff like that and even though I knew it, but it was just nice reading"* (P2). In this regard, Participant 3 indicated a preference for videos and quotations rather than written material, saying that, *"The pictures were easier for me than just reading maybe, I just like pictures and videos, but everything worked very well"* (P3). In line with the views of Participants 2 and 3 regarding the material used, Participant 4 said that, *"…I enjoyed the quotes a lot, so it was like an empowering quote"* (P4). It thus seems clear that the participants valued the use of multiple media to convey information and that this assisted in them feeling empowered, as captured in my reflective journal: *"Although it was challenging finding the appropriate quotes to match the topics that were covered weekly the quotes offered parents encouragement and empowered them"* (RJ, 30 September 2022). In addition, I commented that, *"Some participants seemed to have enjoyed the quotations that were sent with infographics, although they indicated that all the formats that were used worked well together"* (FN, 31 August 2022).

In terms of the videos that were shared on the WhatsApp group on the various topics, the participants shared positive experiences yet also made some recommendations in terms of the length and availability of the videos that had been shared. Participant 1, for example, indicated that, *"I do think maybe it can be shorter… you get a better picture when it's shorter messages and video"* (P1). In this regard, I noted that, *"Some participants had a preference for the videos that were sent along with the CVD information although some did mention that the videos could have been shorter"* (FN, 07 September 2022). In addition, some of the participants indicated the challenge experienced when wanting to revisit videos at a later stage, saying that, *"…some of the earlier videos that was sent at the beginning of the intervention were not available any longer"* (P3), and *"I couldn't see the videos there and because we didn't have any suitable signal and stuff so I could read the messages, but the videos were gone"* (P4). In reflecting on this feedback, I concluded that it may work better to document the names and publishers of all videos in the future, should the link to a video used no longer be available. I accordingly noted that: *"The videos were no longer available on YouTube once checked again. In future, maybe a different platform for educational videos can be a possibility"* (RJ, 31 August 2022).

4.2.4.4 Sub-theme 4.4: Suitability of the selected communication platform

Most of the participants were positive about the use of a WhatsApp group for the parent guidance intervention, as it reportedly provided almost immediate access to information as well as any possible responses of the other participants. In this regard, Participant 1 stated that, *"I prefer WhatsApp because you know I am constantly on WhatsApp and we have all these groups, so it's easier to be on WhatsApp because I find I'll check my WhatsApp's more than I would my emails"* (P1). Closely related, the participants referred to the benefit of WhatsApp allowing for easy access to previous information that had been shared in the intervention, as summarised by Participant 3: *"It was easily accessible. It was great because I could go back anytime to read the stuff"* (P3). Therefore, the WhatsApp platform was seemingly regarded as suitable, allowing for an accessible way of sharing information simultaneously with a group of parents with the associated ease of use and accessibility to messages. In this regard, I observed that, *"Most participants felt that WhatsApp was a suitable and accessible platform for the parent guidance intervention as well as the added benefit of being able to revert back to messages when needed"* (FN, 31 August 2022).

Only one of the participants indicated that she would have preferred a different mode of delivery for the intervention, based on personal reasons. She mentioned that, *"I'm really battling with my eyesight, so possibly an e-mail might have been a better option for me. I mean just the messaging was really small on WhatsApp and an e-mail might have been a better option"* (P2). I reflected on this suggestion in the following way: "*There was a need to find out what format and platform would be suitable for the participants for all of them to have a positive experience and gain information from the intervention in a positive manner. Thus,*

something we can do for the future is also ask parents, would they prefer WhatsApp or e-mail and then it can be up to them to decide" (RJ, 07 September 2022).

4.3 FINDINGS OF THE STUDY

In this section, I relate the results of my study to existing literature. I highlight similarities and inconsistencies in terms of the themes that I identified, interpreted against the background of the existing literature I presented in Chapter 2.

4.3.1 Parents' perceptions of the value of the parent guidance intervention

The findings of this study suggest that parents required guidance on how to better support their children with CVD in both the home and school contexts. It became evident that the participants' understanding of CVD was limited, although they seemed to have some understanding of what their children experienced as a result of CVD. The majority of the parent-participants held a limited understanding of how people with CVD perceive the world around them, yet gained insight about this as a result of the parent guidance intervention. To this end, the findings of my study confirm the importance of parents of children with CVD actively educating themselves regarding their child's condition. The more parents understand about their children's specific needs, the better they can support their children in flourishing and overcoming the challenges they face.

The parent guidance intervention allowed the participants to gain some knowledge and insight on how to support their children with CVD. The participating parents agreed that an understanding of CVD, what it entails, and what it implies for children is vital, emphasising the effects of not being able to see colours as others do yet also the challenges that CVD may pose for children within the classroom. In this regard, the aims of assisting parents in gaining knowledge and insight into CVD, how it works, and how it impacts their children's lives was addressed through the intervention. In this way, their increased understanding assisted the parents in knowing how to better support and accommodate their children at home and in the classroom context. These findings align with the work of Mashige and Van Staden (2019), who similarly found that children with CVD may be negatively affected in terms of their school performance due to limited awareness on CVD, resulting in minimal assistance and support given to children in the classroom to assist them to function optimally.

The findings of my study furthermore suggest that colour plays a crucial role in the way that children with CVD perceive and experience the world around them. The Quality-of-Life Research study confirms that colour has a strong influence on how children integrate and add meaning to visual information that is provided to them. Considering that colour is used extensively in classrooms and for educational resources, and can also influence the mood and engagement that is given by children both at home and in the classroom, the value of parents being focused about the possible effects have been highlighted by my study. This finding correlate with a study by Dalton et al (2012) and McLeod (2019), who also state that teachers need to be informed of the challenges that the child may experience with learning materials such as textbooks and worksheets and be guided on possible alternative methods to support children with CVD.

My findings confirm that parents require guidance on how to support their children with CVD, more specifically in relation to their concerns about the daily functioning as well as the academic, social, and emotional functioning of their children. These findings correlate with the work of Woldeamanuel and Geta (2018) who state that daily functioning is one of the key areas that is most affected in children with CVD, yet that, as a result of CVD varying in type and severity, every child will experience their condition differently. In this way, the aim of the intervention, to provide parents of children with CVD with practical guidelines and knowledge that they could implement with their children to support them with the challenges associated with CVD was addressed, confirming the value of parent guidance intervention, to better support children with CVD in the various contexts they function in.

Collins (2013) and Meeks et al (2016), have done some research on parents supporting their children with CVD, however limited practical guidelines are available for parents to support their children with CVD, thus my study added new insight into the field by developing a parent guidance intervention with some practical guidelines for parents to implement in support of their children with CVD.

Finally, in line with Mashige and Van Stadens (2019) indication that many people with colour vision problems are not diagnosed, the current study confirms that CVD is often misdiagnosed or undiagnosed. In this way, the findings of my study indicate that increased awareness and insight among parents, teachers, schools, and society can better equip and empower role-players' in the lives of children with CVD, to better support the holistic functioning and well-being of these children. This indicated value of the parent guidance intervention implemented in my study aligns with Đurišić & Bunijevac, (2017) who stated the importance of a child with CVD requiring the support of their parents who should be equipped with knowledge about their children's condition as well as providing them with guidelines they can implement to support their children to optimal functioning in their daily life.

4.3.2 Perceived benefits gained by children with CVD as a result of the intervention

The findings of the current study suggest that parents of children with CVD may need guidance in terms of better understanding their child's condition, behaviour, and needs as a result of CVD. Furthermore, the findings suggest that parents may benefit from guidance on effective parenting that may foster healthy parent-child relationships. This confirms how interventions that teach parents to understand their children's behavioural, social, and emotional states can improve the ability of parents to be responsive rather than reactive, encouraging effective communication skills which in turn, can result in positive outcomes for both parents and their children. These findings are confirmed by other studies, such as those by Appleton et al (2016) and Vella et al (2015).

The findings of the current study further suggest that children with CVD face various challenges regarding colour-related activities, activities in daily life, and decisions surrounding their future. As these challenges may continue into adulthood, it is important to support these individuals throughout their lives, both at home and school. In this regard, the findings of the current study suggests that, by equipping parents of children with CVD with practical guidelines and knowledge through a parent guidance intervention on CVD, parents can be empowered to assist and also communicate the guidelines to their children, thereby supporting their children to function in a more optimal life. This finding can be linked to the work of Jeong et al (2021) and Sanders et al (2021) who indicate that by equipping parents with practical guidelines, parents are able to foster positive relationships with their children in order to have a positive impact on children's well-being as well as assist their children in achieving success in all areas of their lives.

Next, through the parent guidance intervention, the parents came to the realisation of the importance of supporting their children with CVD to build their confidence and stand up for themselves when faced with challenges, voicing their needs to others. In this way, the findings of the current study confirm that, by providing guidance and support to parents through a parent guidance intervention using practical guidelines, parents can be empowered to help their children with CVD address the challenges they face by encouraging and empowering them to voice their needs in a confident manner.

In confirmation, a study by Breiner (2016) indicates that, for children to have confidence and a higher self-esteem, they need to be guided and encouraged to think positively, communicate their needs, and gain new knowledge. In this way, increased self-confidence can support a healthy self-esteem, with children feeling capable, and valuing themselves and their abilities. When children are confident about who they are and what their specific needs entail, they are more likely to have a growth mindset. Having a growth mindset implies that they can motivate themselves to take on new challenges, cope, and learn from mistakes. Thus, when a child adopts a growth mindset, they are more likely to stand up for themselves and ask for help when they need it. In this regard, the current study confirms that, by empowering parents through a parent guidance intervention, children can be supported in feeling confident enough to voice the challenges and needs regarding their condition of CVD in order to be accommodated within the various contexts they function in. In this way, the work by Smit et al (2020) confirms this by stating that the context and environment children function within plays a significant role on the growth and development of the children, which thus aligns with my current study.

Finally, one of the focus areas of the parent guidance intervention included the topic of resilience, with the findings of the study suggesting that parents can build their children's levels of resilience by effectively communicating and equipping them with the tools needed to solve problems on their own when they are faced with challenges related to CVD. The study further confirms that as a result of guiding parents with guidelines and knowledge, parents can become more aware of, and be able to use the guidelines they acquire to focus on their children's strengths, thereby supporting self-efficacy amongst the children, which can in turn strengthen resilience, as suggested by Wigley et al (2021) and Ronen (2021).

4.3.3 Perceived benefits of the parent guidance intervention for other role-players

The findings of the current study indicate that the parent-participants found the topics and information shared during the parent guidance intervention as having an application value beyond just them supporting their children with CVD. The parent-participants indicated that the intervention should be shared with other parents, teachers, schools, and society in general to bring about an increased awareness and also to assist children with CVD. According to the participants, the findings of this study are thus transferable to others who may support children with CVD. In this regard, parents shared the content of the parent guidance intervention with their children's teachers in order to help teachers to better support their children in the classroom. In the same way, a greater awareness of the condition may create more empathy among peers, teachers, and parents, better learning experiences for children with CVD as well as more inclusive and accessible accommodation, arrangements for these children. This aligns with the work by Chaparro and Chaparro (2017) who indicates that many teachers are seemingly not yet aware or able to implement guidelines within the classroom to accommodate and support these children with CVD. My findings further correlates with the work by McLeod (2019) which indicates that guiding teachers on how to better accommodate children with CVD in the classroom, children can be supported to succeed in the various areas of their lives.

The findings of the current study thus suggest that the potential impact of CVD on learning, academic performance, and participation in school-related activities, and the emotional and social functioning of children with CVD may be positively affected if parents and related role-players are better informed. According to Chaparro and Chaparro (2017), children with CVD may be prone to bullying and being teased, implying various negative experiences on social, emotional, and even academic levels as well as a decreased self-esteem and self-confidence. All these aspects can affect a child's overall well-being, which is confirmed by the work of Stoianov et al (2019). In this way, the findings of the current study confirm that guidelines and new knowledge sent to parents through a parent guidance intervention can assist parents and others to better understand and support children who face challenges of being teased, mocked or even bullied as a result of them not being able to perceive color as other people do.

Finally, the findings of the current study suggest that information should be shared across the system that children function in, for example between parents, professionals, and society at large. In this way, a parent guidance intervention can empower parents to educate themselves about CVD, however, it can also be shared with others in order to increase an awareness surrounding CVD, allowing for parents of children with CVD to access support from fellow parents with children who face similar challenges who can help them gain a different perspective and serve as support to the 6. In addition, parents can be supported by others such as teachers and schools to make effective changes in support of the well-being of their children. If information is shared there will be more awareness and support around CVD and the challenges that parents and their children with CVD face on a daily basis at home and in the classroom context.

4.3.4 Suitability of WhatsApp as a mode of delivery for a parent guidance intervention on CVD

The findings of the current study show that the WhatsApp social media platform was a suitable mode of delivery for the parent guidance intervention on how parents can support children with CVD. Support for the use of mobile phones allowing the use of social media applications such as WhatsApp as a mode of delivery, when wanting to communicate information to groups of people has also been indicated by other studies (Dahdal, 2020; Neuenschwander et al., 2013). In this regard, other researchers have highlighted WhatsApp's suitability in terms of its value such as Dahdal (2020), who confirms that WhatsApp allows for consistent engagement from participants, making it more efficient than other modes of delivery, as also found in my study. Other scholars (e.g. Darling-Hammond et al., 2020 and Barhoum, 2015) emphasis the suitability of WhatsApp messenger due to it being accessible and a user-friendly application when wanting to send information to large groups of people. The findings of my study further correlate with that of Stonbraker et al (2020) who describe the benefits of a WhatsApp groups when facilitating psychoeducation intervention with parents.

