

PROBLEM-SOLVING SKILLS USED BY ADOLESCENTS AND FAMILIES AFFECTED BY DROUGHT TO ENHANCE FAMILY RESILIENCE

by

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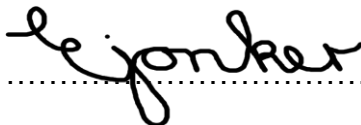
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I declare that the mini dissertation/dissertation, which I hereby submit in partial fulfilment of the degree Magister Educationis in Educational Psychology at the University of Pretoria, is my own work, which has not previously been submitted by me for a degree at the aforementioned or any other tertiary institution. I am aware of the University's policy on plagiarism and declare that all resources and citations from the literature have been acknowledged in-text and referenced in full.



.....

Elmarie Jonker

31 October 2022

DEDICATION

A tree, to me, has always been the symbol of how a family works. We all have our own trees. Some may be great oaks, which have stood the test of time, sheltered many animals, and provided shade for weary travellers. Some may be the mighty palm tree, which can withstand the desert climate and still be fruitful near the oasis. Others may be fruit trees, nurturing those around them. Then we have those trees that have been cut down, where only a stump remains. Those who are missing branches or have inadequate roots to withstand strong winds. Those who intertwined themselves with the trees next to them. Those who have bent and have been weathered. The ones often overlooked, because they are not as beautiful or as significant. Those trees are the ones I admire the most. I admire them because they held fast, although everything had been thrown in their path, and yet they grew.

My own tree has seen better days. It has been uprooted and replanted since it was still only a seedling. It has grown and intertwined with other trees. As it grew, its branches were cut down, torn, and broken off as it tried to stay put through the storms. My tree's branches are unequal, some twisted and dried out, whereas others bear leaves and are fruitful. It is a tree that has seen love, with hearts carved into it, but also had its wood used as epitaphs for branches broken off. My tree, just like yours, tells a unique story.

I dedicate this dissertation to The Sun, My Lord and Saviour, Jesus Christ, who controlled the elements and nourished me into the tree I am today. The one who saw the storms and guarded me. I dedicate it to the rain and soil, my parents, who raised me to grow despite the obstacles I faced. I dedicate this research to my loving husband, who held my branches, who protected my flowers and reminded me to keep looking toward The Sun. I also dedicate this dissertation to the winds, who, in their rage, could not break down this little tree and rather taught it to fight against all odds. Finally, I dedicate it to the fallen leaves and the dead branches, who burdened the tree with sorrow but made it strong enough to support other saplings.

My little tree may not always be a thing of beauty to others, but to me, it is magnificent.

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ABSTRACT

Drought is a widespread, natural disaster in South Africa that has systemic impacts on adolescents, their families, and their communities. The effects of drought are subjective, as the perception people attach to lived experiences during droughts and how they respond to this disaster affect their abilities to adapt and adjust to crises. By understanding how drought within the South African context is perceived, knowledge of problem-solving strategies employed by adolescents and their families could be gained. Drought-related resilience research in other countries exists, however, a dearth of knowledge exists regarding how rural South African youth and their families experience drought and, respond to its related stressors.

As part of an international multidisciplinary and multisectoral team of researchers, a youth-based, qualitative study was conducted with a participatory, interpretivist design, to gain understanding of the perceptions young people have of drought, as it relates to social-ecological systems and resilience. The data obtained constituted a single-case participatory action research (PAR) study of drought-affected families and young people living in the Govan Mbeki Municipality in Mpumalanga. Sampling was conducted through the use of purposive sampling techniques, focusing on data obtained from 43 youth participant co-researchers, aged between 15 and 25. The study utilised qualitative, exploratory arts-based activities and focus group interviews as the primary sources of direct data collection. The data was subsequently analysed using inductive, thematic analysis, identifying individual, familial and community-based problem-solving similarities and differences.

Keywords: adolescents, community, coping strategies, drought, family, family resilience, interpretivist paradigm, perception, problem-solving, qualitative methodological approach, resilience, single-case participatory action research study, socio-ecological systems, stressors, youth-based approach, young people

DECLARATION OF PROFESSIONAL EDITING

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I declare that I have edited and proofread this document. My involvement was restricted to language usage and spelling, completeness and consistency, referencing style and formatting of headings and layout, captions and Table of Contents. I did no structural re-writing of the content. The writer was provided with the corrections/amendments which required action. The corrected document was subsequently proofread and several additional corrections were advised.

The undersigned takes no responsibility for corrections/amendments not carried out in the final copy submitted for examination purposes.

Sincerely,



Marion Pfeiffer

Freelance Copyeditor and Proofreader

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LIST OF ABBREVIATIONS

FAAR	Family Adjustment and Adaptation Response
NEET	Not in Employment, Education or Training
NGOs	Non-Governmental Organisations
PAR	Participatory action research
PDSI	Palmer's Drought Severity Index
PSST	Problem-Solving Skills Training
SA	South Africa
UK	United Kingdom
USA	United States of America
WHO	World Health Organization

CHAPTER 1: INTRODUCTION AND BACKGROUND OF THE STUDY

1.1 INTRODUCTION AND RATIONALE

The drought in Southern Africa is a widespread phenomenon with far-reaching economic, environmental and social impacts (Minnegal & Dwyer, 2000). These effects are more devastating than any other natural disaster and have necessitated a detailed analysis (Vogel, 1993). Rural South African communities affected by poverty, lack of infrastructure, and social and political turmoil, are especially vulnerable to the effects of drought (Vogel, 1993; Edossa, Woyessa & Welderufael, 2016). Many environmental factors contribute to the experienced global climate change; however, the impacts of drought on rural communities have not received sufficient attention (Theron, Mampane, Ebersöhn & Hart, 2020; Kousky, 2016; Vogel, 1993; Edossa et al., 2016; Dayton-Johnson, 2004).

The effects of drought in Sub-Saharan Africa are dire since the region is ill-equipped and lacks the resources to address the impact of drought on families and communities (Edossa et al., 2016). Natural disasters, such as droughts, can particularly affect the mental and general well-being of youths (Dayton-Johnson, 2004; Sartore, Kelly, Stain, Albrecht & Higginbotham, 2008; Masten, 2014). Unprecedented climate change and higher average temperatures are expected globally, resulting in more frequent extreme weather events over extensive land areas (Edossa et al., 2016). The socioeconomic setting in which climatic deviations, such as droughts, should be considered when evaluating how people experience, respond to and recover from natural disasters (Minnegal & Dwyer, 2000).

Concerns have been raised in African countries concerning sustainability, stability and security as the degradation of natural resources, such as water, could result in the radicalisation of unemployed youths from marginalised rural communities by extremist groups (IPS world desk, 2018). This is alarming considering that the study by van Breda and Theron (2018) indicates that nearly two-thirds of the South African population is under the age of 34; most are battling unemployment, high levels of income inequality and require financial support from other adults. Considering that social ecologies prove to support youths more effectively in adjusting to adverse circumstances than utilising their individual strengths, further research into how socio-ecological impacts affect youths is crucial (van Rensburg, Theron & Rothmann, 2018).

Determining how adolescents and youth define drought in a rural South African setting and whether differences exist in how drought is perceived holds significance when investigating youths' use of their supportive resources (Theron, 2016; Sartore et al., 2008; Malan-van Rooyen, 2015; van Rensburg et al., 2018). Family stress and coping theories conclude that individual and collective family perceptions are vital in establishing the severity of crises (Patterson, 1988; 2002). Using *communal coping resources* through social relationships proved vital in establishing adaptive coping pathways as indigenous people adapt to adversity (Malan-van Rooyen, 2015). This could prove crucial when examining how the severity and occurrences of drought affect the lives of youths, and in determining the problem-solving skills they employ in combatting the effects of droughts (Masten, 2014; Sartore et al., 2008).

As a former foundation phase remedial educator, who taught in rural communities affected by drought in the Eastern Cape, the lack of research conducted into the experiences of youths living in vulnerable communities, especially pertaining to drought, is alarming (Hall, 2015). Currently, the researcher lives in Gqeberha, an area experiencing severe water restrictions, and the effects thereof have adversely affected family and loved ones. It has had financial, social, emotional and physiological implications for residents (Pamla, Thondhlana & Ruwanza, 2021). Although the researcher was raised in a middle-class family, many of her students were not as fortunate. This emphasised the difference in experiences between the youths and their families compared to that of the researcher leading to questions concerning whether perceived experiences by individuals determine how problems are solved. Studies focusing on marginalised groups, such as youths, have previously been neglected, and not much is known of the long-term effects drought has on the mental health of individuals affected by drought (Hall, 2015; van Rensburg et al., 2018; Sartore et al., 2008). Understanding the effects of drought on South African youth and their families could be valuable for future economic growth opportunities within the African continent and gain insight into the wellness, problem-solving strategies and practices employed by the families of this age group, with the aim to leverage resilience (Drummond, Thakoor & Yu, 2014).

1.2 PURPOSE OF THE STUDY

The purpose of this study is to examine how adolescents, youth, and young people from a South African rural community experience drought and how it influences problem-solving skills employed by themselves and their families. The study focuses on South African youths (aged 15–25) residing at Leandra, a town within the Govan Mbeki Municipality of Mpumalanga, as shown below in Figure 1.

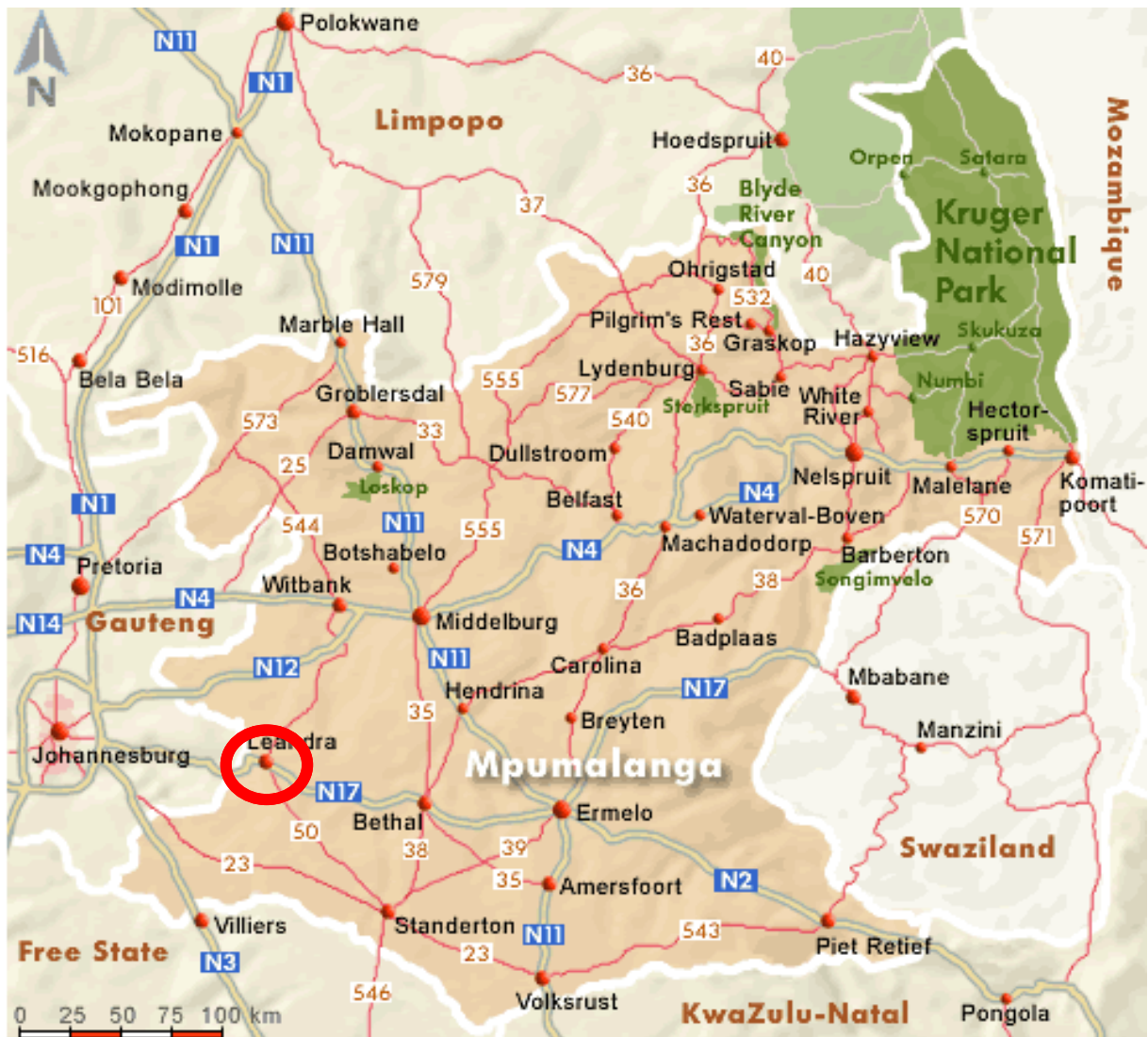


Figure 1. Map of Mpumalanga (Southern Domain Online Travel Guides)

The study aims to answer questions relating to the systemic impact of drought and how this affects the experiences youths and their families have of their abilities to adapt and adjust to crises, ultimately affecting their problem-solving strategies (Patterson, 1988; Heppner, Witty & Dixon, 2004; Sartore et al., 2008; Theron, 2016). This is used

to gain knowledge regarding family resilience. Although data relating to drought experiences in other countries exist, a dearth of knowledge exists regarding how rural South African communities experience drought and respond to its related stressors (Sartore et al., 2008; Theron, 2016).