A further finding in the current study suggests that the intervention assisted parents in gaining awareness and an understanding of how their children perceive the world. In terms of other topics that were covered in the parent guidance intervention, the parents indicated that all the topics held value, specifically the content regarding the accommodation of children within the classroom as well as the content indicating guidelines that supported parents to understand and learn how to communicate with their children's teacher in support of their children with CVD. In this way, the parents generally viewed the format, content, and frequency of information being shared with them during the parent guidance intervention as suitable. Although some parents indicated that the amount of information sent to them were at times overwhelming, they in general seem satisfied with what was shared. They appreciated the opportunity to learn from and what other parents and valued the multiple formats of information shared with them, such as written information, infographics, videos, and quotations. This preference is confirmed by another study by Tait et al (2010), where it was found that, by presenting information in multiple formats, may increase an individual's understanding of the topic being shared. In this regard, the findings of my study align with the work by Stonbraker et al (2020) and Dahdal (2020), who indicates the benefits of a WhatsApp groups in allowing for the delivery of psychoeducation to parents in an easy and accessible way while also allowing for consistent engagement from participants.

4.4 CONCLUSION

In Chapter 4 I presented the results of my study in terms of the four main themes and related sub-themes that I identified following reflexive thematic analysis. I then situated my results in the existing body of knowledge on these topics, highlighting similarities and contradictions.

In the following chapter I address the research questions that guided me in undertaking my research, arriving at conclusions based on the findings I obtained. I outline the potential contributions of the study and reflect on possible limitations. Finally, I formulate recommendations for training, practice, and future research.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION AND OVERVIEW OF PRECEDING CHAPTERS

In **Chapter 1**, I outlined my research, formulated the research questions, discussed key concepts, and stated my working assumptions. I introduced the selected theoretical framework, paradigmatic perspectives, research process, and methodological strategies and considerations.

Chapter 2 focused on existing literature related to CVD and on understanding CVD and its implications within the home and school contexts. I specifically explored ways in which children with CVD can be supported, foregrounding the role of the parent and the potential value of a parent guidance intervention. I concluded by explaining my theoretical framework.

Following my exploration of existing literature, I discussed the research process and research design in detail in **Chapter 3**. I explained my epistemological and methodological choices; selection procedures; data generation, documentation, and analysis; research ethics; and rigour of the study.

In **Chapter 4** I presented the results in terms of the four themes and related sub-themes I identified. I then interpreted the results in terms of the existing literature in discussing my findings.

5.2 CONCLUSIONS

In this section, I draw conclusions from the findings of the study. I first address the secondary research questions, and then the primary question.

5.2.1 Secondary research question 1: What does a parent guidance intervention on how parents can support their children with CVD entail?

The parent guidance intervention I co-developed and implemented with four parents of children with CVD focused on holistic child development, to guide parents on how to support their children on the various levels of functioning. The content of the intervention aimed to address the needs of parents for such an intervention, as determined by Tasleem Kala in a preceding MEd study, and is based on existing literature in the field. The content was structured in such a way that aspects of children's scholastic performance, emotional, and social functioning could be covered over a period of fourteen weeks. The outline of the intervention is included in Chapter 3 and the information sent to the participants can be reviewed in Appendix B.

After introducing the intervention, different topics were discussed weekly, providing parents with information on children having to cope with CVD as well as with practical guidelines on how to support these children. Messages were shared on a WhatsApp group every Monday and Wednesday morning, taking the form of written messages, information sheets, infographics, videos, and quotations. This format was selected as it allowed participants to comment and ask questions on the group, while considering some basic ground rules of keeping the conversation in line with the topic. Embedded in the provision of information on CVD as well as practical guidelines and examples of techniques that can be implemented to support children with CVD, basic parenting skills were covered, focusing on communication, discipline, boundary settings, reinforcing good behaviour, and responding appropriately to children's needs.

5.2.2 Secondary research question 2: How did parents of children with CVD, who participated in a parent guidance intervention, benefit from it?

The parent guidance intervention that formed part of my study was found to have benefitted the participating parents of children with CVD, providing them with information and practical guidelines on how to support and accommodate their children. According to the parents they felt subsequently empowered to support the optimal functioning of their children in their daily lives. Besides gaining a better understanding of CVD and how this condition can be managed by children, the parents reportedly benefitted from topics dealing with parenting skills, that they could apply with their children, yet also in broader contexts with other children not necessarily living with CVD.

The information and guidelines included in the intervention did not merely empower the parents, it also enabled them to empower their children to ask for assistance when needed, rather than feeling embarrassed by the challenges they face due to CVD. As a result of the parents supporting their children to understand what CVD is and implies, the children's confidence and ways of coping could improve. In addition, the participating parents reported sharing their knowledge and newly acquired skills with others, resulting in an increased awareness of CVD amongst their children's peers and teachers.

Through implementation of the guidelines obtained as a result of the parent guidance intervention, the participating parents were, for example reported being able to implement strategies that could assist their children with their academic progress and encourage an open relationship with their children's teachers, sharing new knowledge gained from the intervention that could support the teachers to accommodate the needs of these children in the classroom. In the parents' view, they felt empowered to support their children to have a more positive experience within the home and school contexts, succeed in school, and participate in activities with more confidence.

Regarding their children's social and emotional well-being, parents reported that they benefited from the parent guidance intervention by gaining general supportive strategies in terms of effective communication, positive reinforcement, and guiding their children to cope with the challenges they faced due to CVD. On a practical level, the participants reportedly benefited by acquiring specific skills to support the daily functioning of their children by being enabled to better plan and examine the effect of their choices for their children, in terms of, for example, grouping clothes according to colours, labelling devices that have red-green indicators, and distinguishing between ripe and unripe food items.

Based on the findings of my study, I can thus conclude that in the parents' views, participating in the parent guidance intervention benefited the parents by assisting them in gaining knowledge and a better understanding of CVD, which assisted them in implementing strategies and practical guidelines that could support the holistic functioning of their children as well as their ability to address challenges in a more confident and effective manner. The parent guidance intervention further reportedly empowered the parents to in turn, enable their children to implement suitable techniques and strategies when facing challenges, in a confident manner and in support of a positive school experience and resilient way of coping with their condition. In addition, the participating parents reportedly benefitted from interacting with other parents experiencing a similar situation, learning from and with others they could identify with.

In relating my conclusion to the theoretical framework of my study, I argue that the parent guidance intervention that formed part of my study had a significant effect on how the parents interacted with and within their different systems. My study confirms that, by providing parents with knowledge and guidelines, they can influence their children's functioning on various levels. Furthermore, as a result of parents gaining knowledge and skills, applying these with their children and sharing the new information with others, an increased awareness of CVD and how children with CVD may be supported, can be facilitated amongst teachers and society in general. In this way, raised awareness in one system (in the microsystem) can thus influence awareness in other systems (micro- and mesosystem). This further implies that the macrosystem, which encompasses influences that impact the child and systems that surround them, can impact the child, yet also affect other members of the child's microsystem, which can in turn influence the child. Due to being exposed to information from the parent guidance intervention, parents were able to reflect on and alter their existing behaviours or thoughts towards their children, with this also affecting other role-players' behaviour, as predicted by Bronfenbrenner's (1976) bioecological model of development.

5.2.3 Secondary research question 3: How can the parent guidance intervention on parent support for children with CVD be improved?

Based on the findings of the current study, I posit that both the content and format of the parent guidance intervention was experienced as suitable by most of the participants, as was the mode of delivery. Based on these findings, I argue that the social media application, WhatsApp, provides a suitable platform when implementing an intervention with parents, as it holds minimal limitations, yet implies the benefit of parents having easy access to the content shared as well as the option to connect with others who share similar experiences and face similar challenges.

Despite the overall positive feedback, some minor adjustments can be considered for future interventions. More specifically, I propose a strategy for future interventions where participants are asked about their preferred mode of delivery before offering an intervention, allowing, for example, for a combination of WhatsApp messages and email communication when distributing information to parents. Similarly, the frequency of information that is shared with parents should be monitored from time to time, to prevent parents from feeling overwhelmed. Even though some participants suggested a frequency of three times per week instead of twice due to the messages sometimes being lengthy and time-consuming to read, this decision can be made in discussion with the participants of such a foreseen intervention. In terms of the length of the messages, video messages can perhaps be shortened. In order to ensure the continued availability of information to the participants, links that may expire should be offered in an alternative format, allowing participants to revert to, for example, videos, or share these with others. Closely related, I propose the compilation of a list of all videos that had been shared, distributing the names, titles, and publishers to the participants, for them to be able to search for the videos when a link is no longer functioning.

5.2.4 Secondary research question 4: How did children benefit from their parents' participation in the parent guidance intervention?

As the parents who participated gained new knowledge and implemented what they had gained from the intervention, their children with CVD were supported to better cope with the challenges they faced as a result of the condition. They could, for example, cope better with academic tasks in school (specifically where teachers were sensitised about the challenges faced by the children), ask for help when needed, and better deal with being teased, mocked, or even bullied. An associated benefit that the intervention held for the children with CVD relates to the positive effect that was observed in terms of their levels of confidence to seek help, with the related positive effect on their self-esteem as well as their levels of resilience and ability to cope. Through implementation of the guidelines they acquired, the parent-participants could assist their children to understand their CVD and how it affects them as well as encourage them to ask for assistance when needed, both at home and at school. As a result, the children perceivably learnt how to solve problems and experienced positive change with regard to their daily independent functioning and holistic well-being.

In this regard, I argue that the participating parents promoted a growth mindset amongst their children as they encouraged them to remain motivated to address the challenges they faced, and to cope with and learn from their own experiences. I posit that children will be more likely to stand up for themselves due to such a mindset and from following this approach in life. Thus, such a solution-focused approach can support independent functioning and strengthen resilience.

Finally, as most of the parents who participated in the study shared the strategies and guidelines they acquired with their children's teachers, the children were reportedly accommodated and supported more effectively in school by their teachers. This allowed the children to perform more optimally despite the condition of CVD, as teachers were sensitised on how to accommodate and support them in class. This conclusion highlights the importance of informing teachers of, and engaging in, collaborative efforts to support children with CVD. In this way, my theoretical framework of Bronfenbrenner's (1976) bioecological model of development explains the importance of interactions between various role players, such as parents, teachers, the school, and home environments, during a child's learning and development processes, in support of optimal functioning.

5.2.5 Conclusions in terms of the primary research question

The current study was guided by the following primary research question: *What is the value (or not) of a parent guidance intervention on how parents can support their children with CVD?* Based on the findings of my study, I can conclude that the parent guidance intervention that I co-developed and implemented had value to the parents of children with CVD who participated in the research. Parents gained a better understanding of CVD and what it implies; while also learning how to support and accommodate their children in a more effective way. In this regard, I argue that, for parents to effectively support their children's functioning, they need to be knowledgeable of their children's needs and special circumstances such as CVD, and how the associated challenges can be managed. As part of the intervention that formed part of my study, participating parents were provided with such information and guidelines, resulting in them being better able to support their children with CVD. By sharing their newly gained knowledge and skills with their children as well as their children’s respective teachers, parents were reportedly able to facilitate positive change in terms of the holistic functioning of their children.

I conclude by linking the findings I obtained concerning the reported parents' experiences of the parent guidance intervention to Bronfenbrenner’s (1976) bioecological model of development. The findings of my study confirm that a parent guidance intervention of this nature can have a positive effect on the different systems in which children with CVD function, in their immediate and social environments. The interactions between parents, teachers, and children as interrelated systems all formed part of, and were affected by, the parent guidance intervention and the information shared with parents, subsequently leading to positive change in terms of the holistic functioning and coping abilities of the children with CVD.

At the level of the microsystem, the parents were provided with information on specific topics, for them to be better informed about CVD and how to support their children’s academic, emotional, and social functioning. As a result, parent-participants could apply the newly gained information and skills in a way that benefitted both parents and their children, more specifically in terms of the functioning of the children, based on the practice of positive parenting and parent support to children with specific needs. According to the participating parents they shared the information they gained from the parent guidance intervention with their children’s teachers and even the wider community to increase an awareness among teachers, schools, peers, and society, which all represent and form part of the systems in which children function.

In conclusion, if a parent guidance intervention is offered to role-players in the core system where children with CVD function, positive change can be facilitated within that system, and subsequently in the micro-, meso- and macrosystems where the child functions. In this way, a collaborative effort may affect the holistic functioning of children living with CVD, yet, such a collaborative effort may start in one system, for example, by parents being empowered through a parent guidance intervention. Based on this conclusion, I propose that similar interventions can be used for the effective and efficient delivery of information across a larger population group, in support of children facing such or similar challenges in life.

5.3 CONTRIBUTIONS OF THE STUDY

The findings of the current study contribute to the existing body of research on the development and implementation of parent guidance interventions for children with CVD. Literature in this research area is limited in South Africa, with the current study adding value to what is known. The findings obtained add specific insight into a suitable format and possible content of a parent guidance intervention in support of children with CVD. These findings, however, may also apply to similar contexts and children experiencing other learning barriers, specifically in terms of the format, process of development and generic parent support content that may have value when developing and implementing such interventions.

In this way, the current study contributes to the body of knowledge on content that can be included in parent guidance interventions for children with special needs, even though some of the topics are CVD-specific. It provides insight into how special needs can be catered for with regards to parents laying the foundation for care and potentially informing teachers about accommodating strategies, with parents and teachers forming collaborative partners. The findings provide specific ideas for the development and implementation of parent guidance interventions that can be presented *via* social media (e.g., WhatsApp) when wanting to send parents (and perhaps also teachers) information on how to support children with CVD.

Another contribution of the study relates to the possible role of educational psychologists when wanting to facilitate positive change in the holistic functioning and well-being of children with CVD by involving and collaborating with parents, thereby focusing on the micro- and mesosystems of child functioning. In this way, by linking a parent's participation in an intervention to the systems of functioning in Bronfenbrenner's (1976) bioecological model of development, interactions between parents and children, parents, and teachers as well as children and teachers, can all be explored as systems that may be affected by a parent guidance intervention, in support of the holistic functioning and well-being of children with CVD.

Finally, the study contributes to the body of knowledge that is built by the broader research project on holistic support provision to children with CVD. It adds to the current findings of the research project and provides baseline findings for future follow-up studies. The current parent guidance intervention can, for example, be improved and adapted in a future study, based on the parents' perceptions and feedback provided and captured in the findings of my study.

5.4 POSSIBLE LIMITATIONS OF THE STUDY

Based on the methodological choices I made, I faced the potential limitation of being influenced by my preconceived ideas, personal background, and experiences. To this end, I relied on reflexivity, thereby acknowledging the possible influence of my own bias on my study and the data analysis and interpretation I completed. I thus kept a reflective journal, engaged in debriefing sessions with my supervisor and included member checking.

Even though the fact that my findings cannot be generalised across the broader population may be regarded as another possible limitation, it was not my aim to generalise. I rather attempted to gain insight into the perceptions of four participants on their experiences of a specific intervention. To ensure transferability, I provided detailed descriptions of the research process and procedures in this mini-dissertation, so that the reader can apply the findings in a similar context.

Another potential limitation relates to only conducting individual interviews with four participants, however, given the scope of research expected to complete a mini-dissertation at the institution where I am enrolled, this does not qualify as a limitation. Even though additional participants might have provided more information, data saturation occurred and I was able to answer my research questions, thus not meriting this to be a limitation.

5.5 RECOMMENDATIONS

In this section I formulate recommendations for training, practice, and future research.

5.5.1 Recommendations for training

The current study provides an example of how parents can be guided to better support their children with CVD in coping with the challenges they face, to optimise positive functioning including physical, mental, and emotional well-being, personal growth, and relationship with others. The idea of also involving and collaborating with teachers in the implementation of these guidelines may benefit children who experience such challenges. In addition, awareness can be raised in communities and society as a whole by offering more of such informative interventions.

Considering this possibility, the findings of my study can be applied to teacher training programmes to improve prospective teachers' understanding of CVD and how to support children with CVD in the classroom, yet also in preparing teachers to support parents if needed. Teachers who become aware of the findings of the study may apply the guidelines that formed part of the intervention in their own practice within the classroom setting.

It may also be beneficial for students enrolled for programmes in healthcare and supportive professions to be trained on this topic, since they may be required to train others in the field or support individuals facing the challenges associated with CVD. Such information may potentially facilitate positive change within the various systems that could support children with CVD.

5.5.2 Recommendations for practice

I recommend that the findings of this study be shared with the parents who participated as well as with other parents of children with CVD. If the content of the intervention were to be shared with other parents, teachers, and schools, awareness can be raised surrounding CVD and how to support and accommodate such children. The content of the intervention implemented as part of my study can be slightly adapted, based on the suggestions of the participants, and used in future interventions to offer parent guidance on CVD and other special needs conditions.

I furthermore recommend that the findings of my study be used to guide future studies involving the development and implementation of parent guidance interventions. The findings on the parents' experiences of the intervention can be shared with other researchers in related fields who can potentially implement similar interventions in the contexts in which they work.

5.5.3 Recommendations for future research

Based on the findings of this study, I recommend the following focus areas for future research:

- An exploratory follow-up study on the guidelines that teachers can implement to support learners with CVD in the classroom.
- A comparative study on the development and implementation of a teacher intervention in support of learners with CVD.
- A descriptive study on how to identify children with CVD in the classroom at an early age.
- A study exploring the ways in which CVD awareness can be enhanced in South Africa.
- A follow-up exploratory study with the children of the parent-participants, on the value of the parent guidance intervention that was implemented, as experienced by them.
- A study exploring the different developmental stages and ages of the child with CVD.
- A follow-up study looking at different types of parents in different communities and societies.

5.6 CONCLUDING REFLECTIONS

In this study, I aimed to explore and describe the development and implementation of a parent guidance intervention for children with CVD, and thereafter, determine the experiences of parent-participants regarding the intervention. The findings of my study highlight the value of a parent guidance intervention of such a nature, not only for the parents themselves, but also for their children, the respective teachers who may start applying the guidelines, and even the broader society, in terms of a raised awareness of the needs of these children.

The findings of the study confirm that such an intervention can be offered *via* a social media platform such as WhatsApp, and that content should take different forms when distributing messages. To be more specific, informative written messages and infographics can be supplemented with messages taking the form of videos or quotations, thereby empowering parents to fulfil their supportive role with their children with CVD.

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APPENDICES

Appendix A	**WhatsApp Group Welcome and Guidelines**
Appendix B	Information sent to parents during the parent guidance intervention
Appendix C	Semi-structured interview schedule
Appendix D	Final Themes and Related Sub-Themes Colour Coded
Appendix E	Inclusion and Exclusion Criteria
Appendix F	Member Checking
Appendix G	Transcribed and Coded Interviews
Appendix H	Reflective Journal
Appendix I	Field Notes

Appendix A:

WhatsApp Group Guidelines

Dear parents,

Welcome to our CVD WhatsApp group!

As agreed, we have created this group to share information on colour vision deficiency (CVD), in support of your children. For the following fourteen weeks, we will send you some information on CVD, every Monday and Wednesday morning. We will cover different topics with the hope that these may assist you in understanding the needs of your child and providing/arranging support as you see fit.

Please feel free to ask questions and initiate discussions on the topic, your experiences as a parent, or any associated questions you may have. We will respond and add additional information where needed.

Just a gently request: Kindly limit your communication on this group to CVD-related topics. Also, if you would prefer for your details not to be available to the other parents in the group, please let us know, so that we can remove you from the group and send all messages to you privately.

Till Monday.

Enjoy your weekend!

Keshini and Tegan

(Postgraduate students at UP)

Appendix B:

Information sent to parents during the parent guidance intervention

An excerpt of the infographics is provided in this PDF copy of my mini-dissertation. The full compilation of information sent to parents can be accessed on the separate PDF document attached to this mini-dissertation.

Week 1: Introduction to CVD and what it entails

Dates	Topic / Focus	Format of WhatsApp messages
16 May 2022	Introduction to the topic, with a focus on: • what CVD is • what parents need to know about it • challenges (academic and social) that children may experience	• Three information sheets
18 May 2022	Introduction to the topic, with a focus on: • the effect of CVD on children's self-esteem • examples of how children with CVD see colour and how colour is used in the classroom	• Two information sheets • Pictures as examples of how children with CVD see colour, also in the classroom

Part 1: Monday, 16 May 2022

Introduction message:

Dear Parents,

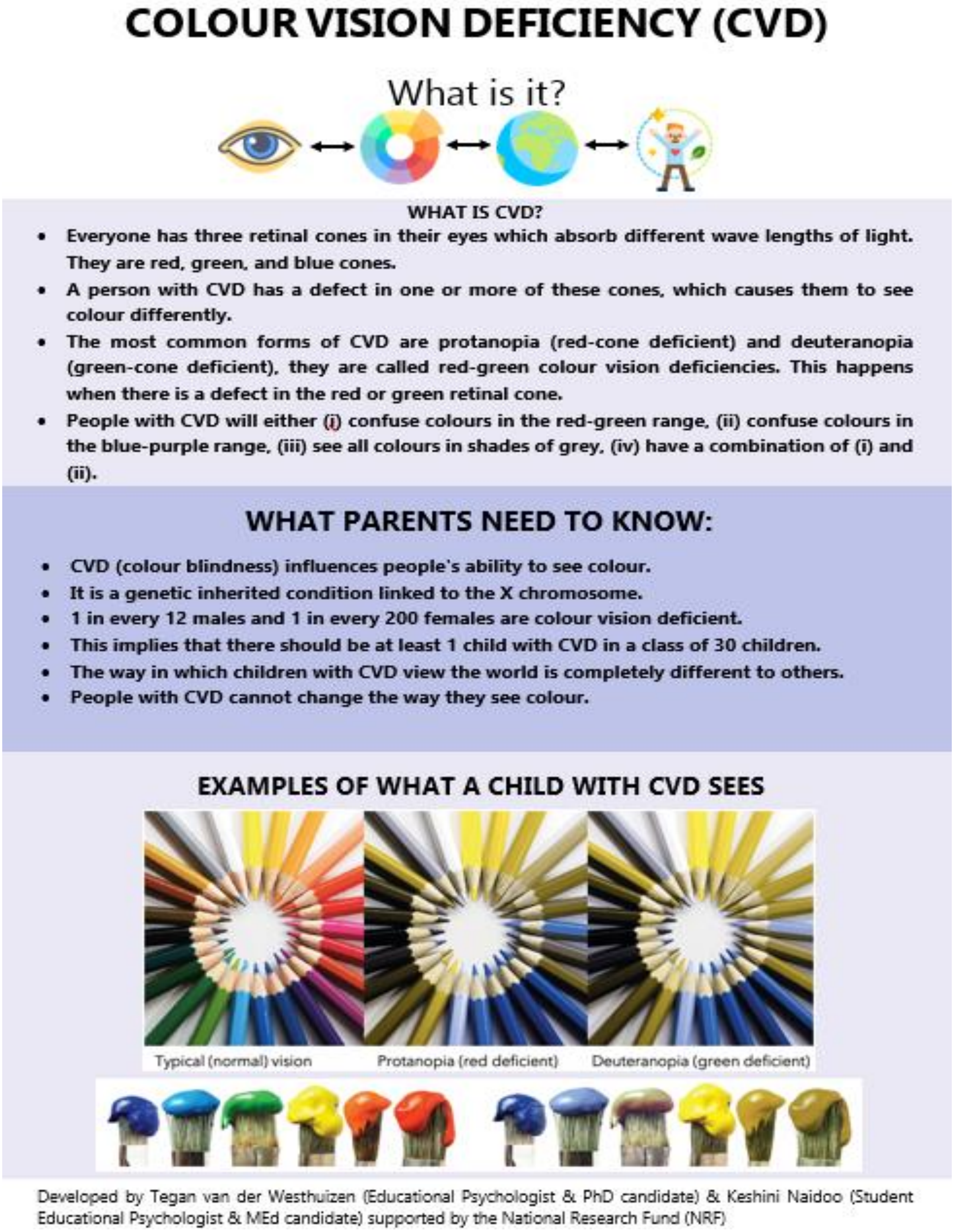
In this first week of our intervention, we provide an introductory overview of CVD, what it is and how it may affect your child.

Please find attached the information media and please send us your questions and comments.

Have a wonderful week ahead!

Keshini and Tegan

Information sheets



COLOUR VISION DEFICIENCY (CVD)

What is it?

WHAT IS CVD?

- Everyone has three retinal cones in their eyes which absorb different wave lengths of light. They are red, green, and blue cones.
- A person with CVD has a defect in one or more of these cones, which causes them to see colour differently.
- The most common forms of CVD are protanopia (red-cone deficient) and deuteranopia (green-cone deficient), they are called red-green colour vision deficiencies. This happens when there is a defect in the red or green retinal cone.
- People with CVD will either (i) confuse colours in the red-green range, (ii) confuse colours in the blue-purple range, (iii) see all colours in shades of grey, (iv) have a combination of (i) and (ii).

WHAT PARENTS NEED TO KNOW:

- CVD (colour blindness) influences people's ability to see colour.
- It is a genetic inherited condition linked to the X chromosome.
- 1 in every 12 males and 1 in every 200 females are colour vision deficient.
- This implies that there should be at least 1 child with CVD in a class of 30 children.
- The way in which children with CVD view the world is completely different to others.
- People with CVD cannot change the way they see colour.

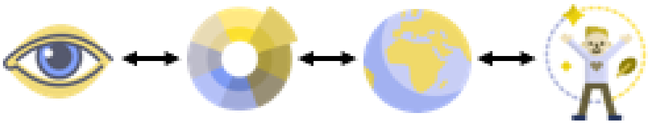
EXAMPLES OF WHAT A CHILD WITH CVD SEES

Typical (normal) vision　Protanopia (red deficient)　Deuteranopia (green deficient)

Developed by Tegan van der Westhuizen (Educational Psychologist & PhD candidate) & Keshini Naidoo (Student Educational Psychologist & MEd candidate) supported by the National Research Fund (NRF)

COLOUR VISION DEFICIENCY (CVD)

What is it?



ACADEMIC CHALLENGES

Important facts:

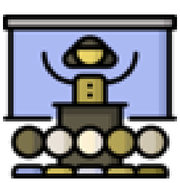
- Children with CVD may feel challenged within colourful classroom environments or when colour is used to teach content. This may hinder their ability to optimally learn or perform.
- Not many teachers have received training in identifying and supporting learners with CVD. A large portion of children with CVD may thus, not be appropriately supported.