1.3 PROBLEM STATEMENT

Drought is a common phenomenon in Sub-Saharan Africa that impacts not only the ecological system of the area but could potentially be devastating to the physical, social, emotional and mental health of communities ((Minnegal & Dwyer, 2000; Kousky, 2016; Sartore et al., 2008). Historically people affected by drought did not receive the resources needed to address the challenges they faced, and the input from youths has not been recognised (Theron et al., 2020; Edossa et al., 2016; Hall, 2016; Masten, 2014). By understanding the perceptions of this marginalised population group and how they utilise problem-solving resources as it pertains to drought, attempts could be made to offer effective support (Theron, 2016). By recognising the voices of the youths championing their own experiences, new and very valuable information could be gained, which could be leveraged in future resilience research studies (Hall, 2016; Ferreira & Ebersöhn, 2012).

1.4 BACKGROUND OF THE STUDY

As part of a multidisciplinary and multisectoral team of UK-based and SA-based researchers, and SA community partners (Khulisa Social Solutions), a youth-based, qualitative study was conducted in 2017. The study consisted of a social-ecological approach, with a participatory, interpretivist design, to understand the problem-solving skills employed by youths and their families in times of drought related to social-ecological systems and resilience. The data obtained constituted a single-case PAR study of drought-affected families and youths living in the research site of Leandra, Mpumalanga.

The province of Mpumalanga was declared a drought disaster zone at the time of the study, in which 14 of 21 municipalities had been severely affected (Evans, 2015; News 24 Correspondent, 2015; SABC news, 2018). The Govan Mbeki Municipality had to implement water rationing to combat the adverse effects of drought (Aukema, 2016). The municipality made concerted efforts to initiate different water conservation strategies; however, water wastage was still prevalent in this region (Aukema, 2017).

Choosing Leandra as a research site hinged on its location within the drought-stricken Govan Mbeki Municipality, and its high youth population (roughly a quarter of the population). Leandra is a small community, with a population of approximately 2023 (according to a 2011 census), consisting of around 508 households (Patterns of Resilience to Drought Project Team, 2018). By using this small community, an approximate perception of drought and how it impacted on their families, could be gained.

1.5 OVERVIEW OF METHODOLOGY

Table 1: Summary of Research methodology

<p>Research Questions</p>	<p><u>Primary Question:</u></p> <p>How does the experience of drought by adolescents and their families inform their problem-solving skills?</p> <p><u>Secondary Questions:</u></p> <ol style="list-style-type: none"> 1. What are the risks and stressors experienced by youths and their families in times of drought? 2. In which way does problem-solving affect family resilience processes in times of drought?
<p>Assumptions</p>	<p>People in South African rural communities may experience the effects of drought differently compared to individuals from similar communities in other countries.</p> <p>Problem-solving skills employed by adolescents and their families in times of drought reflect the socioeconomic, socio-political and socio-cultural context of their community.</p> <p>The risks and stressors related to drought influences how adolescents and their families employ problem-solving skills.</p> <p>Adolescents and their respective families may differ in their approaches to problem-solving in times of drought.</p> <p>Current and historical experiences of drought affect adolescents and their families in gender-specific ways.</p> <p>The impact drought has on adolescents and their families may influence traditional family roles, ultimately affecting how problems are solved.</p>
	<p>An interpretivist lens was utilised, as its ontological assumption is that reality is socially constructed through human interactions (Guba & Lincoln, 1994). These interactions are bound to specific times and</p>

Epistemology	<p>contexts (Diaz Andrade, 2009), by which people interpret and create multiple meanings of events (Mack, 2010). This lens assumes that social constructions inform knowledge systems through languages, documents, consciousness, shared meanings, tools, and artefacts (Klein & Myers, 1999; McMillan & Schumacher, 2014).</p>
Methodological approach	<p>A qualitative research study was used, as it uses a holistic, emerging, qualitative approach that allows for contextually sensitive data collection and is rooted in the personal experiences of the participants. This thus allowed for the inclusion of behavioural patterns and lived experiences observed within defined social contexts, as well as the meanings individuals ascribe to problems (Ritchie, 2003; Creswell, 2007; Flick, 2009; McMillan & Schumacher, 2010; Yin, 2013).</p>
Research Design	<p>Participants were trained to become empowered co-researchers using a hybrid model consisting of an instrumental case study and a single case PAR design (Cornwall & Jewkes, 1995; Baxter, 2008; Garst et al., 2012; Hart et al., 2016). This allows for intensive studies into a specific case to better understand a certain population or larger group of cases (Fletcher, MacPhee & Dickson, 2015). An in-depth appreciation of a phenomenon, event or issue was gained by experiencing it in its natural context (Crowe et al., 2011).</p>
Selection of participants	<p>A combination of purposeful sampling strategies and a critical case sampling method focusing on the age group of youths was used (McMillan & Schumacher, 2012).</p>
Data Collection	<p>Focus groups were used in the study to emphasise the participant co-researchers' lived experiences through participation (McLafferty, 2004).</p>
Data Collection	<p>Due to the participatory nature of the research, the study focused on empowering participants to champion their own research and made use of predominantly arts-based activities, as well as semi-structured interviews (Chambers, 2007; Ferreira & Ebersöhn, 2012; Hart et al., 2016; Chamberlain et al., 2018).</p>
Data analysis	<p>The arts-based activities included the collection of artefacts of individuals' personal experiences, expressions, actions and values. This thus required the use of a flexible, inductive, thematic approach to data analysis. Communicative data could therefore be generalised and placed into categories (Haggarty, 1996; Braun & Clarke, 2006; Fereday, 2006; Elo & Kyngäs, 2008; McMillan & Schumacher, 2014).</p>

1.6 CLARIFICATION OF CONCEPTS

1.6.1 Perception and experience

Efron (1969) defines perception as a person's cognitive contact with their environment. Research conducted into the perceptions of youths proved to be limited (Savahl, Malcolm, Slembrouck, Adams, Willenberg & September, 2015). Efron (1969) agrees, stating that the exact nature of perception has not been formally defined or conceptualised; therefore, it cannot be explained or experienced accurately. For the study, perception is defined as the subjective, cognitive experiences people have with their environments (Efron, 1969).

1.6.2 Drought

Msangi (2004) defines drought as the prolonged, below-average rainfall in an area. Caldwell and Boyd (2009) define drought as an acute shortage of water, which ranges between serious (rainfall of no more than 5 per cent to 10 per cent) and severe (rainfall of less than 10 per cent), as compared to rainfall during the same period in the previous year. Drought occurs when the Palmer's drought severity index (PDSI) values, which indicates the soil moisture levels, are continuously negative (Edossa et al., 2014). For this study, drought is understood as the acute shortage of water due to prolonged below-average rainfall, indicating negative PDSI values, reflecting the meteorological, agricultural, hydrological and socioeconomic characteristics of a region (Msangi, 2004; du Pisani, Fouché & Venter, 1998).

1.6.3 Youths, young people and adolescents

The terms 'adolescence', 'young people' and 'youths' are often used interchangeably to describe individuals ranging from ages 10 up to 24. Adolescence is a formative, transitional period between puberty and adulthood characterised by physical, psychological, cognitive, emotional and social changes. The World Health Organisation (WHO) (2018) defines youths as individuals between the ages of 15 to 24. Children, youths and young adults between 10 and 24 are referred to as young people or youths and often used interchangeably (Gilligan, 2000; Theron, 2016 & Hall, 2016; UNESCO, 2017). For the purpose of this study, youths, young people and adolescents will refer to individuals aged between 15 and 24 years.

1.6.4 Resilience

Resilience is understood as the ability to fare better than expected under difficult circumstances by using personal characteristics, psychological strength and coping skills to resist or recover from adversities (Gilligan, 2000; 2008; Caldwell & Boyd, 2009; Newman & Blackburn, 2002).

1.6.5 Coping skills

For the purpose of the study, coping skills will be understood as a person's perception of a stressful event and their perceived capacity to cope with the event by utilising adaptation skills allowing them to adopt alternative behavioural and thought patterns, which, in turn, enables them to overcome their stressors (Caldwell & Boyd, 2009).

1.6.6 Family

A family can be perceived as a complex, integrated system in which all family members are interdependent while exerting a continuous and reciprocal influence on one another (Minuchin, 1985). For this study, the family will be regarded as a hierarchical structure, comprising subsystems, such as parents, caregivers, siblings and spouses, embedded in a larger, interactive community structure (Cox & Paley, 1997).

1.6.7 Family resilience

Family resilience can be understood as the family members' ability to successfully cope during disruptive life challenges. This is the ability of family members, through support and cohesion, to withstand and rebound from future challenges while emerging from adversity stronger and more resourceful (Black & Lobo, 2008; Walsh, 2011).

1.6.8 Problem-solving

For the purpose of the study, problem-solving will be understood as a complex process of a recurrent, goal-directed sequence of cognitive, affective and behavioural operations used to adapt to stressful external and internal demands (Heppner & Krauskopf, 1987). These processes determine decisions based on the needs presented during daily difficulties, and traumatic or stressful events (Heppner, Witty & Dixon, 2004).

1.7 SUMMARY OF ETHICAL CONSIDERATIONS OF THE STUDY

Participants were made aware of the purpose, design and usefulness of the proposed research, their roles as a volunteer in the study and informed of the potential harm and

risks, or beneficence, that are involved with undertaking the research (Orb, Eisenhauer & Wynaden, 2001; McMillan & Schumacher, 2014). One of the ethical considerations considered in the study is justice, whereby the exploitation of participants was safeguarded (Orb et al., 2001; Cornwall & Pratt, 2011).

According to Cohen, Manion and Morrison (2011), the ethical considerations included informed consent and assent, voluntary participation, the protection from harm and the right to privacy, addressing ethical dilemmas and sources of tension, access and acceptance, voices of experience, confidentiality and anonymity, and trust.

During the study, the researcher had to consider her expertise, worldview and pre-conceptions about the research and produce research of a high standard representative of the data obtained by the collaborative commitment of the participant co-researchers and research team (McMillan & Schumacher, 2014; Ferreira & Ebersöhn, 2012; Ponterotto, 2013).

The advertisement (Appendix A), assent (Appendix B) informed consent (Addendices C & D) and approval for the study were conducted by the community partner, Khulisa Social Solutions, who informed the participants of their roles in the research and provided each participant with an information pack regarding the study. The participants were informed that they were free to choose whether they participated and could terminate their role as co-researchers at any time throughout the research process. As informed consent and assent may not always be possible to obtain beforehand, especially in the case of observations, it was considered a dialogue between the participants and researchers throughout the research process (McMillan & Schumacher, 2014).

In the study by Ferreira and Ebersöhn (2012), anonymity was challenged since the participants indicated they were proud of their roles as co-researchers and did not want to remain anonymous in the publication of the study. The process of assent and informed consent was addressed with the possibility of adjusting ethical considerations to align with the South African context was suggested since many rural children do not reside with parents or legal guardians (Theron, 2016; Hall, 2016). Theron (2016) referred to child-headed households, where children adopt the parental role in the family, and questioned whether it is fair to ask an adult's permission on the child's behalf to take part in a research study, as the child functions as the head of a family.

In order to give the participants ownership over their roles within the research, each participant was asked which name they would prefer during data collection. Each participant was assigned a code to preserve their identities within this specific study. All participants used in the study consented to the use of their chosen pseudonyms, artefacts, photos and videos taken during the research process. All facilitators contributed to the compilation of media used throughout the greater research project. As a result, a booklet 'United We Stand' (Patterns of Resilience to Drought Project Team, 2018) collating data obtained throughout the research process, was published. Documentation obtained throughout the research process was stored in a locked cabinet and all data transcribed on electronic devices are password protected for safeguarding (Anon, 2017; PsySSA, 2007). An ethical clearance application was submitted to the University of Pretoria prior to the commencement of the research study, and all documentation resulting from the study shall be kept in the archives at the University of Pretoria for 15 years.

1.8 SUMMARY OF CHAPTERS

1.8.1 Chapter 1: Overview of the research

Chapter 1 serves as an introduction to the study, outlines the aim of the study, discusses the rationale for undertaking the study and explains the purpose of the study. This chapter includes the research questions formulated to guide the study and defines the terms used during the investigation into this study. This chapter further includes the working assumption and problem statement of the study. In concluding this chapter, the research methodology selected is tabulated, and the ethical considerations adhered to throughout the study are briefly discussed.

1.8.2 Chapter 2: Literature Review

Chapter 2 consists of a comprehensive literature study. It focuses on the mental, social and ecological impacts of drought and how this relates to the problem-solving abilities utilised by drought-affected youths and their families in Leandra. Theories identified as being relevant to this study include Walsh's Family resilience framework (Walsh, 1993; 1996; 1998), Bronfenbrenner's ecological systems model (Bronfenbrenner, 1995) as well as Engel's biopsychosocial model (Greenberg & Ramsey, 2005; Engel, 1977; 1980). Other scholars' contributions relevant to the topic will be considered and discussed.

1.8.3 Chapter 3: Research design and methodology

Chapter 3 constitutes the research design and methodology used in the study. It further discusses in detail the paradigmatic perspective used for the research, the role of the researcher, ethical considerations and the methodological norms considered to ensure quality criteria.

1.8.4 Chapter 4: Research results and discussions

Chapter 4 discusses the research results obtained from the thematic analysis of the data. It further depicts and describes the data collection process and findings, which support the research, and identifies the themes and subthemes utilised in the data analysis process.

1.8.5 Chapter 5: Conclusions and recommendations

Chapter 5 considers the findings obtained in Chapter 4 and reflects on the research questions asked. In this chapter, the information obtained in Chapter 4 is compared to the literature review in Chapter 2. This comparison is used to discuss the limitations and contributions of the study and informs the recommendations made for further research.

1.9 CONCLUSION

Chapter 1 serves as an introduction, discusses the aim of the study, the rationale for undertaking the study and explains the purpose of the study. This chapter includes the research questions formulated to guide the study and defines the terms used during the investigation into this study. This chapter further includes the working assumption and problem statement of the study. In concluding this chapter, the research methodology selected is tabulated, and the ethical considerations adhered to throughout the study are briefly discussed.

2. CHAPTER 2: LITERATURE REVIEW

2.1 INTRODUCTION

The following chapter examines existing literature on the prevalence of drought and its effects on the problem-solving skills employed by youths and their families. This chapter discusses problem-solving as it relates to resilience processes, paying particular attention to family resilience processes and how these relates to family stress theories. It concludes by discussing the conceptual framework which underpins this study. This framework is based on Walsh's Family resilience framework and Patterson's Family Adjustment and Adaptation Response (FAAR) model.

2.2 UNDERSTANDING THE PROCESS OF PROBLEM-SOLVING

Problem-solving is multifaceted and cannot be studied in isolation, particularly pertaining to family resilience. Problem-solving not only involves systemic influences but is affected by social-ecological factors. This, in turn, affects the perceptions people have of themselves, their families and their perceived crises. As such, how families solve problems, adjust and adapt before and after crises are affected by how they perceive them (Patterson, 1988; 2002). Currently, a shortage of literature exists examining not only the perceptions of youths and how these perceptions shape their understanding of problem-solving processes. Adolescence is a formative, transitional period between puberty and adulthood, characterised by physical, psychological, cognitive, emotional and social changes. The experiences youths are exposed to during this period hold the potential to either inhibit or promote their abilities to solve problems effectively (WHO, 2018). These changes increase their vulnerability to negative outcomes and have the potential to either encourage or hinder biopsychosocial well-being. As these experiences impact not only youths but mental health in adulthood, it is crucial to examine how youths experience, solve and learn from problems and, in turn, how it affects their perception of their families (Rawatlal, Kliewer & Pillay, 2015).

Problem-solving as a concept can be difficult to define. It has been described as a complex process of the recurrent, goal-directed sequence of cognitive, affective and behavioural operations used to adapt to stressful external and internal demands (Heppner & Krauskopf, 1987). Individuals, and by degree, their families, make many decisions regarding daily difficulties (fulfilling the basic needs of the family) and

traumatic or stressful events (Heppner, Witty & Dixon, 2004). These events include poverty, health concerns, unemployment, poor education, and environmental degradation, which are particularly detrimental to people in developing countries such as South Africa (Brown & Ashman, 1996). Heppner et al. (2004) state that solving difficult life problems is a complex process, depending on many personal and environmental factors. Lazarus and Folkman (1984) support this notion by stating that balancing individuals' resources and environmental demands are instrumental in stress theory and problem-solving. This, however, makes problem-solving processes challenging to navigate.

Butler and Meichenbaum (1981) integrated metacognitive variables into the process of problem-solving. The authors indicate that individuals' perception of their problem-solving skills directly influences their problem-solving performance. This perspective has been utilised in research relating to stress theory, particularly relevant to the research by Patterson (2002) and Walsh (2012) into family resilience, where 'meaning' is formed around the contextual and familial background of individuals. The meaning individuals attach to their challenges could relate to both normative and non-normative stressors, as this determines how they view adversity, suffering and the solutions available (Wright & Bell, 2009).

Problem-solving is further influenced by the resources available to individuals and families. These resources include social support, financial stability, prior experience and knowledge, and individuals' own variable coping skills (Heppner et al., 2004). Ryan, Epstein, Keitner, Miller and Bishop (2005) identified two types of problems experienced by families, namely: instrumental problems (managing money, obtaining food, clothing and housing) and affective problems (expression of emotions). The inability to fulfil these demands creates tension within the family unit, affecting a family's ability to solve the problem (Ryan et al., 2005). This seems to account for why some individuals (and their families) present with problem-solving skills and strengths, whereas others display significant problem-solving deficits (Heppner et al., 2004). Families who function effectively circumnavigate these problems, whereas families experiencing stress and tension cannot do so (Ryan et al., 2005).

Another perspective on problem-solving relates to it forming part of a person's cognitive problem-solving skills, taking into account problem sensitivity, alternative solution thinking, causal thinking and means-end thinking. Research into this

perspective proved to generate more creative solutions to problems and stimulated the thought processes of individuals (Heppner et al., 2004). Walsh (2012) concurs with this perspective by emphasising the need for creative brainstorming opportunities. This, however, carries the caveat of being a process of negotiating differences between individuals and their families, which fosters a sense of collective responsibility when facing a problem. It is, therefore, important to utilise, maintain and build on the key processes available to them (Walsh, 2012).

2.3 DROUGHT WITHIN A SOUTH AFRICAN CONTEXT

South Africa has experienced the worst drought in over 50 years, over the period of 2014 and 2016 (Abbas, Bond & Midgely, 2020). Vogel (1993) states that the drought in Southern Africa has necessitated the need for a detailed analysis of the natural disaster. Research into the causes and impacts of droughts (Kousky, 2016) as it relates to an African context, especially regarding the impact drought has on rural communities has not received sufficient attention (Dayton-Johnson, 2004; Vogel, 1993; Edossa et al., 2016). Many environmental factors contribute to droughts; however, the social and political underpinnings of rural South African communities make them especially vulnerable (Vogel, 1993). The social impact of drought, such as stress, loss of productivity, economy, population decline, disruptions in social connectedness and witnessing the decline physical degradation of farmlands, has yet to receive sufficient attention (Edwards, Gray & Hunter, 2018).

The focus on the research site of Leandra, a town within the Govan Mbeki Municipality of Mpumalanga, is due to the historically consistent drought experienced within this area. The province of Mpumalanga was declared a drought disaster zone, in which 14 of 21 municipalities had been severely affected (Evans, 2015; News 24 Correspondent, 2015; SABC news, 2018). Mpumalanga remains the largest forestry region in the country, with most citizens being involved in the farming industry. Climate variability, resulting in drought within this region, could devastate national food and job security (Maponya, Mpandeli & Oduniyi, 2013).

According to the 2014/15 report by WWF-SA, Mpumalanga had the highest water use per irrigated hectare (WWF-SA, 2018), whereas the Western Cape, which has the largest irrigated land mass, had the lowest water use per capita, reflecting the success of water-saving measures implemented in the province (WWF-SA, 2018). The Govan

Mbeki Municipality had to implement similar water rationing measures to combat the adverse effects of drought (Aukema, 2016). Although the municipality has made concerted efforts to initiate different water conservation strategies, water wastage is still prevalent in this region, thus necessitating the need for further research into sustainable water preservation strategies (Aukema, 2017).

2.4 DEFINING DROUGHT AS A NATURAL DISASTER

Drought is a widespread phenomenon with serious economic, environmental and social impacts (Minnegal & Dwyer, 2000). It affects more people than any other natural hazard and is especially damaging to those affected by poverty in rural communities (Abbas et al., 2019; Edossa et al., 2016). The effects of drought in Sub-Saharan Africa are dire since the region is ill-equipped and lacks the resources to address the impact drought has on families and communities (Edossa et al., 2016). Natural disasters, such as droughts, can particularly affect the mental and general well-being of youths (Sartore et al., 2008; Dayton-Johnson, 2004; Masten, 2014). Unprecedented climate change and higher average temperatures are expected globally, resulting in more frequent extreme weather events over extensive land areas (Edossa et al., 2016). The socioeconomic setting in which climatic deviations, such as droughts, take place should be considered when how people experience, respond to and recover from natural disasters are evaluated (Minnegal & Dwyer, 2000).

Drought as a concept is difficult to define, as its origins stem not only from lack of precipitation and the prevalence of rising temperatures in a specific region but could result from the overuse of water sources, lack of infrastructure and overpopulation. As such, drought can be categorised into four groups: meteorological, agricultural, hydrological and socioeconomic drought (du Pisani et al., 1998; Hlalele, Mokhatle & Motlogeloa, 2016; Wolchover, 2018). Drought can further be described as the prolonged, below-average rainfall in an area, with an acute shortage of water, which ranges between serious (rainfall of no more than 5 per cent to 10 percent) and severe (rainfall of less than 10 percent), as compared to rainfall during the same period in the previous year (Msangi, 2004; Caldwell & Boyd, 2009). Drought occurs when the PDSI values, which indicate the soil moisture levels, are continuously negative (Edossa et al., 2016). Each of the four drought categories needs to be investigated to understand the impact of drought.

A meteorological drought can be defined as a decline in precipitation compared to the region's historical averages (du Pisani et al., 1998; Wolchover, 2018). According to the South African Weather Service (Weather SA, 2019), the rainfall averages of Southern Africa have declined rapidly, with a deficit average exceeding 25 per cent each year. This is alarming, considering that classification as a severe meteorological drought requires a yearly rainfall deficit of 20 per cent (Weather SA, 2019).

Of the four different types of drought, agricultural drought is the least understood, as it has received the least research (Hlalele et al., 2016). Agricultural droughts are determined by a reduction of ground moisture levels, resulting in reduced crop productions (du Pisani, Fouché & Venter, 1998; Hlalele et al., 2016; Wolchover, 2018).

Apart from dwindling water supplies, the agricultural droughts experienced in Southern Africa resulted in the reduction of staple and commercial crops, impacting food production and economic growth of African countries. The surge in crop failures resulted in the closure of farms, farmers becoming increasingly indebted, farm labour lay-offs and urbanisation escalation (Weather SA, 2019). The 2018/2019 drought report released by Agriculture South Africa (Agri SA, 2019) indicated that the agricultural sector shed more than 31 000 jobs, with a loss of approximately R7 billion in revenue. The same report indicates that a loss in maize production is predicted should current rainfall patterns persist, resulting in further inflation increases.

The prolonged drought increases the risk of widespread veldfires, particularly devastating to the agricultural sector, as large grazing areas are destroyed (Weather SA, 2019). This also negatively impacts the commercial timber industry and the international exportation of South African produce (Weather SA, 2019).

With the global rise in food prices and the increased reports of social unrest related to agricultural and economic stability, the need for South African farmers to adopt innovative strategies to enhance sustainable farming is crucial (WWF-SA, 2018).

A hydrological drought stems from persistently low water volumes in streams, rivers and reservoirs, worsened by human activities (du Pisani, Fouché & Venter, 1998; Hlalele et al., 2016; Wolchover, 2018). The decreased levels of rainfall impact surface water and dams, affecting the rate at which groundwater is recharged, ultimately affecting long-term water security, food production and health care (WWF-SA, 2018).

Socioeconomic droughts occur as the demand for water supplies exceeds the supply. This often results in the reduction of energy production and limits access to clean drinking water and hygiene and sanitation services (Hlalele et al., 2016; UNICEF, 2017; Wolchover, 2018). Endangered river ecosystems threaten water sources, where over-abstraction is at its highest when concentrated around major economic and agricultural hubs (WWF-SA, 2018). With the rising prevalence of load shedding in South Africa, water distribution could be taxed, as pumping stations are no longer able to regulate water distribution to major centres (De Wet, 2019). This is worsened by heat waves and the inability of pumping stations to maintain water-saving measures, further contributing to experienced drought conditions. This water scarcity raises the demand for water, causing a rise in store-bought water prices and water tariff hikes (WWF-SA, 2018), further impacting the well-being of vulnerable communities (Hlalele et al., 2016). This historic information is important as a socioeconomic drought could present with dire financial consequences to an already vulnerable population.

The report by the World Wildlife Federation of South Africa (WWF-SA, 2017) indicates that due to the drought, individuals and businesses should prepare for a 'new normal' in lieu of the deteriorating water shortage. The same report calls for the implementation of profound water preservation strategies to ensure steady water supplies that help to sustain the economy of the country in the future. This view is echoed by Abbas et al. (2019).

2.4 THE IMPORTANCE OF ADOLESCENT AND YOUTH PERCEPTIONS ON EXPERIENCES OF DROUGHT WITHIN A RURAL COMMUNITY

Determining how youths define drought in a rural South African setting and whether differences exist in how drought is perceived, as it relates to gender and other socio-demographic differences, holds significance when investigating youth's use of their supportive resources (Theron, 2016; Sartore et al., 2008; Malan-van Rooyen, 2015; van Rensburg et al., 2018). Family stress and coping theories conclude that both individual and family perceptions are vital in establishing the severity of crises (Patterson, 1988; 2002). Using communal coping resources through social relationships proved vital in establishing adaptive coping pathways as indigenous people adapt to adversity (Malan-van Rooyen, 2015). This could prove crucial when examining how the severity and occurrences of drought affect the lives of youths and in determining the coping skills they employ in combatting the effects of drought

(Masten, 2014; Sartore et al., 2008). Considering that social ecologies support youths more effectively in adjusting to adverse circumstances than utilising their individual strengths (van Rensburg et al., 2018), further research into how socio-ecological impacts affect youths is crucial.

Concerns have been raised in African countries with regard to sustainability, stability and security as the degradation of natural resources, such as water, could result in the future radicalisation of unemployed youths from marginalised rural communities by extremist groups (IPS world desk, 2018). This is alarming considering that the study by van Breda and Theron (2018) indicates that nearly two-thirds of the South African population is under the age of 34, most of whom are battling unemployment and high levels of income inequality and require financial support from other adults. These concerns are echoed in the study conducted by Hall (2016), which refers to 'Not in Employment, Education or Training' (NEET). This term indicates youth who are unemployed and not enrolled in any educational or training programme. The NEET group poses many concerns since they contribute to the poverty of the community and become idle youth who involve themselves in risky behaviour and delinquency (Drummond et al., 2014; Hall, 2016). Considering the role of social ecologies in influencing youth's ability to adjust (van Rensburg et al., 2018), these influences could either be used to advance or deter adaptive coping strategies.

The focus on the adolescent group in this study is due to the lack of information on the adolescent perception of drought (Hall, 2016) and its effects on their families, which could be instrumental in understanding family resilience.