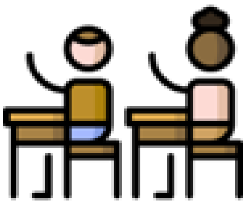
Challenges often experienced:

- Not being able to tell the difference between certain colours or shades of colours
- Needing to ask peers and teachers for support more often than other learners
- Difficulty with group activities (classroom and sport) that require colour recognition
- Difficulty reading when words are highlighted in contrasting colours
- Difficulty completing assignments or projects that require the use of colour
- Difficulty following visual presentations and demonstrations, (e.g. graphs, science experiments, art lessons)
- Difficulty following content in textbooks where colours are used
- Requiring additional time to complete assignments where colours are used
- Needing more light in the classroom as well as special seating accommodations
- Feelings of frustration and self-consciousness when not able to identify colours

First step of supporting your child with the academic challenges they may experience:

INFORM THE SCHOOL AND TEACHER OF YOUR CHILD'S CONDITION





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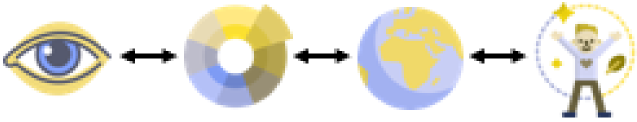
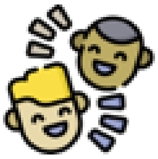
COLOUR VISION DEFICIENCY (CVD)

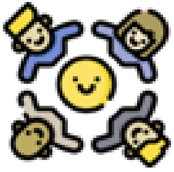
What is it?



SOCIAL CHALLENGES

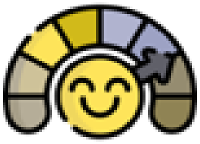
- May experience learning, communication, and social difficulties as they do not always know how to express their needs and explain to others what they experience
- May by misdiagnosed in schools, mislabelled and/or misunderstood
- Low self-esteem or belief in their own abilities
- Difficulty accurately playing games with others that involve colours, for example, UNO, Twister, Sport (wearing different colours to differentiate between two teams)
- Difficulty telling people when they cannot see a colour
- Being ridiculed or rejected because they see the world differently
- Being teased or mocked for naming colours incorrectly
- Being misled by peers when asking for help with the identification of colours
- Being afraid others will judge them or think they are different

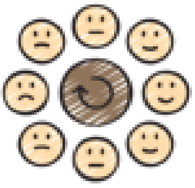


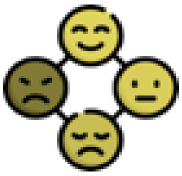


EMOTIONAL CHALLENGES

- Low self-concept and self-image
- Anxiety and stress
- Low self-efficacy (lack of self-belief and confidence in the own ability to achieve and do well)
- Acting out in class or at home
- Avoiding school work and tasks that involve colour
- Being withdrawn and shy
- Not feeling heard
- Feelings of inferiority and insecurity







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Part 2: Wednesday, 18 May 2022

Introduction message:

Dear parents,

We continue our discussion on the possible effects of CVD on your child and look at how your child views the world. We specifically focus on possible challenges associated with a low self-esteem and what you as a parent can do to support your child.

Please also find photos of how colour is used in school. We have put a photo of what a typically sighted person would see and then used a CVD filter over the other example so that you can see how your child may see the world.

Next week we will focus on what support can be given to encourage your child to live a flourishing and resilient life.

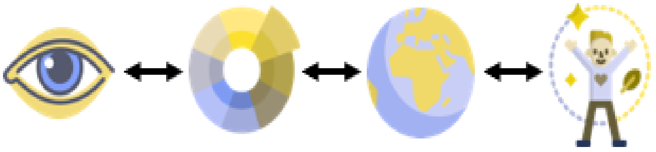
We are looking forward to receiving any questions and comments you may have.

Keshini and Tegan

Information sheets

COLOUR VISION DEFICIENCY (CVD)

How it influences me?

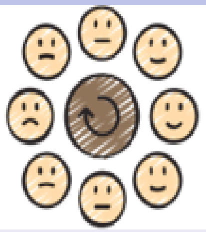


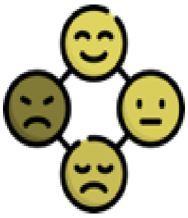
Effects of having a low self-esteem

Self-esteem is the overall opinion we have of ourselves and the value and worth we think we have. A positive self-esteem plays an important role in allowing us to live a flourishing and successful life. A child with CVD may struggle to develop a high self-esteem as they experience difficulties that many people do not understand. It is important to be able to identify low self-esteem in children, especially, those that experience differences so that support can be given to them.

Typically, a child with low self-esteem:

- Is very critical of themselves and their abilities
- Disregards or dismisses their positive qualities
- Judges and compares themselves with their peers
- Uses negative words to describe themselves or has difficulty saying something nice about themselves and their abilities
- Their self-talk (the inner discussions we have with ourselves) is critical, belittling, and self-blaming
- Feels like they have very little power and ability to change an outcome
- Has trouble asking for help and support
- Fears being judged and teased by others
- May experience low resilience where they find it hard to cope with a challenging life event



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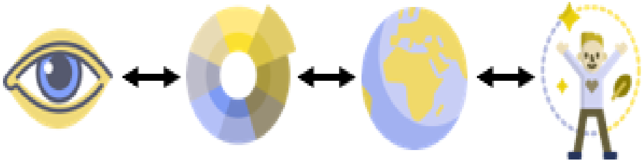
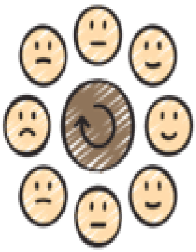
COLOUR VISION DEFICIENCY (CVD)

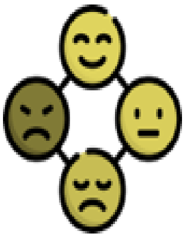
How it influences me?



What parents can do to support a positive self-esteem

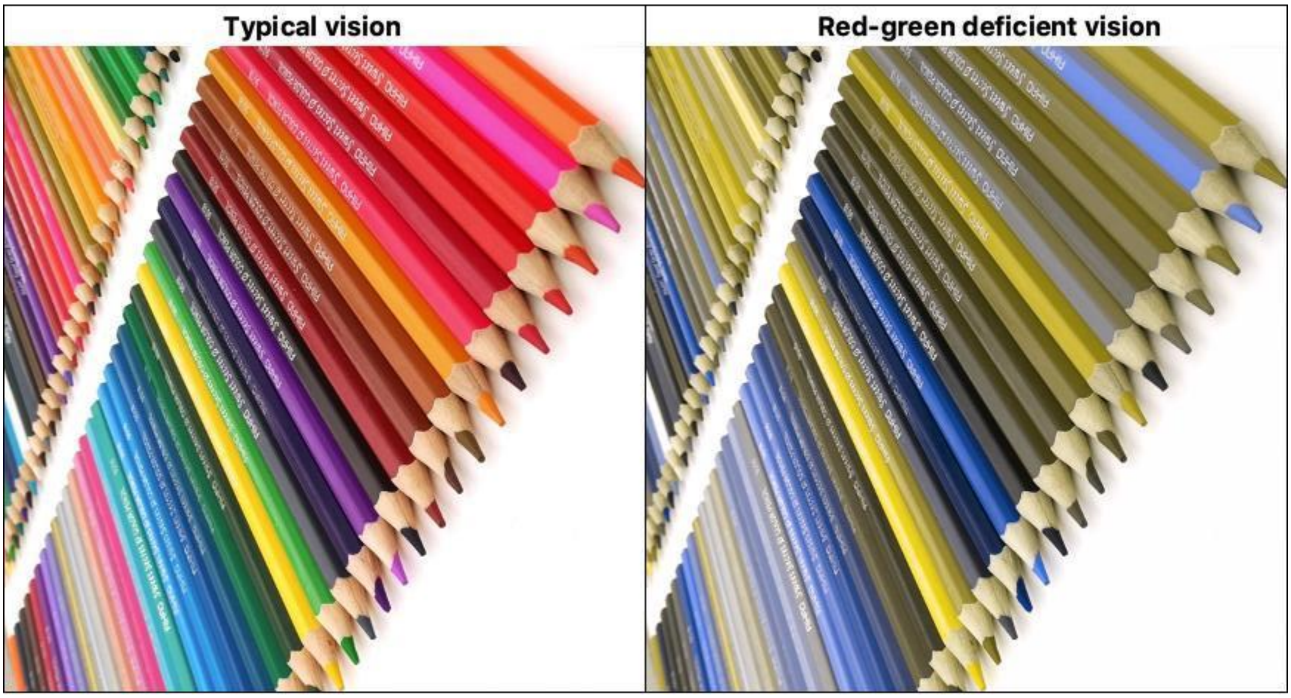
- **Challenge your child's negative 'self-talk' – every time they criticise themselves, stop them and help them to see if the criticism is true.**
  - **For example, if a child says they cannot do something point out that this is not true. They have accomplished things before and they will do it again. Give specific examples of when they have overcome a difficulty.**
- **Encourage kindness towards self**
  - **Encourage your child to treat themselves with the same kindness they treat others. Encourage them to be supportive, forgiving and understanding with themselves.**
- **Acknowledge the positive**
  - **Do not allow your child to brush off compliments or be dismissive when they receive positive praise. Encourage them celebrate their strengths and positive qualities and be proud of these.**
- **Encourage your child to be proud of their uniqueness**
  - **Reinforce that everyone is different with their own unique and special abilities. Encourage your child to value and accept themselves.**
- **Encourage assertiveness**
  - **Encourage your child to express their needs, wants, feelings, beliefs and opinions in a honest and direct manner**





Developed by Tegan van der Westhuizen (Educational Psychologist & PhD candidate) & Keshini Naidoo (Student Educational Psychologist & MEd candidate) supported by the National Research Fund (NRF)

Example pictures of colour used in the classroom:



Typical vision

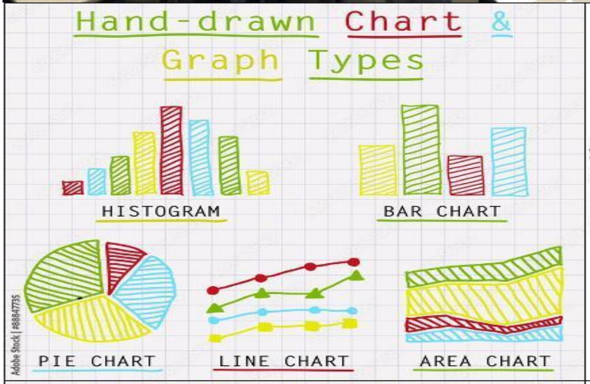
Typical vision

Red-green deficient vision

Red-green deficient vision

Typical vision

Red-green deficient vision



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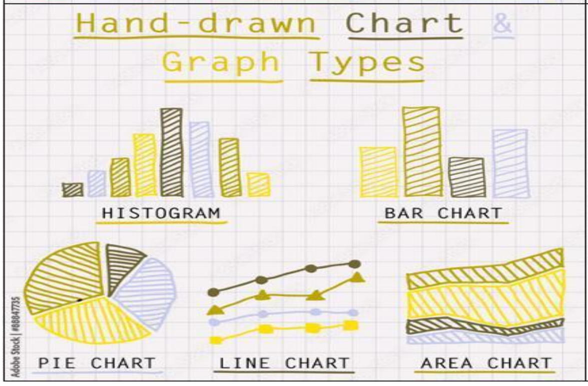
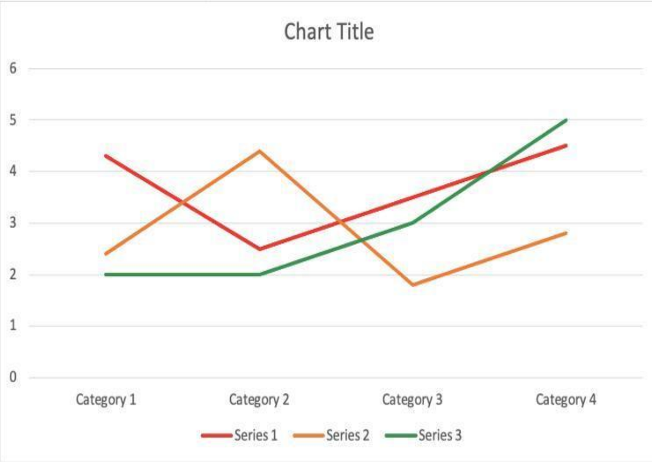