2.5 THE IMPACT OF DROUGHT ON YOUTHS AND THEIR FAMILIES

The long-term effects of a chronic disaster, such as drought, on families and communities are poorly understood (Kousky, 2016). Family health can be described as the optimal growth, functioning and well-being of the whole family, which includes the biological, spiritual, psychological and sociological well-being, as well as the cultural factors of family systems (Black & Lobo, 2008). The health of families is determined by the availability of resources and is dependent on the emotional, physical and economic support received by each family member (Black & Lobo, 2008; Power et al., 2015). Long-term exposure to stress factors of drought, such as uncertainty, feelings of helplessness and loss of control, may be significant risk factors

for psychological morbidity (Sartore et al., 2008). The distress that arises from natural disasters, such as drought, can be associated with mental health problems, which include depression and anxiety (Kousky, 2016; Sartore et al., 2008). Natural disasters are also linked to ecological disturbances, which may affect the psychosocial health of individuals, families and communities (Greenberg & Ramsey, 2005). Hart, Gagnon, Eryigit-Madzwamuse, Cameron, Aranda, Rathbone & Heaver (2016) challenge the inequalities associated with rural, disadvantaged communities and state that well-being is a social phenomenon and should be considered when social structures and systems associated with health inequalities are to be transformed.

Social, political and economic marginalisation of individuals and groups predict negative developmental outcomes (Masten, 2014; Theron, 2017). Most at-risk children and youths in South Africa were born under conditions of crippling poverty, which limits their access to basic needs, such as food and shelter (Dass-Brailsford, 2005; van Breda & Theron, 2018). The prevalence of child-headed households, continuous child abuse and neglect of South African youth can result in immediate and long-term physical and mental health complications (Theron & Ungar, 2018; Van Breda & Theron, 2018). Dass-Brailsford (2005) indicates that 'socio-economic stress carries the potential of jeopardising children's growth and development, and damaging their sense of trust, safety and security'.

Mental health contributes to the overall well-being of individuals, societies and countries. However, unlike physical well-being, many people suffering from mental or behavioural disorders do not receive adequate treatment (Ahmad, 2016). This is alarming, considering that most developing countries do not have sufficient resources or are subject to stigmatisation and victimisation in relation to mental illness. Psychiatric disorders are the third most disabling condition in South Africa, after HIV/AIDS and other infectious diseases, and affect mainly individuals from low- and middle-income households (van't Hof, Stein, Marks, Tomlinson & Cuijpers, 2011). Despite this, only a quarter of South Africans diagnosed with anxiety and depression received treatment within one year. This is accredited to the uneven distribution of health care services, as most treatment facilities are situated in urban communities and still bear the characteristics of the political systems of the past (van't Hof et al., 2011).

Statistics South Africa conducts regular surveys but excludes the collection of child-centred data, which relates to information concerning children, as well as information as viewed by children (Hall, 2015; Kousky, 2016). This information can prove to be crucial in collecting data since a child- or youth-based approach, with the participants championing the research, could provide true representative data of family resilience practices (Theron, 2016; Ferreira & Ebersöhn, 2012; Black & Lobo, 2008). The research conducted by Hall (2015) states that 22 per cent of children in South Africa do not live with their biological parents and that a further 0,5 per cent of children live in child-headed households. This study echoes the concerns raised by Theron (2016) and Sartore et al. (2008) concerning the perception of traditional family roles as it relates to families who have experienced trauma.

2.6 THE PHENOMENON OF RESILIENCE

Resilience research in developmental science has deep roots in research and theory in child development, clinical sciences and the study of individual differences. The history of research in resilience is closely tied to the history of developmental psychopathology and the relational developmental systems theory that infuses this integrative approach to understanding variations in human adaptation over the life course (Masten, 2014). Resilience is generally defined as a relative resistance to environmental risk experiences, overcoming stress or adversity, or displaying a relatively good outcome, despite risk experiences (Rutter, 2012; Gilligan, 2000; 2008). Resilience as a concept can apply to many interacting systems, ranging from molecular structures and biological processes within an individual to the family systems, economic and ecological systems in which the individual finds themselves (Masten, 2014).

It is an observable phenomenon that emerged from and was influenced by general systems theory within ecology and psychology (Garmezy, 1971; Holling, 1973 & Masten, 2014). Resilience requires demonstrating that the actions found after risk experiences differ from those experienced without stress or adversity, using personal characteristics, psychological strength and coping skills to resist or recover from adversities (Caldwell & Boyd, 2009; Newman & Blackburn, 2002).

It is possible for people who have experienced trauma to recover by engaging in a process that promotes their expression of latent coping skills (Power et al., 2015;

Paton et al., 2003; Ungar, 2012). Rutter (2012), however, states that resilience cannot be viewed as a trait since that would imply that it is open to direct measurement. Further research into self-efficacy, sense of coherence, self-esteem, pro-sociality and other different individual qualities associated with resilience is required (Ungar, 2012). Resilience studies have been fraught with controversy and opinion, resulting in differing meanings associated with the term (Hart et al., 2016). However, most researchers agree that for resilience to be established, adversity must be present. How this adversity is perceived and responded to remains difficult to normalise, as it stems from various social environments (Hart et al., 2016). Resilience as a concept is subjective and has to be considered contextually (Dass-Brailsford, 2005). In considering resilience from the perspective of social ecologies indicates that the process is cofacilitated by the individual and their social systems negotiating for and engaging with contextually available resources (Theron, 2017). Hart et al. (2016) state that resilience places the individual and their adversity within the confounds of a multilevel context, where higher-level factors significantly impact the proximal factors of children.

The study conducted by Johnson, Taasoobshirazi, Kestler and Cordova (2015) questions the use of social resources in overcoming adversities, as it was unclear whether social supports facilitated resilience or used them as messengers of resilience. Ungar (2011) responds to the complications associated with resilience studies by questioning whether the successful processes attributed to resilience are done post hoc, thus incorrectly attributing success to these processes instead of accounting for different factors creating variances in outcomes. Based on these critiques, it is crucial to explore resilience within the social-ecological context being investigated and note all contributing factors, as well as the possible discrepancies identified within the current resilience-focused study.

2.7 THE SOUTH AFRICAN PERSPECTIVE ON FAMILY RESILIENCE

Family resilience involves the potential for families to enhance family functioning through adaptation, growth and recovery when faced with life challenges (Walsh, 2012). This process builds on the premise that all families are exposed to adversities; however, through key family processes, families could mediate such adversities in the future, enhancing the whole family as a unit (Walsh, 2012). Hall, Neely-Barnes, Graff,

Krcek, Roberts & Hankins (2011) state that any stressors experienced by families could affect the health of each family member and the relationships built within the family. These relationships include parents, siblings and parent-child relationships (Hall et al., 2011). The extent to which the family responds to this stressor is determined by its perception, and influences its ability to use the available resources (McCubbin & McCubbin, 1993). Bhana and Bachoo (2011) describes family resilience as the combination of the different characteristics of individuals within a family, which enables it to overcome adversities and display positive outcomes.

Research conducted into family resilience is not as prevalent as individual resilience studies. It is conceptually more complex since it incorporates a relational view, which examines the relationship processes employed by family units to offer sources of support to each family member (Black & Lobo, 2008; Power et al., 2015; Patterson, 2002). Walsh (2012) and Oswald (2002) offer perspective on what is meant by a family, stating that many people have formed intimate bonds with individuals, friends and community members they consider 'family'. The same authors state that this phenomenon is common among the lesbian, gay, bisexual and transgender community, who refer to this as their 'chosen family'.

Culture, traditions, rituals and practices contribute to the belief systems held by families, maintaining the mental well-being of each family member (Greeff & Loubser, 2007; Walsh, 2012). Many families from vulnerable communities draw on the strength of their cultural and spiritual traditions, seeking guidance, strength, comfort and connectedness when faced with adversity (Walsh, 2012). Spirituality is crucial in promoting the adaptation of the family and is expressed through religion, including social organisation, beliefs and cumulative traditions (Greeff & Loubser, 2007). Fukuyama and Sevig (1999) state that most cultures have incorporated spirituality into their daily lives. The same authors found that spirituality promoted physical and psychological well-being by warding off feelings of stress and depression. The inclusion of spirituality in daily tasks seems to promote 'realistic hope, attachment of meaning, values, inner freedom, belief systems, peak experiences as well as man's relationship with God' (Greeff & Loubser, 2007, p. 289).

In the study by Bozalek (1999), the researcher found that caring, from a Black South African family perspective, can be understood as a reciprocal interaction between parents and their children and between the family and the community. The same study

indicated that due to the inequalities experienced during Apartheid, many families had to rely on their communities for resources, thus cultivating a sense of kinship between them. It serves as motivation for the current study to include the familial perspective on 'family' to define drought. Interestingly in Sartore et al. (2008), the participants did not refer to their own experiences of drought but rather answered in terms of the views of their families and communities. This is a strong similarity to the study by Theron (2010), in which traditional 'ubuntu' values were instrumental in encouraging resilience within rural communities (Black & Lobo, 2008). For this reason, the current study focuses on family resilience in relation to their ecological systems when describing how families respond and adapt to drought.

2.8 SOCIETAL CONSIDERATIONS AND ITS EFFECT ON FAMILIES

Gender is a socially constructed idea which carries characteristics, expectations, and behaviours considered appropriate for males and females within a specific culture (Knudson-Martin, 2012). Gender expectations define the value and worth of family members in relation to each other and the larger society (McGoldrick, Anderson & Walsh, 1989). These beliefs not only influence the individual behaviour of males and females but are also reinforced by the collective cultural and institutional norms of the society it represents (Pulerwitz & Barker, 2008). In South Africa, these norms have been shaped by the turmoil of the political and historical past, changing how traditional gender roles of family members are viewed. Due to labour migration laws implemented in the past, many Black South Africans faced the reality of physically absent father figures. This created a shift in the perceived gender roles of Black South African families (Budlender & Lund, 2011; Khewu & Adu, 2015; Makusha & Richter, 2014; Morrell & Richter, 2006; Posel & Devey, 2006).

The study conducted by Theron (2015), focusing on the resilience resources utilised by South African youth, found that the most prominent familial relationships were those between youth and their mothers or grandmothers. Very few participants represented their families during data collection, and none built clay models representing their fathers. This indicated to the researchers that the male figures of households, though uninvolved or living elsewhere, were viewed in light of financial support, and their absence made a difference to how youth, in particular, viewed the resources available to them. Theron (2015) highlights the cultural expectation of Black South African women to champion their children, communities and nation. This can be challenging,

as children, youth and women are most affected by social inequalities and access to resources (Theron & Theron, 2014).

The study by Theron (2016) indicated that female participants expressed more significant emotional reactions to resilience and coping skills than male participants. Sartore et al. (2008) found that higher rates of suicide were reported in young men living in areas suffering from drought, and changes in the family roles caused distress among the participants. In this study, the women worked in the nearby towns during the week while the men remained on the farms. This represents a shift in traditional gender roles.

Cultural hierarchical systems engrained into the community might influence the how participants may answer questions (Theron, 2016). The current study used focus groups, so these systems need to be considered when analysing the data.

2.9 CONCEPTUAL FRAMEWORK GUIDING THE STUDY

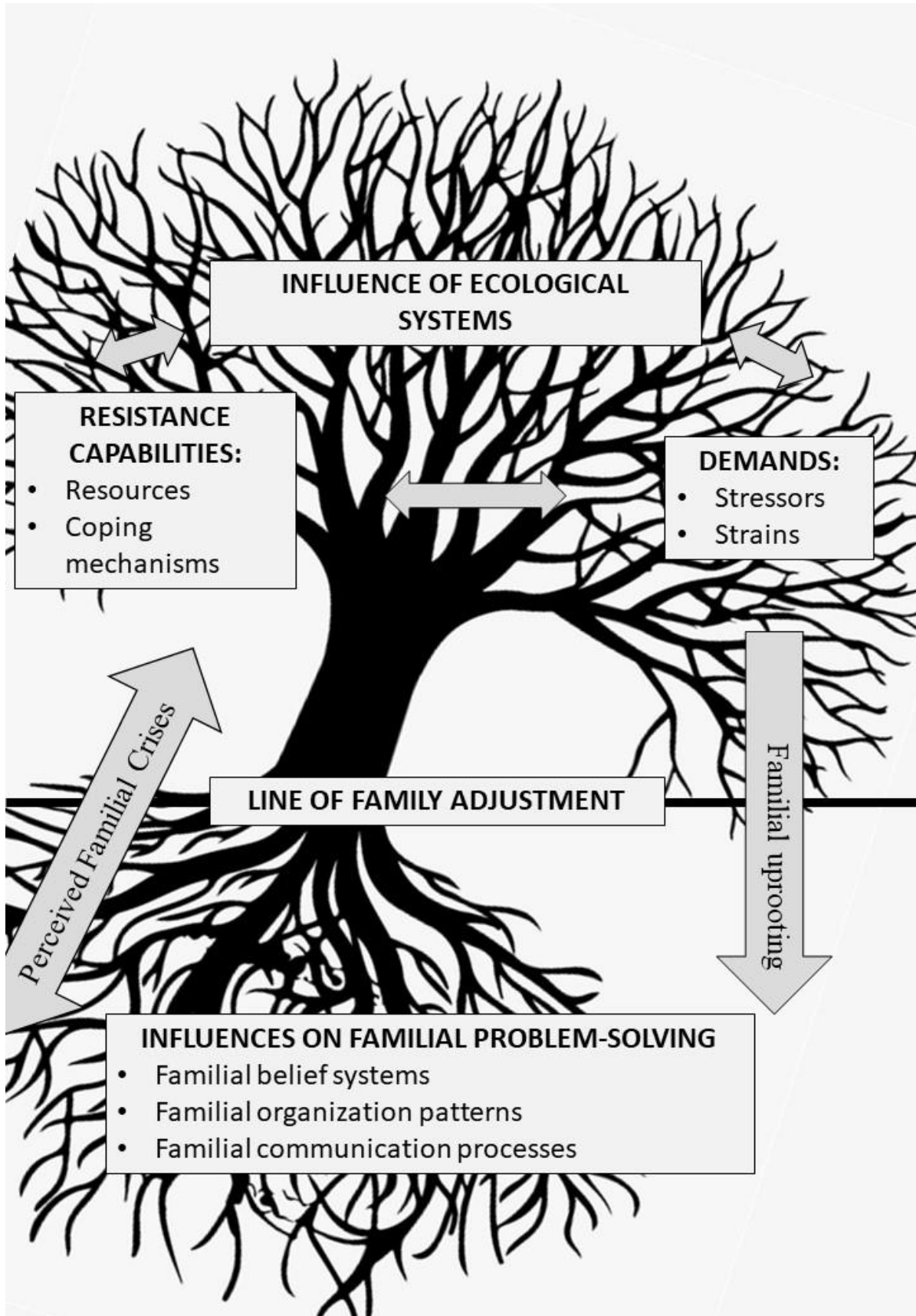
2.9.1 Multi-theoretical framework for familial problem-solving