Red-green deficient vision

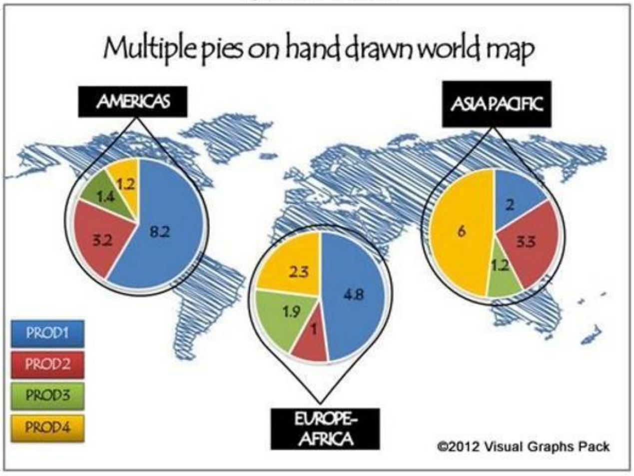
Typical vision

Red-green deficient vision

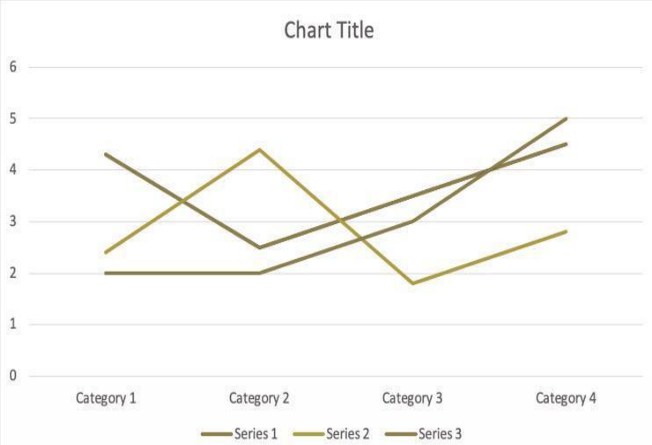
Typical vision



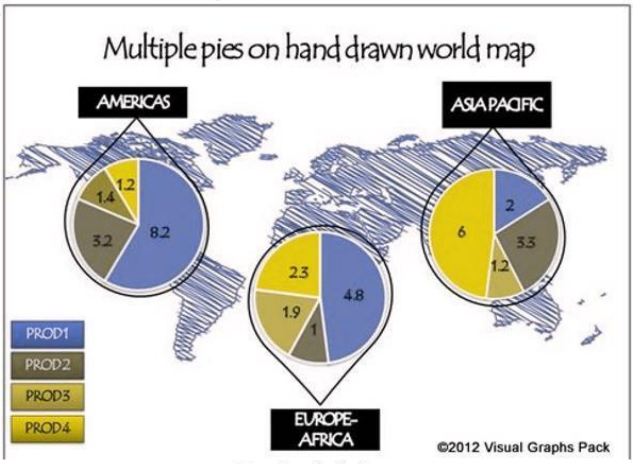
Typical vision



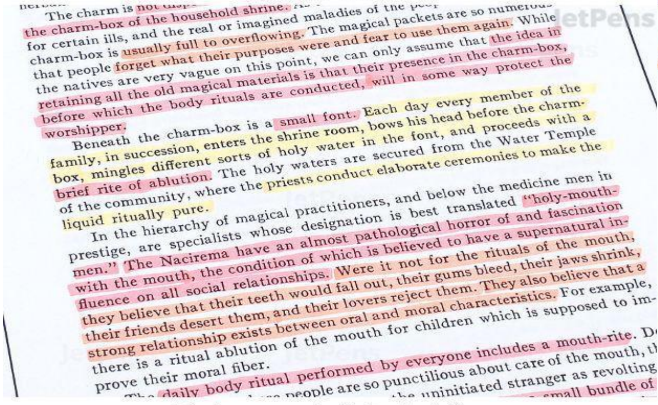
Red-green deficient vision



Red-green deficient vision



Typical vision



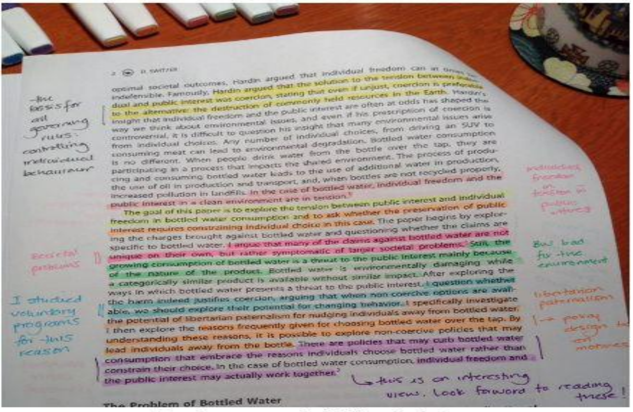
The charm is not disp— the household shrine.
the charm-box of the household shrine. As
for certain ills, and the real or imagined maladies of the peop
charm-box is usually full to overflowing. The magical packets are so numerous
that people forget what their purposes were and fear to use them again. While
the natives are very vague on this point, we can only assume that the idea in
retaining all the old magical materials is that their presence in the charm-box,
before which the body rituals are conducted, will in some way protect the
worshipper.

Beneath the charm-box is a small font. Each day every member of the
family, in succession, enters the shrine room, bows his head before the charm-
box, mingles different sorts of holy water in the font, and proceeds with a
brief rite of ablution. The holy waters are secured from the Water Temple
of the community, where the priests conduct elaborate ceremonies to make the
liquid ritually pure.

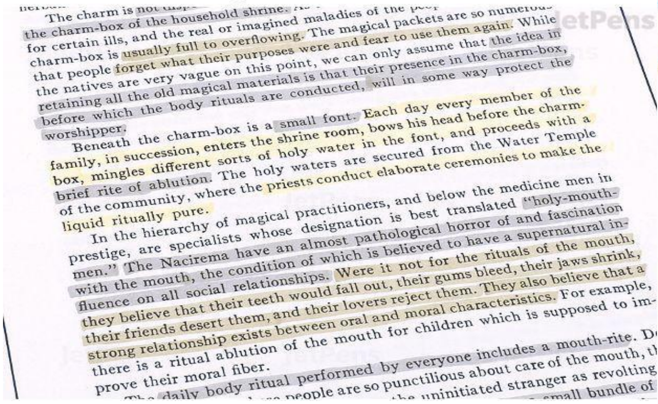
In the hierarchy of magical practitioners, and below the medicine men in
prestige, are specialists whose designation is best translated "holy-mouth-
men." The Nacirema have an almost pathological horror of and fascination
with the mouth, the condition of which is believed to have a supernatural in-
fluence on all social relationships. Were it not for the rituals of the mouth,
they believe that their teeth would fall out, their gums bleed, their jaws shrink,
their friends desert them, and their lovers reject them. They also believe that a
strong relationship exists between oral and moral characteristics. For example,
there is a ritual ablution of the mouth for children which is supposed to im-
prove their moral fiber.

The daily body ritual performed by everyone includes a mouth-rite. D
people are so punctilious about care of the mouth, t
the uninitiated stranger as revolting
small bundle of

Typical vision



Red-green deficient vision



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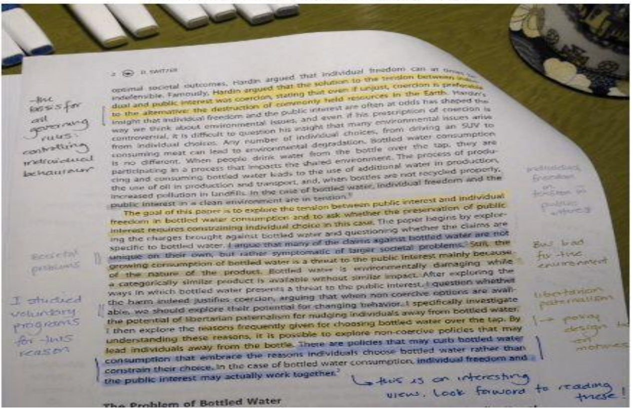
charm-box is usually full to overflowing. The magical packets are so numerous
that people forget what their purposes were and fear to use them again. While
the natives are very vague on this point, we can only assume that the idea in
retaining all the old magical materials is that their presence in the charm-box,
before which the body rituals are conducted, will in some way protect the
worshipper.

Beneath the charm-box is a small font. Each day every member of the
family, in succession, enters the shrine room, bows his head before the charm-
box, mingles different sorts of holy water in the font, and proceeds with a
brief rite of ablution. The holy waters are secured from the Water Temple
of the community, where the priests conduct elaborate ceremonies to make the
liquid ritually pure.

In the hierarchy of magical practitioners, and below the medicine men in
prestige, are specialists whose designation is best translated "holy-mouth-
men." The Nacirema have an almost pathological horror of and fascination
with the mouth, the condition of which is believed to have a supernatural in-
fluence on all social relationships. Were it not for the rituals of the mouth,
they believe that their teeth would fall out, their gums bleed, their jaws shrink,
their friends desert them, and their lovers reject them. They also believe that a
strong relationship exists between oral and moral characteristics. For example,
there is a ritual ablution of the mouth for children which is supposed to im-
prove their moral fiber.

The daily body ritual performed by everyone includes a mouth-rite. D
people are so punctilious about care of the mouth, t
the uninitiated stranger as revolting
small bundle of

Red-green deficient vision



Appendix C:

Semi-structured interview schedule

Thank you for being available for this interview. We really appreciate your time and input. As indicated in the invitation, the purpose of this discussion is for you to share your experiences about the parent guidance intervention with us. We will really appreciate your open and honest feedback, for us to be able to improve the intervention for future use. As with the previous sessions we conducted, the information shared here will be dealt with in a confidential and anonymous way, and you may withdraw from the interview at any time if you wish to do so.

So, just before we start, are you comfortable with the discussion being recorded?

OK then. So, over the past three months, we have been sharing ideas twice per week via a WhatsApp group, on how you as a parent may support your child. We focused on holistic child development and attempted to provide guidelines in terms of the various areas of child functioning. You'll see an overview of the topics that were covered on the screen.

1. Can you please start by sharing your general experiences and ideas about the intervention you participated in?
2. Just a follow-up question on that: To what extent did you gain new knowledge and ideas from the intervention, or was it kind of "old news" to you?
3. To what extent did you apply the information we shared?
4. Was there any topic or topics that stood out for you or that you found especially helpful? If so, which topic/s and why did you find it valuable?
5. To what extent do you think your child may have benefited as a result of the parent guidance intervention, in other words, did you for example observe any change or positive experiences in your child?
6. Then, on the flip side of the coin, which topics could have been left out or which topics did you not experience as not helpful? Why do you think this was the case?
7. Are there perhaps any topics that we can add to the intervention or that we can make more of or provide more information on?
8. Next, we would like you to share your ideas on the platform we used and the length, format and extent of the parent guidance intervention. How suitable do you think the WhatsApp platform was?
9. Okay, and in terms of frequency of the messages and the overall length of the intervention?

10. What about the format and the use of written messages, videos and quotes? Can you please comment on that? What worked and what did not work so well?
11. In terms of taking this intervention forward, in your view, which of the content should be shared with teachers of children with CVD?
12. And then finally, how can we improve the parent guidance intervention, in other words, what can we do differently?
13. Is there perhaps anything else you would like to add?

Thank you very much for your time and for being part of this project. We will be printing the parent guidance intervention in a booklet form and then distribute both a hard and soft copy to you. We'll be in touch to get your address when we're ready to send it out.

Appendix D:

Final Themes and Related Sub-Themes Colour Coded

Theme 1: Value of the intervention on parents
Sub-theme 1.1: 1: Understanding CVD and the implications for children
Sub-theme 1.2: Gaining insight into the experiences of people with CVD
Sub-theme 1.3: Being empowered to better support children with CVD
Sub-theme 1.4: Learning from and with other parents of children with CVD
Theme 2: Perceived value of the intervention for children with CVD
Sub-theme 2.1: Feeling empowered to seek help
Sub-theme 2.2: Positive effect on confidence and self-esteem
Sub-theme 2.4: Strengthened levels of resilient
Theme 3: Potential value of the intervention for others
Sub-theme 3.1: Applying new knowledge and skills in other contexts
Sub-theme 3.2: Sharing the content of the intervention with teachers
Sub-theme 3.3: Sharing the content of the intervention with others
Theme 4: Format and content of the intervention
Sub-theme 4.1: Topics covered as part of the intervention
Sub-theme 4.2: Frequency and length of messages and the intervention
Sub-theme 4.3 Suitability of the format of messages included in the intervention
Sub-theme 4.4: Suitability of the selected communication platform

Appendix E:

Inclusion and Exclusion Criteria for the results

- E1: Inclusion and exclusion criteria for Theme 1
- E2: Inclusion and exclusion criteria for Theme 2
- E3: Inclusion and exclusion criteria for Theme 3
- E4: Inclusion and exclusion criteria for Theme 4

E1: Inclusion and exclusion criteria for Theme 1

Table E.1: Inclusion and exclusion criteria for Theme 1

Theme/Sub-theme	Inclusion criteria	Exclusion criteria
Theme 1: Value of the intervention for parents	All data referring to the value of the parent guidance intervention for the participating parents that assisted them in better understanding and supporting their children.	References to the perceived value of the intervention for people other than the parents.
Sub-theme 1.1: Understanding CVD and the implications for children	Data referring to an understanding of CVD, its causes, implications and challenges that children may face due to the condition.	Any data not relating to the perceived value of the parent guidance intervention in terms of insight into the experiences of people with CVD, being empowered to better support their children or parents learning from and with other parents.
Sub-theme 1.2: Gaining insight into the experiences of people with CVD	Data related to gained insight on the experiences of children with CVD, in terms of daily functioning as well as scholastic, emotional and social functioning.	Any data not relating to the perceived value of the parent guidance intervention in terms of understanding CVD and the implications it has on children, being empowered to better support their children as well as any aspects of parents learning from and with other parents.
Sub-theme 1.3: Being empowered to better support children with CVD	Data indicating the empowerment of the parents as a result of the parent guidance intervention to support their children with their daily living as well as scholastic, emotional and social functioning.	Reference to data that does not relate to the perceived value of the parent guidance intervention in terms of other insight into understanding CVD and its implications, insight into the experiences of people with CVD and for parents to be able to learn from and with other parents.
Sub-theme 1.4: Learning from and with other parents of children with CVD	Data referring to the value of parents' children with CVD connecting with other parents who also have children with CVD, with similar experiences.	Data that does not relate to the perceived value of the parent guidance intervention in terms of insight into understanding CVD and its implications, insight into the experiences of people with CVD as well as being empowered to better support their children.

E2: Inclusion and exclusion criteria for Theme 2

Table E.2: Inclusion and exclusion criteria for Theme 2

Theme/Sub-theme	Inclusion criteria	Exclusion criteria
Theme 2: Perceived value of the intervention for children with CVD	All data referring to the value of the parent guidance intervention for children of the participants as perceived by the parent-participants.	Any data not indicating the value of the intervention for the participants' children with CVD, as perceived by the parent-participants
Sub-Theme 2.1: Feeling empowered to seek help	Data referring to children feeling confident enough to ask for assistance when required based on their parents empowering them for this, following their participation in the parent guidance intervention.	Data indicating the perceived value of the intervention for children with CVD in terms of the positive effect on their confidence, self-esteem or levels of resilience.
Sub-theme 2.2: Positive effect on confidence and self-esteem	Data referring to the positive effect the implementation of the guidelines from the parent guidance intervention on children's confidence and self-esteem.	Any reference to data indicating the perceived value of the intervention for children with CVD in terms of the feeling empowered to seek help or a strengthened level of resilience.
Sub-theme 2.3: Strengthened levels of resilience	Data related to the children's higher levels of resilience as a result of the parents' participation in the parent guidance intervention.	Data indicating the perceived value of the intervention for children with CVD in terms of feeling empowered to seek help as well as the positive effect on their confidence, self-esteem or levels of resilience.

E3: Inclusion and exclusion criteria for Theme 3

Table E.3: Inclusion and exclusion criteria for Theme 3

Theme/Sub-theme	Inclusion criteria	Exclusion criteria
Theme 3: Potential value of the intervention for others	All data relating to the perceived value of the intervention on people other than the participating parents.	Any data that does not indicate the value of the parent guidance intervention for others, besides the parent-participants.
Sub-Theme 3.1: Applying new knowledge and skills in other contexts	Data referring to the information of applying the gained knowledge and skills from the parent guidance intervention in other contexts than that of children with CVD.	Any reference that does not refer to the value of the parent guidance intervention for others in terms of sharing the content of the intervention with teachers or with others.
Sub-theme 3.2: Sharing the content of the intervention with teachers	Data indicating the trend of parent-participants to share the content and information gained from the intervention with teachers, specifically in terms of how teachers can support learners with CVD within the classroom.	Data not indicating the value of the parent guidance intervention for others in terms of applying new knowledge and skills in other contexts as well as sharing the intervention with others.
Sub-theme 3.3: Sharing the content of the intervention with others	Data referring to parents sharing of the content and information gained from the intervention with others thereby supporting a greater awareness and understanding of CVD and its implications in society.	Any reference that does not refer to the value of the parent guidance intervention for others in terms of applying new knowledge and skills in other contexts or the sharing of the intervention with teachers.

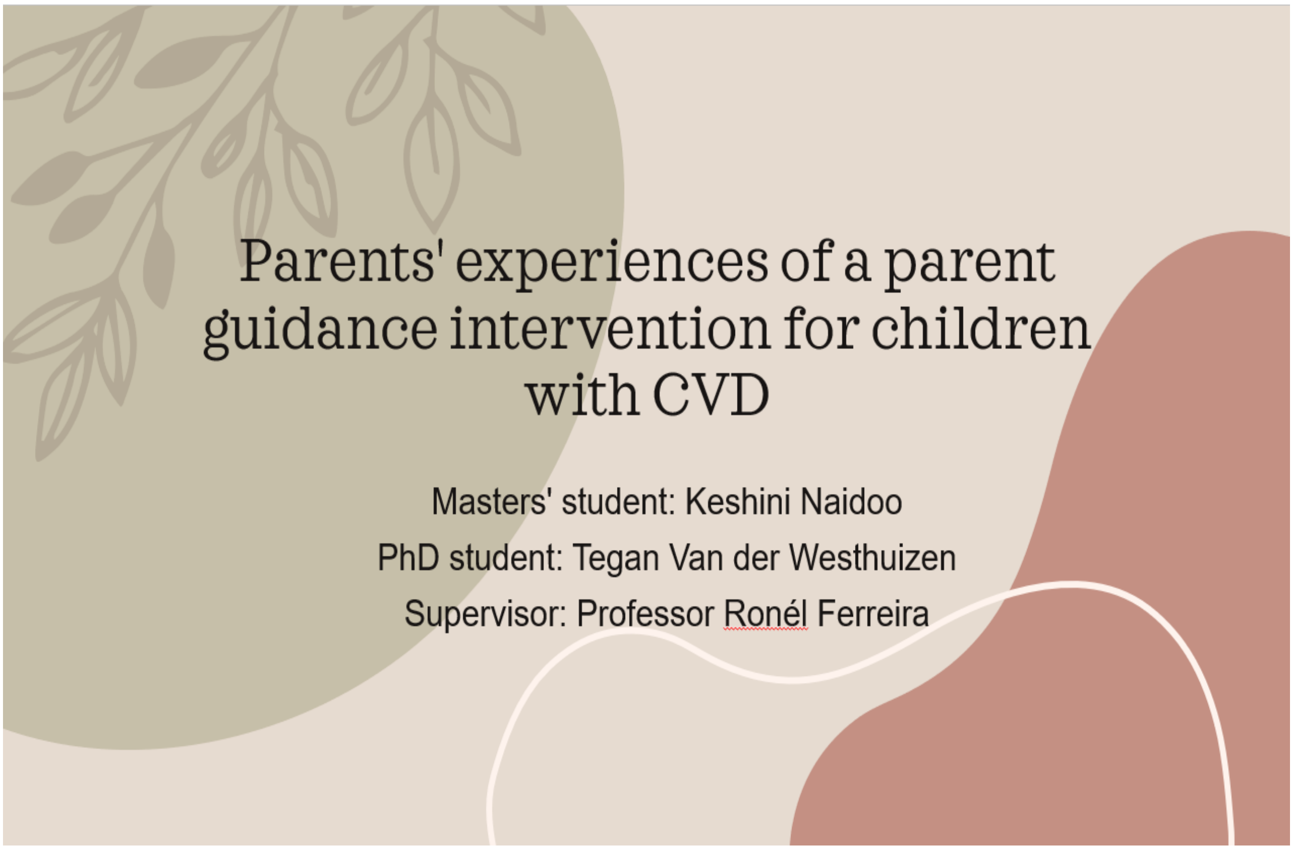
E4: Inclusion and exclusion criteria for Theme 4

Table E.4: Inclusion and exclusion criteria for Theme 4

Theme/Sub-theme	Inclusion criteria	Exclusion criteria
Theme 4: Format and content of the intervention	All data indicating the participants' perception of the format and content included in the parent guidance intervention.	Data that does not report on the format or content of the intervention, as perceived by the parent-participants
Sub-Theme 4.1: Topics covered as part of the intervention	Data referring to the topics covered in the intervention, the suitability of the topics, and any topics that could have been removed or added for related future interventions.	Any data not referring to the format or content of the intervention, as perceived by the parent-participants in terms of the frequency, length and format of the messages in the intervention as well as the suitability of the selected communication platform.
Sub-theme 4.2: Frequency and length of messages and intervention	Data related to the participants' perception of frequency and length of messages included in the parent guidance intervention that were delivered via a WhatsApp group.	Any data not indicating the format or content of the intervention, as perceived by the parent-participants in terms of the topics covered in the intervention, the suitability of the format of messages and selected in the intervention as well as the suitability of the selected communication platform.
Sub-theme 4.3: Suitability of the format of messages included in the intervention	Data referring to the suitability of the format used to send out messages as part of the parent guidance intervention, as perceived by the parent-participants.	Any data not referring to the format or content of the intervention, as perceived by the parent-participants in terms of the topics covered as part of the intervention, the suitability of the frequency and length of the messages and intervention as well as the suitability of the selected communication platform.
Sub-theme 4.4: Suitability of the selected communication platform	Data related to the participants' views on the selected communication platform, being WhatsApp platform.	Data not referring to the format or content of the intervention, as perceived by the parent-participants in terms of the frequency, length and format of the messages and the intervention.

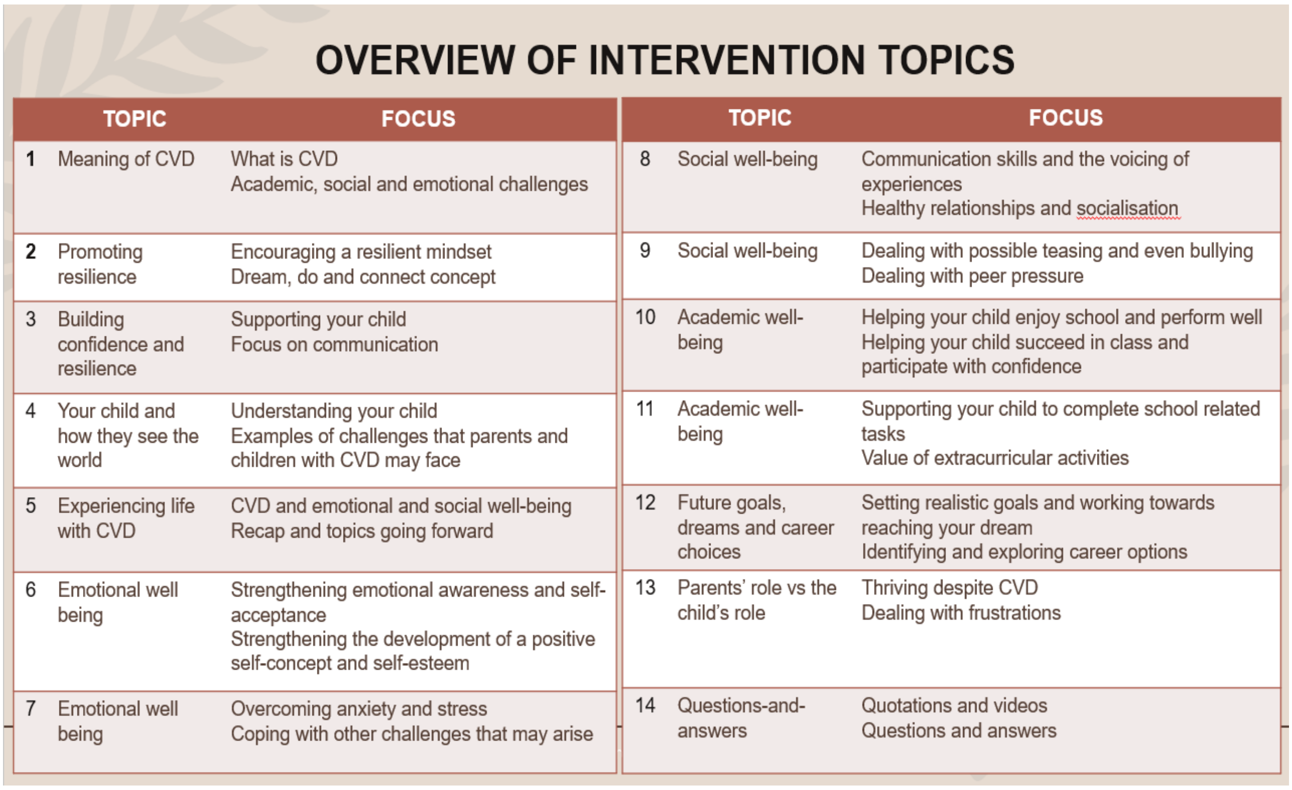
Appendix F:

Member Checking Presentation



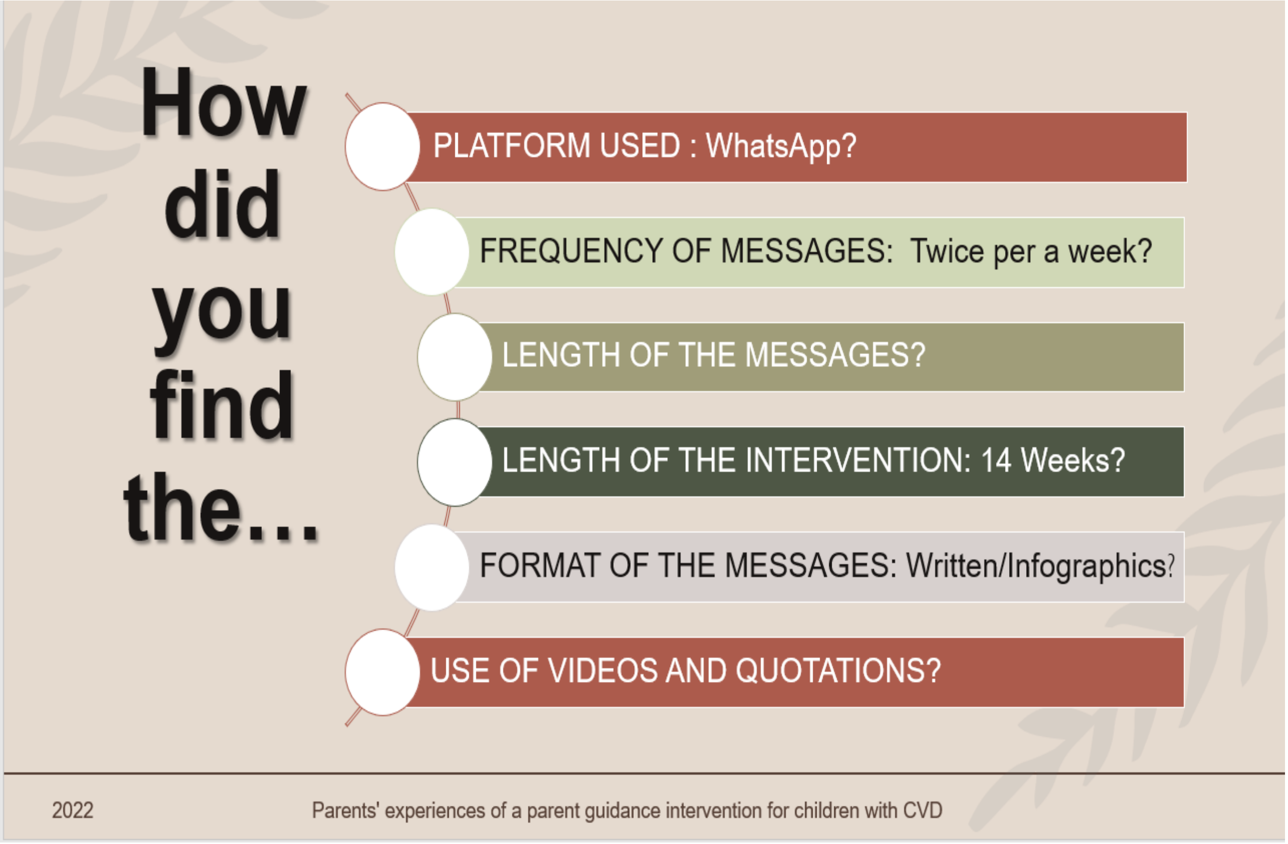
Parents' experiences of a parent guidance intervention for children with CVD