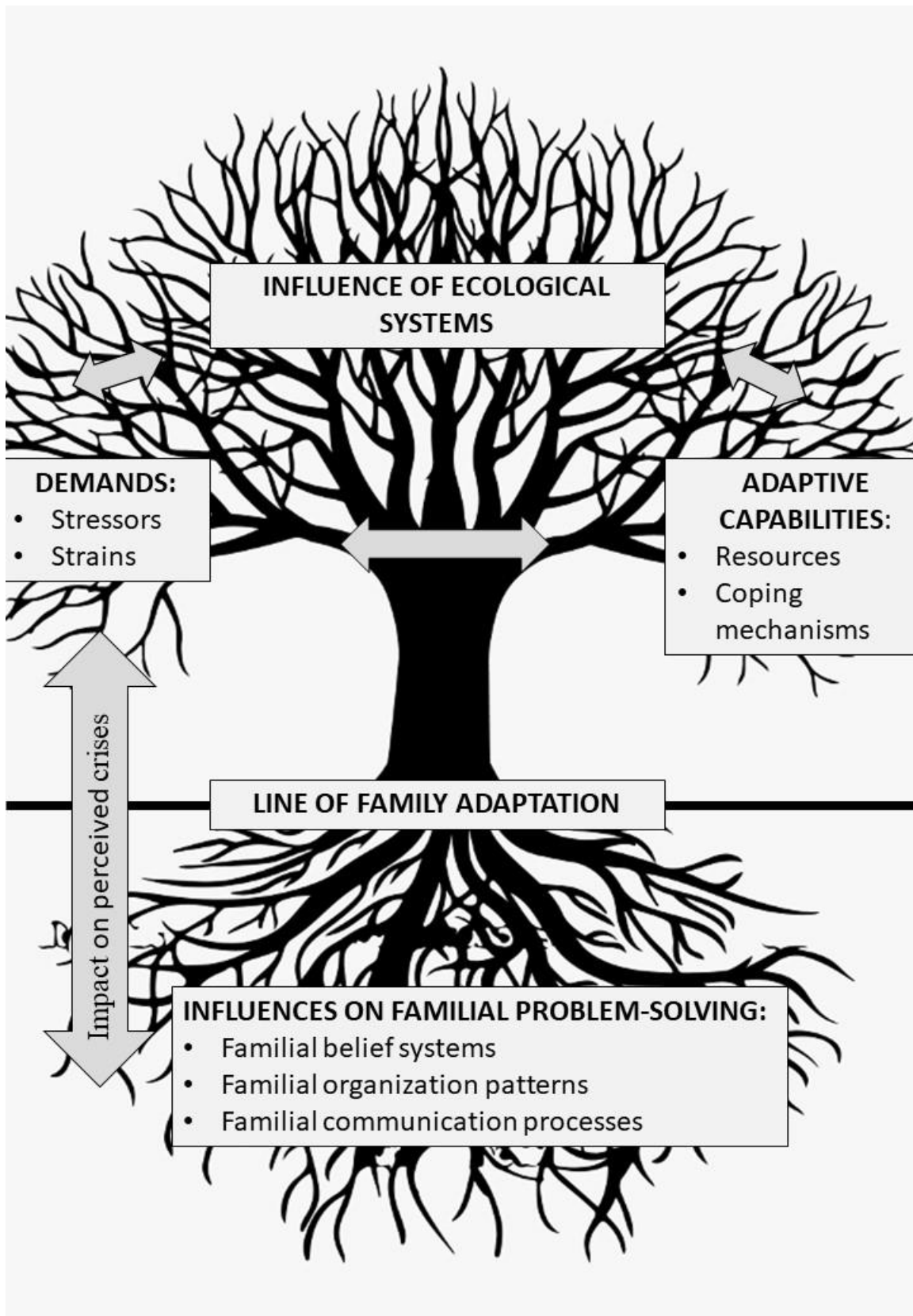
There is an increase in human resilience studies focusing on the impact of political- and social unrest, war, adverse childhood experiences and natural disasters on individuals and their social contexts (Masten, 2019; Wu & Xu, 2020). Research into resilience science is not new, however recent consensus indicates that resilience should be investigated from a multidisciplinary- and multilevel perspective, as this best reflects the impact of the aforementioned stressors (Masten, 2019). It is thus crucial that an integrative approach, consisting of various theoretical frameworks be incorporated into a new approach to understanding and explaining individual and familial resilience during times of adversities.

Severe long-term drought has societal impacts, which cannot solely be relayed through a social interpretation of the surrounding ecology but should also be viewed from a biopsychosocial interpretation (Minnegal & Dwyer, 2000; Sartore et al., 2008), as this relates to the environment of individuals, families and communities (Edossa et al., 2016). Patterson (1988) indicates that two main areas of focus exist, namely: to determine how the family environment determines illness or well-being; and whether pathways and mechanisms exist, describing how physiological processes are affected by social conditions. In an attempt to solve the critique leveraged against the biopsychosocial model, stress theorists examined the relationships between the family

system and the health of individuals by linking physiological models of stress with social/family models of stress (Patterson, 1988). It is thus crucial to examine the well-being of individuals and their families within the context of a hierarchy of systems, emphasising the transactions between psychological, cognitive and social processes (Patterson, 1988).

To understand the perception and use of problem-solving by youths and their families, a combination of Walsh's Family resilience Framework (Walsh, 2003; 2012) and Patterson's FAAR model (Patterson, 1988; 1989; 1995; 2002) was used. This model considers the negotiations between individuals and their adverse environments, how this affects their well-being, and how they use the resources available to solve problems (Ungar, 2014). This approach is supported by Walsh (2005), who indicates that no single model of family functioning is suitable for all families or all situations. Ungar (2004) also supports using a multi-theoretical framework to promote finding innovative, meaningful ways research methods. Resilience theorists agree that an integrative approach to resilience theory is needed to address individual and family-focused resiliency (Masten, 2018). The multi-theoretical framework of familial problem-solving, with its underpinning theoretical frameworks, is illustrated in Figures 2.1 and 2.2.





Figures 2.1 and 2.2: The multi-theoretical framework for familial problem-solving (Adapted from Bronfenbrenner, 1995; Greenberg & Ramsey, 2005; Engel, 1977; Engel, 1980; Walsh, 2003, 2012; & Patterson, 1988; 1989; 1995; 2002)

2.9.2 The multi-theoretical framework for familial problem-solving

2.9.2.1 The influence of ecological systems on problem-solving processes

The youths are active participants in their development and are not only influenced by their environment. How they perceive their contexts will influence how they engage with them. These perceptions are influenced by the worldviews, practices and values of those in proximal relationships (Van Assche, Verschraegen, Valentinov & Gruezmacher 2019 ;Wu & Xu, 2020). If they perceive their context as threatening, they will be less inclined to engage with it, thus abstaining from interactions that might promote their development. The opposite will ring true when they perceive their context as safe, thus promoting confidence in their ability to engage with new situations (Donald, Lazarus & Moolla, 2015). It is, therefore, of utmost importance to investigate how the youths interact with their social ecologies and use the available resources to facilitate the process of resilience (Theron, 2017).

Whenever youths face the negative outcomes associated with stress, their families can either serve as a source of stress or as a protective resource fostering growth and development (Patterson, 1995; Walsh, 2012; Donald et al., 2015). Most families are exposed to normative and non-normative sources of stress throughout their lifetime, possibly undermining or maintaining their healthy functioning (Patterson, 1995; Walsh, 2012). The goal for each family member, as for the family as a unit, is to experience healthy outcomes by achieving a balance between demands and capabilities. Family resilience must be enhanced by empowering families to increase their resources and coping behaviours to manage their multiple sources of stressors, strains and daily problems that compromise the ongoing demands of daily life (Patterson, 1995; Walsh, 2012; Masten 2019).

The multi-theoretical framework of familial problem-solving is adapted from the FAAR model and attempts to understand a family's response to stressful life events. It emphasises three domains: sources of stress (demands), mediators of stress (capabilities) and the outcomes of stress (family adjustment or family adaptation) (Patterson, 1995). This model highlights the active processes in which families attempt to balance family demands as these interact with their specific family meanings to arrive at a level of family adjustment and adaptation (Patterson, 2002).

2.9.2.2 *Familial adaptation- and adjustment phases*

The FAAR model consists of two distinct phases: the adjustment and adaptation phase, separated by family crises (Patterson, 1988; 2002). The adjustment phase is characterised by a relatively stable period, where minor adjustments are made to meet the demands of the existing capabilities (resistance capabilities) (Patterson, 1988; 1995; 2002). In this phase, the patterns of family interactions are predictable and stable. A crisis (state of disequilibrium) emerges when the nature of and/or the demands on the family system exceeds the existing capabilities of the family, creating a persistent imbalance. This is referred to as ‘familial uprooting’ within the context of the conceptual framework.

In the adaptation phase, families attempt to restore the balance by adapting their coping behaviours and resources (adaptive capabilities) to reduce the demands they face, thus impacting their perception of the situation (Patterson, 1988; 1995; 2002). This impacts the familial system’s future experiences of similar challenges. How a family system successfully adapts to the challenges hindering its development, function and viability is a core defining principle within the field of resilience studies (Masten, 2018).

2.9.2.3 *Strains and stressors as individual and familial demands*

Strains can be described as the tension experienced associated with the need to bring about change. Strains are not life events but rather pre-existing tension within the family unit. Strains originate from three sources: unresolved tension in the family due to the inability to resolve a stressor, the inability to fulfil perceived family roles; and tension arising from family adjustment and adaptation efforts due to different behavioural patterns and problem-solving skills (Patterson, 2002).

A stressor presents itself as a life event that occurs during a specific period and can potentially disrupt the family system (Patterson, 2002; Wu & Xu, 2020). Normative stressors relate to the expected development of individuals and families over time and are closely associated with the developmental life processes (life cycle), as referred to in Walsh (2012). In the current study, these stressors relate to the developmental process experienced by the youth as individual members of the family and the development of the family system as a unit. Non-normative stressors are those events which occur suddenly and unexpectedly, such as the onset of wars, the sudden loss of income or employment, the death of a child, or being affected by natural disasters

(Patterson, 2002). Within the current study, the overarching non-normative stressor investigated relates to the effects of drought as a natural disaster.

When describing the demands (strains and stressors) experienced by family members, their ecological systems (Bronfenbrenner, 1977; 1995) need to be considered. The FAAR model describes four sources of demands experienced by families, which are closely associated with the three spheres identified in the biopsychosocial model (Engel, 1977; Engel, 1980; Greenberg & Ramsey, 2005).

The first demand relates to the individual survival needs and developmental tasks associated with growth and development from birth to death. This type of demand includes the basic biological needs for shelter, food and protection but also includes psychological tasks related to 'developing trust, autonomy, initiative, industry, identity, intimacy, generativity, and integrity' (Patterson, 2002, p. 213). The same author indicates that, at times, the interactions between the fulfilment of needs of both the adult and child development could increase the demands placed on the family. This was further emphasised in the study conducted by Wu and Xu (2020) during the Covid-19 pandemic, which focused on families' abilities to uphold these demands, whilst experiencing crises.

The second demand, family tasks of maintenance and development, relates to the life-cycle processes of a family (Walsh, 2012). Duvall (1977) describes these demands as physical maintenance, the allocation of resources, division of labour, socialisation of the family members, reproduction and the release of family members into the community, and maintaining morale and motivation.

The third demand relates to the changes experienced in the family's social systems. These changes relate to the impact experienced within the family's meso-environment, macro-environment, and by extension, the exosystem as part of the community's changes over time (Bronfenbrenner, 1995).

The fourth demand relates to the strains associated with acute and chronic illness. The type and duration of the illness influence the intensity of the demand experienced (Patterson, 2002). As South African families are affected most by HIV/AIDS, followed closely by infectious diseases and psychiatric disorders (Van't Hof et al., 2011), it is crucial to consider how the demands on families by illnesses affect family resilience processes.

2.9.2.4 Integrating Walsh's Family Resilience Framework to describe the influences on familial problem-solving

The family resilience framework was developed as an attempt to gain an understanding of how variables contribute to resilience and effective family functioning. This framework identifies key family processes (presented in Table 2.2 below) that hold the potential for families to reduce stress and vulnerability, foster healing and growth in lieu of crises, and empower families to overcome prolonged adversity (Walsh, 2012). The framework focuses on three domains: family belief systems, organisational patterns and communication processes. The key processes are not utilised as a classification of characteristics employed by a resilient family but rather as a representation of dynamic processes indicating the potential strengths and resources accessible by families to increase family resilience (Walsh, 2012).

Table 2.1: Key processes in family resilience (Walsh, 2012, p. 406)

Key processes in Family Resilience

Shared Belief Systems

1. Making meaning of adversity
 - Relational view of resilience
 - Normalise, contextualise distress
 - Gain sense of coherence
 - Facilitate appraisal, active agency

 2. Positive Outlook
 - Hope, optimistic bias, confidence
 - Encouragement, affirm strengths, potential
 - Active initiative, perseverance (can-do spirit)
 - Master the possible, accept what cannot be changed

 3. Transcendence and Spirituality
 - Larger values, purpose
 - Spirituality: Faith, practices, congregation, nature
 - Inspiration: Aspirations, creativity, change, positive growth
-

Organisational Processes

4. Flexibility

- Rebound, adaptive change to meet challenges
- Reorganise, restabilise: Dependable, predictable
- Authoritative leadership: Nurture, guide, protect
- Cooperative parenting/caregiving teams

5. Connectedness

- Mutual support, teamwork, commitment
- Respect individual needs, differences
- Seek reconnection and repair grievances

6. Mobilise Social and Economic Resources

- Extended kin, social, community supports
- Financial security, navigate work/family stresses
- Larger systems: Institutional, structural supports

Communication/Problem-solving Processes

7. Clarity

- **Clear, consistent information**
- **Clarify ambiguous situation, truth seeking**

8. Open Emotional Sharing

- **Painful: Sorrow, suffering, anger, fear**
- **Positive: Appreciation, humour, joy, respite**

9. Collaborative Problem-solving

- **Creative Brainstorming, resourcefulness**
 - **Shared decision making**
 - **Steps toward goals, learn from setbacks**
 - **Proactive mode: Preparedness, prevention**
-

2.9.2.4.1 *Familial belief systems*

Family belief systems relate to the aforementioned concept of meanings (Patterson, 2002). Family belief systems can profoundly influence how individual members of the family, and the family as a unit, view adversities, crises and their ability to use the resources available (Wright & Bell, 2009). Shared constructs of perceived reality emerge through family interactions and social transactions. These constructs are shaped by the influences of multigenerational, cultural and spiritual beliefs (Walsh, 2012). When individual family members share the beliefs of the family unit, it has the potential to avert the negative outcomes associated with adversity. Walsh (2012, p. 407) emphasises this process by stating that ‘family resilience is fostered by shared facilitative beliefs that increase effective functioning and options for problem-solving, recovery, and growth’.

2.9.2.4.2 *Familial organisation patterns*

Organisational patterns in the framework refer to how families organise their households and relational networks in various ways. This is done to meet the life challenges faced by the family. The process emphasises a family’s ability to adapt to a ‘new normal’ after crises by adapting their daily routines, maintaining meaningful rituals and a stable home environment (Bronfenbrenner, 1995; Patterson, 2002; Walsh, 2012). The family organisational patterns encourage family cohesion, as mutual support, collaboration and commitment strengthen families to guard off adversities (Walsh, 2012). Utilising the social and economic resources available to families can be vital lifelines in times of adversity. These resources include faith congregations, social networks, community groups and youth role models/mentors (Walsh, 2012). Investigating the family’s ability to utilise financial resources is crucial in determining the family’s potential well-being. Persistent unemployment, loss of a breadwinner and exposure to chronic disease can have a devastating impact on the family’s financial resources (Walsh, 2012), thus impacting their perceptions of and ability to solve problems.

2.9.2.4.3 *Familial communication processes*

The communication processes involve clear communication between family members, consistent emotional and pleasurable interactions, and the use of communication in facilitating problem-solving (Walsh, 2012). The familial use of language and expression varies among cultures and should be viewed within its context. Epstein,

Ryan, Bishop, Miller and Keitner (2003) emphasise clarity of information between family members, as this is of particular importance when families are faced with a crisis (Walsh, 2012).

Assessing the growing multiplicity of family arrangements can be complicated, as the researchers and family members each bring an array of embedded cultural norms, professional orientations, and personal experiences. These factors are shaped by social, economic and political transformations over time (Walsh, 2012). Walsh (2012) states that though families can gain resilience during adversity, their values, structural and relational resources, and life challenges should be assessed within their relative context. As challenges emerge, the processes for the optimal functioning of family members evolve over time. It is, therefore, crucial to understand that due to these factors, no single model of ideal family functioning will suit all families and their needs, consequently a multi-theoretical framework was utilised.

2.10 CONCLUSION

Studies into how problem-solving abilities are utilised by youth and their families are fragmented and do not relate these processes to family resilience. The multi-theoretical framework included in this study allows for the innovative exploration of family functioning and problem-solving processes by considering how crises are perceived individually and collectively. It considers the impact drought might have on the holistic well-being of youth and their families (Minnegal & Dwyer, 2000; Ungar, 2004; Sartore et al., 2008). As drought impacts individuals, their families and surrounding ecologies, the negotiations between families and their perceived adverse environment need consideration (Edossa et al., 2016). The belief systems held by family members and the family as a unit shape their perception of challenges and how they will solve problems in the future (Walsh, 2012; Masten, 2019). These beliefs are influenced by social, multigenerational, cultural, spiritual and traditional transactions within the context of a particular historical, political and economic climate (Walsh, 2012; Mdluli & Dunga, 2021). Problem-solving processes combine intrinsic and external resources available to family members. How families utilise their resources influence and are influenced by their problem-solving capabilities (Ungar, 2014; Masten 2019; Wu & Xu, 2020). This study aims to gain an understanding of how youth and their families are affected by drought and how this relates to problem-solving skills and the family resilience process.

CHAPTER 3: RESEARCH DESIGN AND METHODOLOGY

3.1 INTRODUCTION

This study focuses on the problem-solving skills employed by youths and their families affected by drought to determine how this enhances family resilience processes. The emphasis is on the value youths place on perceived problems and how this determines how they solve them. Within the South African context, where youths face the country's unique challenges of poverty, health concerns, environmental degradation and unemployment, it is crucial to understand how these demands affect the way in which youths and their families solve problems (Brown & Ashman, 1996; Heppner, Witty & Dixon, 2004; Mdluli & Dunga, 2021) This is of particular interest when investigating how youths from underprivileged communities, such as the research site of Leandra, solve problems and utilise resilience processes individually and as a family (Mampane & Bower, 2011). The research site is depicted in Figure 3.1 below.



Figure 3.1 Lebohang library and community centre served as the research site in Leandra, Mpumalanga.

This chapter discusses the epistemological paradigm and methodology and describes the research design and how the participants were selected. The chapter will conclude with the data collection and analysis procedures.

3.2. INTERPRETIVISM AS AN EPISTEMOLOGICAL PARADIGM

The study was conducted through an interpretivist lens (Schultz & Hatch, 1996). The ontological assumption of this lens is that reality is socially constructed through human interactions bound to a specific time and context and by which people perceive, interpret and create multiple meanings of events (Guba & Lincoln, 1994; Diaz Andrade, 2009; Mack, 2010). The interpretivist paradigm evolved from positivism, where observable and measurable phenomena from an objective reality are used to infer causality, from which generalisations or predictions are made (Bleiker, Morgan-Trimmer, Knapp & Hopkins, 2019). An interpretivist assumes that knowledge can only be gained through social constructions, which include languages, documents, consciousness, shared meanings, tools and artefacts (McMillan & Schumacher, 2014; Klein & Myers, 1999). Interpretivism posits that reflection is required to uncover deeper meaning-making, which can only be obtained through an interactive process of participant-researcher dialogue (Ponterotto, 2005).

Criticism levelled against the paradigm relates to abandoning empirical scientific procedures associated with positivism (Kelly, Dowling & Millar, 2018). It questions the inability of the researcher to distance themselves from the perspectives of the participants. It neglects political and ideological influences on knowledge and social reality, which socially constructed traditions and belief sets could influence, that is not considered radical enough in aiming to change or challenge social phenomena (McAnulla, 2006; Mack, 2010). The critique could further be levelled against researchers' beliefs and worldviews (McMillan & Schumacher, 2014; Ferreira & Ebersöhn, 2012) that lie behind their theoretical perspective (Diaz Andrade, 2009). How researchers view social reality affects how they uncover knowledge of relationships, social behaviour and research phenomena, including their evaluation of research (Mack, 2010). As such, it is nearly impossible for researchers to completely separate themselves from their belief systems and lenses, which, in turn, could affect how they collect, analyse and interpret data (Ryan, 2018).

In order to address this dilemma, the researcher must acknowledge that their own reality forms part of the multiple experiences being studied and the meaning-making process (Ponterotto, 2005). Mack (2010) argues that understanding the perspectives of participants could prove to be vital when creating theories for practice, and though the interpretivist immerses themselves with the experiences of their participants, they

should analyse data objectively in order to formulate themes relating to the environment, as experienced by the participants (Lapadat & Lindsay, 1999). The researcher was keenly aware of her background, beliefs and worldview and how this might create researcher bias (Wadams & Park, 2018). Furthermore, the researcher reflected on the role of a co-constructor of meaning-making and how this may impact the reliability and validity of the study. As part of a greater research project, The researcher was fortunate to use peer reflection, which included supervisors and fellow students, throughout the research process (Trede & Jackson, 2019).

The main purpose of this study is to investigate how youths and their families solve problems during drought and use this to leverage family resilience processes. Problem-solving and the perception individuals have of experienced risks include environmental, social, cultural, contextual, behavioural, institutional and even governmental influences, which may trigger or inhibit their responses towards alleviating experienced stress (Cori, Bianchi, Cadum & Anthonj, 2020). Due to the personal, emotional and social connotations individuals attach to incidents, using an interpretivist lens allowed the researcher to view data from the participants' lived experiences, which allowed for a deeper meaning to be constructed (Ponterotto, 2005).

Through this interpretivist lens, the study included the lived experiences of participant co-researchers as the primary data and understanding increased of how meaning is constructed within the confines of the drought-stricken community of Leandra. This design allowed for the participants' perspectives to become the centre of the study and, to an extent, allowed for interpretation across language and cultural dimensions (Tuli, 2010; Estrella & Forinash, 2007). This paradigm allows the researcher to move away from a Westernised lens and take rural, South African indigenous knowledge systems into account. This allows for the perspectives of the participant co-researchers to be at the forefront of the research study (Ali, Buergelt, Maypilama, Paton, Smith & Jehan, 2021).

3.2.2 METHODOLOGICAL PARADIGM

3.2.2.1 Qualitative research

The study emphasises the meaning youths and their families assign to problems, ultimately determining their problem-solving capabilities. Thus a qualitative research

methodology was appropriate for conducting the study. Qualitative research is of importance in the field of social science as it has the potential to create a deeper understanding of the meaning individuals ascribe to social or human problems (Creswell, 2007; Flick, 2009). Although growing in its importance within the health sciences, qualitative is still regarded as the minority within the research field (Chamberlain, McGuigan, Anstiss & Marshall, 2018). There, however, is a trend towards the integration of qualitative and quantitative research in rural communities, such as the research site of Leandra, as the combination allows for statistically measurable data (rainfall patterns, food provision, loss of income, deaths, among others) combined with socially constructed meaning underpinning the quantitative data collected (Strijker et al., 2020).

A qualitative research study uses a holistic, emerging qualitative approach to inquiry. This allows for the contextually sensitive collection of data, which is rooted in the participants' personal knowledge and understanding (Bleiker et al., 2019). It furthermore allows for inductive data analysis and the formulation of patterns and themes based on observed behaviours (Ritchie, 2003; Creswell, 2007; McMillan & Schumacher, 2010). This allows for the inclusion of behavioural patterns and lived experiences observed within defined social contexts, which would not have been possible using numerical calculations in the quantitative research method (Creswell, 2007; Yin, 2013).

3.2.2.2 The role of the researcher during the qualitative research process

How the researcher positions themselves within a study is important, as this influences how they approach research, collect data, reflect on the outcomes and interpret the data obtained (Holmes, 2020). In qualitative research, the researcher must be sensitive to and accurately depict the experiences and representations presented by the participants while guarding against their own beliefs (Yin, 2013). Researcher bias is unavoidable, as experiences shape interpretation, meaning and understanding of data and thus must be carefully monitored throughout the research process (Ravitch & Carl, 2016). To address this concern, reflexivity had to be exercised to avoid influencing the participants and the data collection process (Bleiker et al., 2019).

The distinctive characteristics of qualitative research guided the data collection process, as the researcher obtains the data directly from the participants and the community affected by drought (McMillan & Schumacher, 2010). One such

characteristic refers to the natural setting, which involves observing phenomena as it occurs, unaltered or manipulated. This allows for an environment where behaviour can be observed socially and contextually (McMillan & Schumacher, 2010; Theron et al., 2013). The researcher must at all times be aware of the specific context in which the research will be conducted (Holmes, 2020). The situational context was crucial in understanding the behaviours and actions of the co-research participants and the impact drought had on them and their families. According to McMillan and Schumacher (2010), it is assumed that an explanation of behaviour that does not take the context in which research is conducted into account will be incomplete (Maree, 2010). A researcher has to have context sensitivity and consider the larger context since meaning is bound by social, political, gender-based, racial, class and technological factors, which the researcher uses to interpret the behaviour observed (McMillan & Schumacher, 2010). Context sensitivity is thus crucial when attempting to answer the research questions in the study.

In both quantitative and qualitative studies, researchers enter a study with a design; however, the qualitative researcher enters the study assuming that their own knowledge of the context and participants is lacking and attempt to mentally clear their own preconceptions before engaging in the research process (Bogdan & Biker, 2007). According to this type of research, these researchers begin the investigation with insufficient information to have a precise research design from which to work and instead opt for an emergent research design. An emergent, qualitative research design allows the researcher to adapt to findings, ideas or concepts that emerge during the research. This approach is inductive in nature, accommodating changes arising during data collection (Pailthorpe, 2017).