Masters' student: Keshini Naidoo
PhD student: Tegan Van der Westhuizen
Supervisor: Professor Ronél Ferreira



OVERVIEW OF INTERVENTION TOPICS

TOPIC	FOCUS	TOPIC	FOCUS
1 Meaning of CVD	What is CVD Academic, social and emotional challenges	8 Social well-being	Communication skills and the voicing of experiences Healthy relationships and socialisation
2 Promoting resilience	Encouraging a resilient mindset Dream, do and connect concept	9 Social well-being	Dealing with possible teasing and even bullying Dealing with peer pressure
3 Building confidence and resilience	Supporting your child Focus on communication	10 Academic well-being	Helping your child enjoy school and perform well Helping your child succeed in class and participate with confidence
4 Your child and how they see the world	Understanding your child Examples of challenges that parents and children with CVD may face	11 Academic well-being	Supporting your child to complete school related tasks Value of extracurricular activities
5 Experiencing life with CVD	CVD and emotional and social well-being Recap and topics going forward	12 Future goals, dreams and career choices	Setting realistic goals and working towards reaching your dream Identifying and exploring career options
6 Emotional well being	Strengthening emotional awareness and self-acceptance Strengthening the development of a positive self-concept and self-esteem	13 Parents' role vs the child's role	Thriving despite CVD Dealing with frustrations
7 Emotional well being	Overcoming anxiety and stress Coping with other challenges that may arise	14 Questions-and-answers	Quotations and videos Questions and answers



How did you find the…

- PLATFORM USED : WhatsApp?
- FREQUENCY OF MESSAGES: Twice per a week?
- LENGTH OF THE MESSAGES?
- LENGTH OF THE INTERVENTION: 14 Weeks?
- FORMAT OF THE MESSAGES: Written/Infographics?
- USE OF VIDEOS AND QUOTATIONS?

2022 Parents' experiences of a parent guidance intervention for children with CVD

The way forward .

"Embrace the unique way your child is blooming - even if it's not in the garden you imagined."

2022 Parents' experiences of a parent guidance intervention for children with CVD

"Color Vision Deficiency isn't the end of the world. It's just a different view of it."

Karen Rae Levine

Thank you for participating in our research study. We hope it was valuable and helps you support your child with CVD!

Appendix G:

Transcribed and Coded Interviews

An excerpt of the transcribed and coded data of the interview with participant 1 is included in this PDF copy of my mini-dissertation. All transcribed and coded interviews can be accessed on the separate PDF document attached to this mini-dissertation.

G1: Interview with parent 1

Table G.1: Interview with parent 1 – 29 August 2022

CO-RESEARCHER: Hi Parent 1, thank you for joining us this afternoon. I'd like to introduce you to Keshini, she is the master's student working on the study with me and helped to co-develop the parent guidance intervention. RESEARCHER: Hi Parent 1, it is great to meet you! PARENT 1: Hello. CO-RESEARCHER: Okay Keshini, you can start. RESEARCHER: Thank you, So, parent 1 thank you for being available for this interview. We really appreciate your time and input. As indicated in the invitation, the purpose of this discussion is for you to share your experiences about the parent guidance intervention with us. We will really appreciate your open and honest feedback, for us to be able to improve the intervention for future use. As with the previous sessions we conducted, the information shared here will be dealt with in a confidential and anonymous way, and you may withdraw from the interview at any time if you wish to do so. PARENT 1: Okay great. RESEARCHER: Just before we start, are you comfortable with the discussion being recorded on teams? PARENT 1: Yes, that's fine. RESEARCHER: Thank you, I am just going to quickly share my screen with a presentation for you today. PARENT 1: OK. RESEARCHER: Can you see it OK? PARENT 1: Yes. RESEARCHER: OK, perfect. RESEARCHER: Thank you. So then over the past three months, we have been sharing ideas twice per week *via* WhatsApp on how you as a parent may support your child. We focused on holistic child development and attempted to provide guidelines in terms of the various areas of child functioning. So, you will see an overview on the next slide of the topics that we have covered in the fourteen-week intervention. So, my first question for	

today is, can you please start by sharing your general experiences and ideas about the intervention you participated in with us? PARENT 1: For me it really opened my eyes because I did not think of things like career choices and things like that when it came to being colour vision deficient. So that was one of the things that stood out for me. I didn't realise that kids can actually get bullied because my child has been fortunate that he hasn't been bullied in terms of being colour vision deficient, so those are the two things that stuck out for me. RESEARCHER: OK, uhm, so would you say it was a positive experience for you? PARENT 1: Yes, it was definitely a positive experience. I think you can also apply some of those principles to not only colour vision deficient kids because my friend has a daughter who is a dyslexic, so some of the things I was like, okay you can actually extract some of that information and apply it to some other kinds of challenges or disabilities that your child might be experiencing. RESEARCHER: That's great, it is nice to hear that the information was transferable. Okay great thank you for that, and then just a follow-up question to what extent do you feel like you gained new knowledge and ideas from the intervention? You did mention the two that stood out for you, but was any of the others almost like old news you already knew about it? PARENT: 1 No, not really. I mean, I did not know much about it, I mean for us, because my husband is colour vision deficient, which we knew but it wasn't something that we would go into depth about as we thought it was just funny to us, you know and we always joked about it, but it definitely made it more serious for us in terms of like getting more information about it and also how they see the world because I was a bit irritated. When you look at it, why? Why are the pictures that you sent so dull? and then I realised that this is how colour vision deficient people see the world and I was becoming irritated by why it was not bright enough, you know. So, they actually opened my eyes as well, that was a good idea. CO-RESEARCHER: Yeah, I think it was my supervisor's idea and it was a brilliant idea to just kind of put things in perspective on how these children see things. So, I am really glad you mentioned that because it was really interesting to explore for us as well. PARENT 1: OK, yeah. CO-RESEARCHER: So yeah, it is a positive thing. It is a good way to just kind of let parents gain more awareness of the complete difference of the world, you know, the world is completely different to them in terms of colour. PARENT 1: Yes, that's it I did not realise also when it comes to like graphs, like doing geography and things like that, that it can also affect them and	Gained new insight. Effect on career choice Effect on emotional functioning Positive experience Broader application value and applicable to other Gained knowledge. Insight into how people with CVD perceive the world Gained insight

maps and you know, so it really did open my eyes to a lot more things that I was not aware of. CO-RESEARCHER: Oh, that is great. SUPERVISOR: I think yes, I agree with you becoming more aware helps us as parents to support our children better and even up until today I am still learning. I've been a part of the CVD research for 5 to 6 years and I still sometimes make the mistake of telling my son to grab that red pen or whatever and then when I stop and think about what I asked for I remember I can't ask for it in that way because he has CVD. Instead, I should have said please pass me the pen that is on the top left of the table. Being aware helps to remind yourself as a parent of your children's needs all the time, but I still find myself falling into the colour traps. I still tell my son things like "the red one, the green one, the blue one". For example, this afternoon, he wanted new highlighters, and I took out some of the highlighters for him and gave him a green one, a yellow, a pink and a blue one and then I realised, I have to take away one of the highlighters, either the yellow or the green one because they're going to look exactly the same to my son. So, it's like small things like that. Yeah, it helps if you are more aware and if you are more alert and know what they see. PARENT 1: I agree. CO-RESEARCHER: And just to comment on what you have said, I think as soon as parents are more aware and start showing that they care and can relate to their children, I think the kids start to feel a little bit freer and that it's not this huge thing which is awesome for the kids. I think by parents showing awareness and actually having an understanding and like, you know, being a bit more considerate when it comes to colour, it allows them to also just really be at peace at home because they don't have to worry about that whereas they might worry about it at school. PARENT 1:	Effect on school subjects Raised awareness on the effect of CVD
Yes true, I am more aware of toothbrushes and everything now. It's like, okay a purple and a green toothbrush may look similar, so yah. CO-RESEARCHER: OK, that's awesome. RESEARCHER: Thank you for that I think from my side also working on the infographics we sent was a huge eye-opener for me as well in terms of how these kids perceive things. PARENT 1: Yes. RESEARCHER: OK so, the next question is to what extent did you apply the information that we shared to the intervention group? CO-RESEARCHER: So, you just mentioned now, like toothbrushes and their colours like purple and green, was there anything else that you might have done at home or with your child?	Raised awareness on everyday living

PARENT 1: No not really, I have not. I cannot think of anything off-hand now but I probably unconsciously have done other things, but for now, I cannot think of anything that I may have changed or thought about, yeah.	Few adjustments at home
RESEARCHER: Umm…and then, uh, was there any topic? Well, you did answer that earlier, but were any other topics that you found that were also valuable?	
PARENT 1: Yeah, I mean when it came to self-esteem and things like that, you know for my child it didn't really affect his self-esteem but it was helpful. His coolness factor went up when he got the glasses, and he was excited to get them and explain them to others, that is just his nature. He loves to explain things to people you know, he loves information, so I think for him it was like a conversation piece. I think that one of the mothers said that her son was being bullied when he wore the glasses, and he did not want to wear them anymore so, I think it's very much an individual response to it, but thankfully we've had a positive experience with it.	Information on self-esteem was valuable. Positive effect of Ochroma glasses on self-image Effect on special interaction Positive experience of Enchroma Glasses
RESEARCHER: OK, that's really nice to hear. Next, please can you tell us to what extent you think that your child may have benefited as a result of the parent guidance intervention you participated in?	
PARENT 1: Umm…It just obviously created more awareness, especially at school you know, and in terms of the teachers, because a lot of teachers don't understand colour vision deficiency because there are so many kids that are not diagnosed or, you know, people are not aware of it, so it helped with school and the teachers were also very interested in hearing about it as well and it creates awareness obviously with his peers and stuff like that.	Raised awareness amongst teachers Children not being diagnosed Limited awareness in society Teachers gaining knowledge. Raised peer awareness. Positive effect of
RESEARCHER: Great are there maybe any observable changes in your child specifically?	
PARENT 1: I mean when he would wear the glasses and then he would say he could not believe this thing looks the way it does so, you know if we would travel somewhere or go somewhere then he would obviously see things clearly, I suppose.	EnChroma glasses-seeing things differently
CO-RESEARCHER: I see all your profile pictures he always has his glasses on in every photo.	
PARENT 1: Yes, he loves them, so as I said it really did up his game.	Positive experience of Echroma glasses
SUPERVISOR: So if I listen to you, it seems like there was a change in terms of daily functioning because he can now see colour more, you know, more like other people do. So, there is a daily functioning advantage as well as the support perhaps from teachers that were lacking and perhaps there is more awareness now. Also, peer awareness would impact automatically on social and emotional functioning as well as his self-confidence because you said he would wear the glasses with self-confidence, and it	

gives him a way of conversation and communication. So, it seems like there was a positive effect on him holistically and that your awareness grew, and you became more alert and perhaps you, felt less frustrated, perhaps with him seeing things differently or whatever. So, I think he benefited. If I listen to you, if I understand you correctly, he benefited from all those domains.	
PARENT 1:	
Yes, he did. I am just thinking of something else now, like even when I'm buying him clothes now I am also more aware of the colours that I buy for him you know, so yeah, it's also another thing that I can think of which I didn't really bother about in the past.	Increased awareness by mother- effect on choices for the child
SUPERVISOR:	
Yes, so in that way it helped you to support him, to start supporting him on various small levels, which will just make his life easier, yes.	Increased support to child
PARENT 1:	
Yes.	
CO-RESEARCHER:	
And I just wanted to come in and say something about one of the sessions I had with your child a couple of weeks ago, he said that he was having a problem at school and then he said he sorted it out and then he went and spoke to you and he said you told him that he has to be aware of all the people that are also like him, and we were doing like resources and who around him can support him and he said, he had a similar discussion with you where you were like you know if we have a problem we need to figure it out and you can go to this teacher that teacher, he said my mom said this, so I tried this approach. So, I mean from my side this was huge, some of the things that we had done in the intervention he had mentioned saying, my mom told me I need to look around me to see who can help me. So, from what I could see was that he was aware that he can look around and he must do this, and you must do that like yes, that's a very good way to solve a problem. So he said, my mom and I were talking about it, and she told me this approach needed to come from my side.	Increased support by parents Accessing support by others e.g., teachers. Advice by parents
PARENT 1:	
Yes. He called a meeting with the teachers without me knowing to go and sort out the issue and it was sorted, you know, because he was really not coping, it was just too much for him. He's been suffering from sinuses a lot as well so, he was even hospitalised two months ago. He's been battling and then he was like this is too much pressure with the sport and with academics and they sorted him out and they made a programme for him. So, he called a meeting with the teachers without me knowing to go and sort out the issue, and it was sorted. I was actually proud of him for standing up for himself, you know.	Independent functioning of the child Increased self-confidence by child
CO-RESEARCHER:	
It's amazing and I think well, I mean, one of the biggest things is just the support that you give them like I think it helps them to feel safe enough to do that. I think it's very important to do that because we've got to realise these little kids are not just kids. They are also people at the end of the day and they also have feelings and emotions. You know, we got to realise that's, it's tough out there and sometimes it does	

become overwhelming. If you learn how to cope now, I think he can take it with him, you know, into adulthood, on how to cope with life in general and see where you need to actually take a step back and not push yourself too hard.	General coping being enhanced
PARENT 1: I think for me, sorry now I'm rambling on, I was diagnosed with fibromyalgia and at the end of 2019, I just had a fever and then I just did not recover and I think I just got so sick and I realised that I was pushing myself too hard. So, I think I'm a more aware as well now that you've got to realise that you've got to have balance in your life also and realise when you are pushing yourself too far so that you're not pushed over the edge and that's what happened to me. So, I think that's why I have tried to let him realise that as well.	Mother supporting child to cope.
SUPERVISOR: What I hear if I listen to you, I can hear that you are empowering him to stand up for himself and that you feel confident to take that role of parent empowering the child and that links to one of the last sessions, I think was on the role of the parent and the role of the child and it links beautifully to that in terms of the role that you feel fulfilled and really support him doing what he's supposed to do to acquire at this stage and before he is an adult, so well done.	Child empowerment. Parent empowered.
PARENT 1: Thank you so much.	
RESEARCHER: Thank you, it's so nice to see that his confidence is building and that he's able to talk up for himself to assist himself. So that's really great feedback.	Increased self-confidence. Increased independent functioning
RESEARCHER: Then on the flip side of things, we would like to find out which topics could we have left out or which topics you feel were not helpful and then maybe also why you think that they weren't helpful?	
PARENT 1: I don't think there's anything that I would do. I would not say it wasn't helpful for me I believe information is power no matter what, and you always got to take what you can out of something. It's like the saying “eat the meat and throw away the bones” kind of situation. So, I don't think there's anything for me that I would take out.	All information regarded as important to include
RESEARCHER: OK, thank you and then are there any topics that we can add to the intervention so that we can make it more useful in the future?	
PARENT 1: No, I don't. I don't have anything that I could add to that, maybe I have never thought about it but yeah, I think most of the topics were very helpful and it did cover a lot in terms of the role of the parents, academics, things like that and emotional well-being. There's nothing for me that I would add sorry, if I’m not being helpful.	No additional topics to be included. Several topics covered.
CO-RESEARCHER: No.	
RESEARCHER: No, no, no.	