According to McMillan and Schumacher (2010), qualitative researchers try to construct reality with the participants' perspectives as the standpoint. These researchers do not apply predetermined definitions or ideas about how people will react or think, as is the case with quantitative research, but rather see the situation from the viewpoint of the participant involved. Understanding is formed from the participant's perspective and considers their own recollection of events (Lincoln & Guba, 1985; Holmes, 2020). It allows for multiple realities since the same event can be viewed differently, depending on the participant recalling it. The data collected would have to be subjective, as experienced by the participant, and the motivation would need to come from the

participant and not from the researcher. The study by Theron (2016) states that Ubuntu-related norms associated with communities require youths to be quiet and that the voice of the elders needs to be respected. This might create difficulty in understanding the perspectives of youths and therefore strengthens the necessity for youth-based research.

The roles of a researcher include observer and interviewer, and require the study artefacts and documents, as data is obtained directly from the source (McMillan & Schumacher, 2010). The data was collected over three days, including a reflection day, in which the participants reflected on information they gathered from elders in their communities. As such, a considerable amount of time is spent directly interacting with the setting, documents and artefacts of co-research participants of the study. Lincoln & Guba (1985) state that by interacting in the world of the participant, their experiences become more definitive and relatable. This strategy differs from quantitative data collection strategies since the researcher in a qualitative study wants to interact as closely as possible with the data collected, whereas a quantitative study does not focus on direct interactions with participants (McMillan & Schumacher, 2010; Pailthorpe, 2017).

3.3 RESEARCH DESIGN: SINGLE-CASE PARTICIPATORY ACTION RESEARCH

The study aims to understand a specific phenomenon (drought), bounded to a specific context (Govan Mbeki Municipality), using a participatory research design to collect data within the drought-stricken community. It used a hybrid research model that incorporates a PAR design and case study design, as suggested by Garst, Franz, Peters, Smith and Baughman (2012), which culminated in a holistic, single case PAR study (Garst et al., 2012), allows for the integration between academic knowledge and applied knowledge, as it accepts a collective contribution to theory building while fostering social change to address complex issues (Ripoll Gonzalez & Gale, 2020). PAR further allows for individual and social reflections, whereby an open platform is formed to address and solve complex emerging issues (Perry & Gummesson, 2004). By allowing this process, collaborative learning in a social context can be scaffolded to develop a collective awareness, empowering all participants and allowing their voices to be mobilised for change (Ripoll Gonzalez & Gale, 2020).

Baxter and Jack (2008) suggest using a holistic, single-case study with embedded units as the primary focus of the research. This is because the specific phenomenon of the study aims at understanding not only the perspectives of youths but to consider their context within the drought-stricken community holistically. By implementing a PAR design, the participants were trained to become empowered co-researchers who took ownership of their own knowledge (Hart et al., 2016; Cornwall & Jewkes, 1995). By combining this information with a case study, which conducts intensive studies into specific cases to better understand a certain population or larger group of cases, an in-depth appreciation of a phenomenon, event or issue was gained (Fletcher et al., 2015; Crowe et al., 2011), by experiencing it in its natural context.

3.4 RESEARCH METHODOLOGY

3.4.1 RESEARCH PARTICIPANTS

3.4.1.1 Selection of the participants

This study conducted in 2017 formed part of a greater research project incorporating a multidisciplinary and multisectoral team of UK-based and SA-based researchers. The project examines the interplay between rural South African individuals within communities and how they collaborate to address the challenges they face during times of drought. This information was then leveraged for use in individual and familial resiliency studies.

The sample of the greater project study consisted of youths who are employed or engaged in education or training and those who are unemployed or disengaged from education, aged between 15 and 25 (N=43), with 25 female and 18 male participants. A combination of purposive sampling strategies (McMillan & Schumacher, 2012) and a critical case sampling method focusing on the age group of youths was used. The community partners, Khulisa Social Solutions were responsible for identifying and recruiting participants who represented the population of the research (n=43), within the research site of Leandra in the Govan Mbeki Municipality in Mpumalanga, South Africa. Table 3.1 represents the frequency of the participants involved in the research study.

Table 3.1: Frequency table of participants

Focus group number	Number of participants	Biological gender of participants	
		Male	Female
Group 1	6	3	3
Group 2	6	3	3
Group 3	5	2	3
Group 4	6	2	4
Group 5	4	2	2
Group 6	6	2	4
Group 7	4	1	3
Group 8	6	3	3
Total	43	18	25

Khulisa Social Solutions invited participants from the Leandra community who met the age criteria and could communicate comfortably in English by distributing flyers within the community, as well as advertising on social media platforms. This form of sampling is referred to as purposive sampling (Andrade, 2020), as the participants had to conform to certain criteria for the research project. Critical case sampling was used, as the research data from the drought-stricken, rural South African community, which consisted of a reasonably sized population (N=43), could, to an extent produce information which could be used for generalisability in future research (Farrugia, 2019).

3.4.2 DATA COLLECTION TECHNIQUES

The single-case PAR study used focus groups and emphasised the participant co-researchers' lived experiences, through participation (McLafferty, 2004). Due to the participatory nature of the research, participants were viewed as the experts (Hart et al., 2016), guiding researchers to understand the underpinning values and unique coping skills of the predominantly marginalised community (Ferreira & Ebersöhn, 2012). The study stems from practical considerations rather than theoretical ones and values the enablement of people (Ferreira & Ebersöhn, 2012), which allowed participants to champion their own research by mapping, drawing diagrams, interviewing, observing, analysing and acting (Chambers, 2007).

The study used arts-based activities (Theron, 2016) within focus groups (Frey & Fontana, 1991) as the primary sources of direct data collection. A combination of

narrative and arts-based inquiry was utilised in the study that consisted of consecutive, predominantly qualitative, exploratory activities as the primary sources of data conducted by different members of the collaborative research study (Estrella & Forinash, 2007; Creswell, 2007). The master's in educational psychology students facilitated each of the eight focus groups, assisted by an honours student and members from the UK-based research team. Each facilitator was responsible for their own recordkeeping, which consisted of audio recordings, photographs, videos, observational notes, field notes and reflections.

The initial data collection took place on the 4 and 5 April 2017 at the research site of Leandra, Govan Mbeki Municipality, Mpumalanga, South Africa. The second round of data collection took place on the 23 and 24 June 2017, with the same participants. The data obtained during this study, which formed part of the greater research project conducted by the Global Challenges Research Fund Resilience Foundation, could be subdivided into five phases. Each of the five phases is briefly described.

The five phases of data collection conducted	
Phase 1	Arts-based activities conducted with the participants within each of the eight focus groups.
Phase 2	Participants were trained as co-researchers during a workshop. Transcription and data analysis of initial data collection ensued.
Phase 3	Co-researchers applied their research training in their community by collecting data from elders in the community.
Phase 4	Facilitators of each focus group analysed their data and collectively identified the overarching themes that arose from the research, which was then placed in a post-consensus table. Facilitators and co-research participants reconvened. Member checking with co-researchers followed.
Phase 5	Thematic analysis of data to be used by the greater research project to leverage further resilience research. Co-researchers participated in drama-based activities.

Figure 3.2 Phases of data collection

Each of the phases and their respective activities will be briefly discussed.

3.4.2.1 Phase 1: Arts-based activities

Arts-based activities were predominantly used in the research study, as the community of Leandra uses isiZulu as its main language of communication. By eliminating the language constraints between the researchers and the participant co-researchers, rich descriptions could be obtained (Theron, 2016).

Within the field of qualitative research, arts-based activities are rarely used. Literature suggests that there is a need for more arts-based data collection, as it encourages the researcher to become immersed within the context of the participant (Chamberlain et al., 2018). Many researchers in the field of science do not regard arts-based data collection as valid and reliable, as it does not typically conform to the confines related to scientific enquiry (Marecek, 2003). Although confirming this bias, a recent study by Archibald and Blines (2021) advocates for the use of more arts-based research studies. The authors believe that arts-based research offers unique insights into lived experiences of individuals, which, when combined with other forms of research, could be instrumental in understanding knowledge systems held by individuals and groups.

3.4.2.1.1 Activity 1: Draw-and-talk

The first activity employed a variety of arts-based activities, proven to be effective data generation tools. This included using indigenous storytelling games, such as Masikitlana and Mmogo clay modelling, to facilitate the Draw-and-talk process (Theron, 2016; Chambers, 2007; 2012). Each focus group was given a sheet of paper, crayons, clay, string, beads, stones, sticks, cloth and markers and asked the question: 'How do you know when there is a drought?' The participants were invited to discuss it and use any materials provided to visually represent their answers to the question. After they completed their illustration, the participants discussed what they had illustrated with the facilitator. Figure 3.2 illustrates an example of the activity.

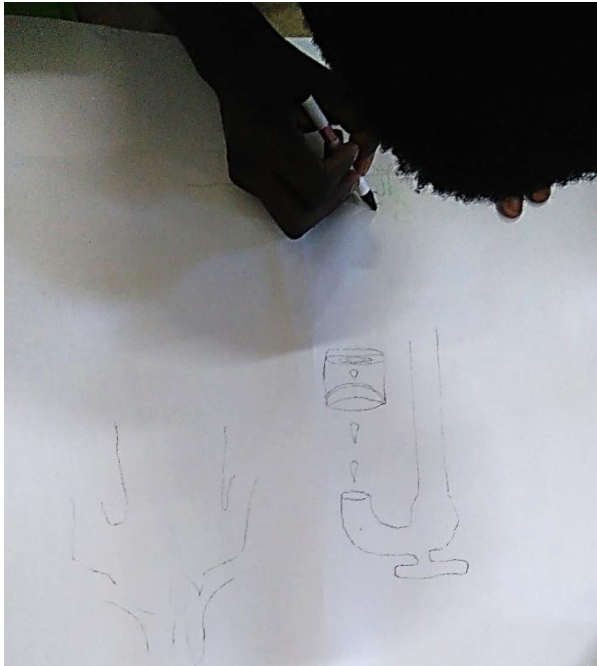


Figure 3.3 Example of illustrations made during the Draw-and-talk activity

3.4.2.1.2 Drought timeline construction

In the second arts-based activity, participants used the same materials provided in the first activity and were asked to construct a timeline to answer the question: ‘When were the last periods of drought that you remember?’ Participants could visually represent their timelines in any format. Time was allowed for the participants to discuss among themselves before discussing their timeline with the facilitator.



Figure 3.4: Participants constructing a timeline of periods of drought

3.4.2.1.3 Body mapping

The third arts-based activity was body mapping. Body mapping entailed giving each participant a large piece of paper with various coloured markers. Participants were to assist each other in outlining their bodies on the pieces of paper. One at a time, the participants would lie on the ground and have one of their fellow participants trace around their bodies with a marker. The focus groups were then asked the following question: 'What helps you to be okay in times of drought?' Each participant then used their own body's outline to illustrate what helps each of them to individually cope during times of drought. After each participant had completed their drawing, they discussed their visual representations with the facilitators and the rest of the focus group.



Figure 3.5: Participant engaging in body mapping, indicating how she feels okay during times of drought

3.4.2.1.4 Sand Play as a measure to identify supportive resources during times of drought

The final arts-based activity of the first day of data collection entailed the participants being provided with sand, sticks, blocks, stones and various figurines, which were used to depict a scene to answer the question posed: 'What does it mean to be okay during times of drought?' The participants collaboratively worked together to depict a scene that most accurately described what made them feel all right during times of drought. After the scene was completed, the focus group discussed the various aspects of the scene.



Figure 3.6: Participants engaging in discussion after completing the sand play activity

3.4.2.2 Phase 2: Workshop training participants to become co-researchers

The second day of data collection consisted of a workshop equipping the participants with the fundamentals of research and how to conduct interviews with elders in their community. This included how to ethically gain consent and training participants to conduct interviews with elders in their communities, focusing on family and community resilience, to gain historical narratives about how they had been affected by drought (McMillan & Schumacher, 2014). The collaborative team supported the co-researchers by helping them develop semi-structured interview skills (Cornwall & Pratt, 2011; Chambers, 2007) and provided them with a protocol, which they used in their interview with the elder of their choice. As the community predominantly speaks isiZulu, the consent form and research questions (originally presented in English) were translated within the focus group so that a standard set of questions could be given to the elders in their community. Figure 3.7 below illustrates an example of the translated documentation.

during activities

- * How do it look ^{like} or how is feel like when the is a drought.
- * tell me what you were thinking when you last see drought
- * Ngicela ungidwebete lezinto ~~obona~~ ebwazi-banga noma unqazi duebo phansi noma wenze ngobubha.
- * Cela unqhosela ukuthi lesi sithumke sichaza ukuthini
- * Yinqani uthi ziyakusiza, futhi ziyakusiza kanjani
- * Ubona kanjani ukuthi isomiso sesise zingeni eliphazulu manje (step one)
- * Unjabulile ngombalo wakho noma khona ofuna ukukufaka / ofuna ukukhhipha yinqani ukukhiphile / kungani ukufaka.

Time line (ukushitsha imnyaka ngokuhamba kwayo)

Figure 3.7: Questions translated by a participant co-researcher during the training workshop

3.4.2.3 Phase 3: Reviewing data collected by the co-researchers

The third phase focused on the participant co-researchers, as they conducted and documented their findings from their interviews with their chosen elders. The participant co-researchers were provided with resource packs and journals to assist them with their data collection process. The participant co-researchers were tasked with asking the elders in their community the following question: 'Which strategies did they use during times of drought to help them cope?' The answers were recorded for use in later feedback sessions.

While the co-researchers were commencing in collecting data from their elders, the facilitators were tasked with transcribing the initial data collected during April 2017. The data was thematically analysed by each facilitator individually before reconvening and comparing data as a collaborative team (see Figure 3.7 below). This allowed for specific themes and strategies from the data to be compiled for member checking in the following phase.