SUPERVISOR: You are being very helpful because we need to know how to adjust the intervention. So, you are very helpful if you confirm the information was enough because it's like a confirmation to us that parents did benefit from the intervention and that we are on the right track. So, we are open to criticism and we really OK with it. If you say it was all a ton of rubbish and please don't do it in the future, we also need to know that. We really appreciate any feedback and yours is really positive. Thank you. RESEARCHER: OK, great. So next I would like you to share your ideas on the platform that we used and the length, format and extent of the parent guidance intervention. So how suitable do you think the platform WhatsApp was for the intervention? PARENT 1:	
Yeah, for me I prefer WhatsApp because you know I am constantly on WhatsApp and we have all these groups, so it's easier to be on WhatsApp because I find I'll check my WhatsApp's more than I would my emails. RESEARCHER:	WhatsApp regarded as suitable platform. Less preference for email
OK, perfect. So, it was much more accessible for you? PARENT 1: Yes. RESEARCHER: OK, great. RESEARCHER: And in terms of the frequency of the messages and the overall length of the messages, how do you feel about that? PARENT 1:	WhatsApp regarded as accessible
Twice a week was a bit much for me personally because sometimes there's too much to read and I would keep it and I wouldn't read it straight away if I was too busy. So maybe once a week would have been better for me to get those messages. RESEARCHER: OK thank you for that feedback. RESEARCHER: Okay and then what about the format of the messages we used? So, it was written messages, videos and quotes. Can you maybe please comment on that? PARENT 1:	Frequency too high Too much to read. Reduce frequency to 1x week
Three times a week and less content. I do think maybe it can be shorter because some people do not like to read a lot of messages and because we are in so many groups, sometimes it is a lot to go through, you know, and maybe you get a better picture when it's shorter messages and videos and things like that. RESEARCHER: Yes and do you feel like the videos and quotes worked well with the information you got? PARENT 1:	Reduce length to of messages Preference for shorter messages and videos
Yes, I do think it was.	Positive about videos and quotations

RESEARCHER:	
OK, thank you and then in terms of taking the intervention forward in your view, which of the content should be shared with teachers of children with CVD?	
PARENT 1:	
Umm sure I think maybe the emotional part of it and then also, you know everything, I say everything because they also need to be educated, when my child was in grade 1 or so, the teacher said to me he just doesn't know his colours and I was like no man I know he does he's a smart boy. I couldn't understand what they were talking about, and we didn't realise at the time that he was colour vision deficient. There definitely needs to be more awareness raised at schools and especially at the foundation level because it can really interfere with kids. It is not that they don't know their colours it could be that they are colour-vision deficient. I always thought it was my husband's fault because I thought my child got it from him, being colour vision deficient in the meantime, it was my dad's fault because he was colour vision deficient. So, you know, I think, it should be introduced at a lower level and more information needs to be given to teachers about everything involving CVD.	Importance of sharing all information with teachers Importance of teacher being informed about CVD Importance of teacher being informed about CVD
RESEARCHER:	
OK, so overall everything in the intervention should be shared with teachers to help the children.	
PARENT 1:	
Yes.	
RESEARCHER:	
And then finally, how can we improve the parent guidance intervention? In other words, what can we do differently? I know you spoke about the lengthiness and getting the messages twice a week and stuff was a bit much, but is there anything else we can do to improve the intervention?	Improving the intervention
PARENT 1:	
For me that was it, those were the only two points for me. Yeah, there's nothing else that I could add to that.	
RESEARCHER:	
OK great, and then lastly is there anything else you would like to share? anything we may have not covered in the questions that you would like to share with us this afternoon?	
PARENT 1:	
No, I can't think of anything right now but if I do, I will send you a message if I think of anything.	
RESEARCHER:	
Great! Thank you very much for your time and for being a part of the project with us. We will be printing the parent guidance intervention in a booklet form and then distributing it in both hard copy and soft copy to you. So, we'll be in touch with you again to get your address when we're ready to send out those booklets.	
PARENT 1:	
Alright, thank you so much, guys. Thank you for all your help and your support. We really do appreciate you guys doing this.	

Appendix H:

Reflecive Journal

An excerpt of the reflexive journal is included in this PDF copy of my mini-dissertation. All reflective journal entries be accessed on the separate PDF document attached to this mini-dissertation.

29 August 2022 – Reflection on data collection	
Conducting my first semi-structured interview today made me feel nervous and a bit anxious. It was my first time in a setting where I had to control the discussion. I was a little at ease knowing my supervisor and co-researcher were also in the interview to assist me if need be. I was also a bit nervous about conducting my data gathering on an online platform as I felt that I would not be able to connect and build rapport effectively with my participant, which may affect the quality of information I receive from participant 1. However, I realise the importance and the need to create a collaborative and safe tone during the discussion where the participants are heard and understood.	Baseline data Information
During the interview, my co-researcher introduced me to participant 1. Thereafter, the participant was given a background of the project and a brief introduction on what we were going to do today by my co-researcher before she handed over to me. I introduced myself and welcomed the participant and spoke briefly about how I would go about the interview and thanked the participant for their participation. I was concerned about the interaction and the amount of data I was receiving. I felt that the discussion did not flow as easily as I expected and that I would have liked more detail in certain aspects. However, after reflecting on it, I think that even though it was not a lot of data, the data I received was still quite detailed.	Constant reflection
One thing that really stood out for me from the discussion with participant 1, is how important it is for the parents of children with CVD to feel recognised for their attempts at supporting and bettering their child's life. Further, I was pleased with how much of the parent guidance intervention was retained by the participant and although they may have not gone into implementing every single practical guideline, the attempt was there which is a success in some ways as I can imagine with their busy daily lives and having to support and meet the needs of their children and family being able to implement the parent guidance intervention at times may have been really difficult job implementing with minimal time available. I do think that the parent guidance intervention allowed parents to see how much they already support their child and how much more they could support if they had the correct information and resources available to them.	Gained knowledge and implementation of guidelines
I remained aware of the possibility of my personal bias impacting my perceptions at the start of the project and I ensured I reflected on this throughout. However, at times it became evident to me that how I perceived certain things, that I have my own personal bias. During this interview I picked up the following two biases: I come from a family and profession where special needs are priorities above everything else in a parent's live. I realised that I must be aware that my own views, experiences and supporting a child will be different for each parent who took part in the study and that I need to always respect participants despite my own personal biases.	Importance of maintaining my role as a researcher Impact of my own personal standing

Additionally, I need to remain aware of the following going forward; Is my inexperience as a researcher noticeable? I need to maintain professionalism to enhance the participant's sense of trust in me in order to share their true experiences and perceptions with me. Further, is it evident in my approach with participants that I am not a parent? I need to ensure that I always remain objective and open-minded.	Constant reflection Impact of my own personal standing
I was proud of my first attempt in my semi-structured interview with participant 1. I was pleased with the feedback from my supervisor and co-researcher on my interview skills and being able to prompt the necessary questions. My supervisor informed me that awkward silence can be beneficial if I learn how to use it properly in order to indirectly prompt a further response about the question. After reflecting on this, I realised that sometimes silences are awkward, but I rather allow participants those few extra seconds to elicit more information out of them.	Growth as a researcher
As the conversation continued, I was able to observe that even though parents were aware of the basic challenges their child with CVD faced, their knowledge seemed limited to specific subjects such as "art" however, some did not consider the implication colour has on perceiving food, cloths and participating in sports as well as school subjects such as maths and geography. Parents seemed to be aware of the current challenges that their child may face but are unaware of the broader aspects such as career choices and the idea of the emotional challenges of not being able to work towards their dream careers that they may not be able to pursue due to the condition of CVD.	Gained insight
After the interview, I reflect on, by empowering parents, teachers and children as well as bringing about school, peer and societal awareness can allow for a child facing CVD challenges to be supported holistically and to empower their well-being"	Increased awareness and support

Appendix I:

Field Notes

An excerpt of the field notes from my interview with participant 1 is included in this PDF copy of my mini-dissertation. All field note entries can be accessed on the separate PDF document attached to this mini-dissertation.

Date	*29 August 2022*
Interview	*1*
Place	*Teams Meet*
Time	*17H00 – 17H38*
Number of participants	*1 - (Mother)*

• I arrived at the meeting early to share my PowerPoint presentation and make sure everything was ready for the interview with participant 1. • The interview platform used was Teams Meeting. • My co-researcher and supervisor joined shortly after. • The participant joined a few moments after 17H00. • We all greeted each other. • My co-researcher started by introducing my supervisor and I to the participant and explained the purpose of the meeting. • I then took over by re-welcoming the participant and thanking her for her time and being available for the interview. • I then proceeded to debrief the participant on the purpose of the discussion and encouraged her to share her truthful experiences about the parent guidance intervention with us. • I indicated to the participant that all information shared is confidential and that she is free to withdraw from the process at any time if she feels the need to do so. • I asked participant 1 if she minded if I recorded the session, she agreed, and we continued. • I refreshed the participants memory on how we conducted the parent intervention. • The aim of the intervention was on how parents may support their child with CVD in the home environment. • We focused on holistic child development and attempted to provide guidelines in terms of the various areas of child functioning. • I then directed her to the presentation where she was able to see an overview of all the topics that were covered in the intervention. • We then proceeded with the interview questions. • Participant 1 indicated that it was a positive experience and she gained knowledge in terms of children being bullied for CVD and that it affects career choices.	Platform of Interview Aim of study Positive experience Gained new insight Effect on career choice Effect on emotional functioning

• The information in the intervention was transferable to other challenges and special needs contexts thus it could be used to assist other children and not just those with CVD.	Broader application value and applicable to other disabilities
• The need for increased awareness, increased information and understanding how people with CVD perceive the world around them.	Increase awareness Insight into how people with CVD perceive the world
• Participant gained insight into how CVD may alter or disturb certain school subjects due to materials used.	Effect on school subjects
• The intervention helped the participant understand their child's everyday functioning (toothbrush colour).	Raised awareness on everyday living
• Topics on self-esteem held value	Information on self-esteem was valuable
• EnChroma glasses assisted with child self-esteem and "coolness factor" and became a conversation piece.	Positive effect of EnChroma glasses on self-image
• Highlighted the need for teacher, school, peer, and society awareness.	Overall need for an increased awareness
• Many children are undiagnosed and do not know they have CVD.	Children not being diagnosed
• Participant became more aware of their child's needs and daily functioning in terms of clothing colours.	Increased awareness by mother-effect on choices for the child
• Learnt to advise and support child better with conversations when there is a challenge.	Increased support and advise by parents
• Support from participant 1 helped to empower child and boost his self-confidence.	Child empowerment and increased self-esteem
• Participant 1 indicated that all topics that were covered were valuable and that there were none she would recommend we add as the intervention was holistic.	Value in all topics
• WhatsApp was regarded as suitable and accessible.	WhatsApp regarded as suitable platform
• The frequency of messages was to be to much, the participant would have preferred for messages to be sent once a week as messages were too lengthy and the amount of information in the infographics was too much to get through, needs to be reduced.	Frequency too high. Reduce frequency to 1x week. Reduce length of messages
• Videos were too long.	Shorter videos
• Indicated that the videos and quotes worked well and were a nice touch.	Positive about videos and quotations
• Emphasis on the importance of teachers needing to become more aware of CVD.	Teacher awareness on being informed about CVD
• Also emphasised the need for awareness in schools, especially in the foundation phase – early identification and intervention.	Importance of raising awareness at school, especially foundation phase

• My supervisor and co-researcher joined in the discussion adding an additional perspective. • I closed off participant 1's interview and thanked her for joining the meeting and making the study possible by participating. • I ended the meeting by informing the participant that a booklet with all the infographics will be compiled and shared with her when ready.	