Figure 3.8: Focus group facilitators collaboratively comparing data

3.4.2.4 Phase 4: Member checking and reflecting on elder data collected by the co-researchers

During the second visit to Leandra, which took place on the 23 and 24 June 2017, the participant co-researchers reported their findings to the collaborative research team, and the historical narratives obtained during the interviews were compared and substantiated by the answers the participants had given during the previous activities (Chambers, 2007). During this period, the facilitators could member-check initial themes identified with the responses gathered from the participants during the first round of data collection. Member checking is a process whereby the validity and quality of data collected is continuously compared to produce evidence limiting systematic biases that may occur throughout the research process (Candela, 2019). During this process, the post-consensus documentation (Appendix J) was presented to the co-researchers to be accepted or changed to best reflect their lived experiences.

3.4.2.5 Phase 5: Meaning-making and the leveraging of co-researcher data for further resilience research

To address the socio-ecological influences, the final activities focused on addressing the changes needed to the physical and social ecologies in order for the participants and their communities to develop and utilise their coping skills effectively (Caldwell & Boyd, 2009). The participants wrote their own song about drought within each focus groups and participated in a sculpting activity, where they dramatised some of the elder responses. Both activities are depicted below in Figures 3.8 and 3.9. These activities employed collaborative, drama-based approaches (Theron, 2016; Ferreira & Ebersöhn, 2012; Estrella & Forinash, 2007) as a means of sharing knowledge and allowed for a collaborative effort to develop approaches to address the environmental challenges experienced by the community, and help the participants explore the opportunities available to them. As part of the collaborative research team, a strategy was co-produced that aimed at supporting the resilience of youths facing drought-related challenges (Minnegal & Dwyer, 2000).

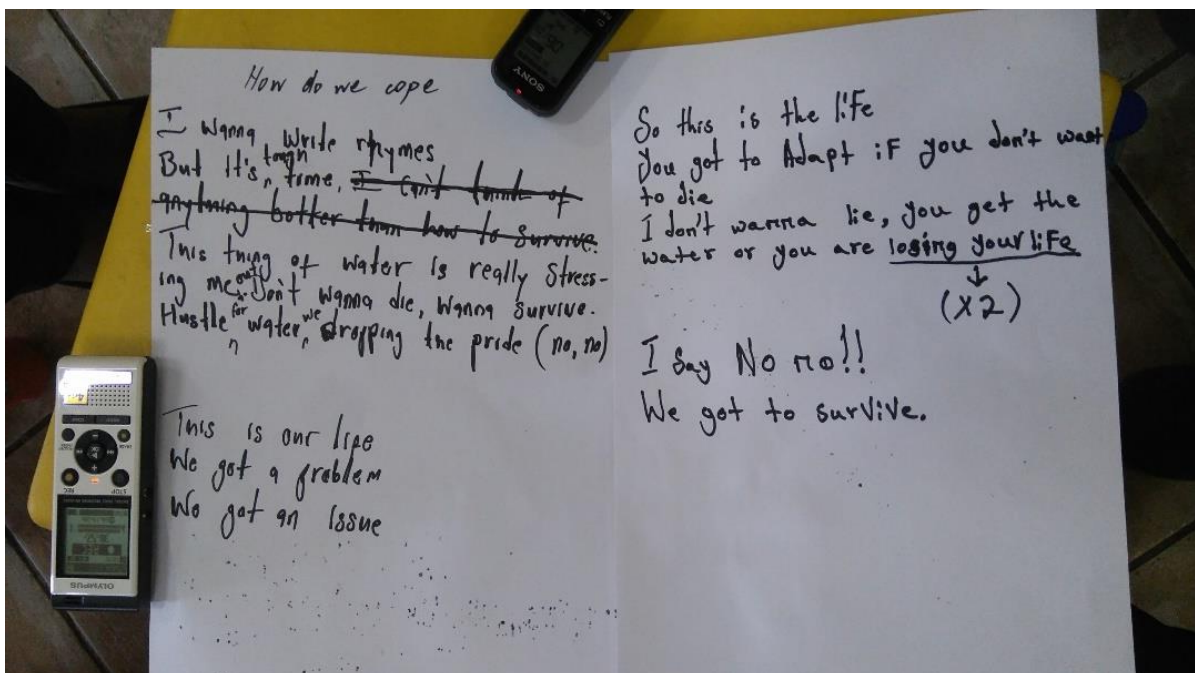


Figure 3.9: Example of the drought-related resilience song written by the participants



Figure 3.10: Participants dramatising scenes of how elders indicated they cope during times of drought

3.5 DATA DOCUMENTATION

Observations, field notes and a reflexive journal were maintained to address validity, reflexivity and extension of findings (McMillan & Schumacher, 2014; Huberman & Miles, 2002). To increase the validity through documentation, prolonged and persistent fieldwork was conducted, using multimethod strategies while recording the verbatim accounts of the participants, taking their language use into account (McMillan & Schumacher, 2014). As a collaborative research team, multiple recordings were done, utilising voice recording devices, which the participants examined to ensure the accuracy of the data obtained. All discrepant and negative data was recorded and compared to existing data. No two researchers observed information in the same way (McMillan & Schumacher, 2014); therefore, reflexivity, the rigorous self-examination of the researcher in the documentation of data, was crucial. A fellow peer, who is disinterested in the proposed study, acted as a peer debriefer, helping the researchers in the collaborative study to analyse the preliminary data and refocus and restructure the data collection strategies (McMillan & Schumacher, 2014).

3.5.1 Challenges and advantages of the data collection strategy

Time management proved difficult, as the process of using participant co-researchers to conduct research did not fall into the allocated time frames stipulated on the research schedule (Ferreira & Ebersöhn, 2012). Cornwall and Pratt (2011) warn against the 'abuse of participation' and assert that researchers in groups should guard against the overuse of participatory research methodologies, yet the same study suggests that more organisations, governments and donors require participation. Cornwall and Pratt (2011) warn that this type of external funding for research could convince non-governmental organisations (NGOs) to conduct research without substance, under the guise of participation, and result in malpractice and abuse. Chambers (2007) advocates the use of participatory research approaches and encourages shared power between researchers and participant co-researchers, but warns that the researcher must be mentally prepared to function as a facilitator and acknowledge that the site and participants used in the study could be rich sources of information that would otherwise not be available. This view is echoed by Ferreira and Ebersöhn (2012) and Theron (2016), who emphasise that the participants should be equal co-producers of the research and that their traditions and beliefs be respected at all times. A significant concern in collecting qualitative data is the sheer volume of notes associated with this type of data-collection strategy (Richie & Spencer, 1994; Chambers, 2007; Cornwall & Pratt, 2012), which will need extensive editing. The data was transcribed after the initial data collection to circumvent this dilemma; during the second data collection dates notes from interviews were reviewed, and themes identified were adapted or adjusted to best reflect the views of the participant co-researchers. The editing process occurred continuously throughout the data collection process (McMillan & Schumacher, 2014).

3.6 DATA ANALYSIS AND INTERPRETATION

The research study made use of inductive (Elo & Kyngäs, 2008) and thematic analysis (Fereday, 2006), as this allowed for flexibility for the researcher to immerse with the data, identifying themes that answered questions related to this research and those related to the greater research project as well (Braun & Clarke, 2006). During the data collection process, artefacts were collected from the arts-based activities. Artefacts refer to the tangible, concrete expressions of the participants' knowledge, experiences, actions and values (McMillan & Schumacher, 2014). Content analysed thematically

allowed for flexible analysis using various communicative data, which was generalised and placed into categories (Braun & Clarke, 2006; Haggarty, 1996).

Qualitative analysis is a systematic process that includes transcribing, coding, categorising and interpreting data to explain a phenomenon (McMillan & Schumacher, 2014; Richie & Spencer, 1994). The inductive data analysis process consisted of four overlapping phases, including the recording of field notes and data in phase one, the coding and categorising of data in phases two and three, and the identification of patterns, themes and concepts in the data, by making use of the visual representations and narrative structures in phase four (McMillan & Schumacher, 2014). Thematic analysis entails a back-and-forth movement between the phases while coding and analysing the data for patterns and themes (Braun & Clarke, 2006; Richie & Spencer, 1994).

When engaging in the inductive analysis of data, the researcher was aware that she approached the data with pre-conceived knowledge regarding the study and as a researcher thus it was important to actively examine the data, formulating themes and codes as it was reviewed (McMillan & Schumacher, 2014; Ferreira & Ebersöhn, 2012). Braun and Clarke (2006) warn against rushing through this stage since it is very time-consuming, allowing for the opportunity to immerse oneself in the data and better gain insight into the participants' perspectives. The transcription phase of the data analysis acted as an 'interpretive act' of formulating themes (Lapadat & Lindsay, 1999).

3.6.1 Addressing the potential challenges of the chosen data analysis

A disadvantage of using qualitative data is that it is time-consuming, and researchers may be overwhelmed by the vast amounts of unstructured, unwieldy data (Richie & Spencer, 1994) that holds the potential to be read without being analysed (Braun & Clarke, 2006). Braun and Clarke (2006) argue that the researcher could address this challenge by actively familiarising themselves with the data and continuously reformulating the themes identified. Braun and Clarke (2006) further warn against using the research and interview questions as the themes for the data analysis since it creates unconvincing, seemingly deliberate links to the proposed research study (Foster & Parker, 1995). Claims unsubstantiated by data could prove problematic, and the researcher should ensure that their analytical points correlate with the data extracts obtained (Braun & Clarke, 2006). Due to the flexible nature of the method, critics regard it as being theoretically and methodologically unsound and without

structure (Haggarty, 1996), but Braun and Clarke (2006) emphasise that the method should be rigorously applied and that the researcher is explicit in their actions with regards to the study.

3.7 ETHICAL CONSIDERATIONS

Participants were made aware of the purpose, design and usefulness of the proposed research, their role as a volunteer in the research study and informed of the potential harm and risks or beneficence involved with undertaking the research (Orb et al., 2001; McMillan & Schumacher, 2014). An ethical consideration throughout the study is integrity and avoiding exploiting participants (Orb et al., 2001).

The ethical considerations when conducting research include informed consent and assent, voluntary participation, the protection from harm and the right to privacy, addressing ethical dilemmas and sources of tension, access and acceptance, voices of experience, confidentiality and anonymity, and trust (Cohen, Manion & Morrison, 2011). Examples of the information shared with the participant co-researchers are attached in appendices A–D.

The researcher's competence, worldview and pre-conceptions about the research had to be considered (McMillan & Schumacher, 2014; Ferreira & Ebersöhn, 2012, Holmes, 2020) so that the research was of a high standard and representative of the data obtained by the collaborative commitment of the participant co-researchers and research team (Ponterotto, 2013).

The informed consent and assent for the proposed study we conducted by the community partner, Khulisa Social Solutions, who informed the participants of their roles in the research and provided each participant with an information pack regarding the study. The participants were made aware that they were free to choose whether they would like to participate or terminate their role as co-researchers at any time throughout the research process. Informed consent and assent may not always be possible to obtain beforehand, especially in the case of observations, and should be considered as a dialogue between the participants and the researchers throughout the process (McMillan & Schumacher, 2014). In this particular instance, informed consent and agreement were obtained prior to the commencement of the research. See examples of the consent and assent forms as appendices A–D. Consent was

requested throughout the data collection process whenever photographs, audio recordings or videos were used.

In the study conducted by Ferreira and Ebersöhn (2012), anonymity was challenged because the participants indicated they are proud of their roles as co-researchers and did not want to remain anonymous in the publication of the study. The process of assent and informed consent was addressed in the study by Theron (2016), where a possibility of adjusting ethical considerations to align with the South African context was suggested since many rural children do not reside with parents or legal guardians (Hall, 2016). Theron (2016) referred to child-headed households, where children adopted the parent role in the family and questioned whether it is fair to ask an adult's permission on the child's behalf to take part in a research study, as the child functions as the head of a family. During the study, it was clear that some older participants worked and functioned independently as the heads of their households.

Throughout the research process, documentation was stored in a locked cabinet, and all data was transcribed on to electronic devices and password protected for safeguarding (Anon, 2017; PsySSA, 2007). An ethical clearance application was submitted to the University of Pretoria before the commencement of the research study. All documentation resulting from the study shall be kept in the archives at the University of Pretoria for 15 years.

3.8 CONCLUSION

A qualitative research methodology utilising an interpretivist lens was implemented to answer the research questions regarding how adolescents and their families perceive and respond to drought. This allowed for research that focused on the perspectives of the participants within the research site. An inductive, thematic analysis of the data allowed the identification of generalisable themes that emerged from the data and could be further discussed with the participants. Using a qualitative research methodology allowed for the flexibility to adjust and adapt the research to realign with the true perspectives of the participants.

CHAPTER 4: RESEARCH RESULTS AND DISCUSSION

4.1 INTRODUCTION

The previous chapter discussed the research methodology for the study and the interpretivist epistemological paradigm, and the methodological paradigm was described.

The following chapter will discuss the research results obtained in detail. The data was analysed to identify recurring themes and related subthemes. This using inductive data analysis (Braun & Clarke, 2006). The analysed data conveyed a representation of participants' perceptions of problem-solving, which could perhaps serve as a resilience-building resource (individually and familial) in times of drought. References made to participants includes their code (P), as well as their focus group (G) and the particular activity from which information was gathered (A). The facilitators of each focus group have been given the code (F). This has been coded to preserve the anonymity of the participants.

4.2 RESULTS FROM THE THEMATIC ANALYSIS

The following chapter will explore various themes identified from the data. The following themes and subthemes were identified (Table 4.1):

Theme	Subtheme
1. Perceived risk factors associated with drought	1.1 Environmental risk factors
	1.2 Economic risk factors
	1.3 Health- and hygiene-related risks (gender-specific)
	1.4 Organisational risk factors
	1.5 Social risk factors
2. Problem-solving as a resilience-building strategy	3.1 Youth problem-solving strategies
	3.2 Familial problem-solving strategies
	3.3 Instrumental problem-solving strategies
	3.4 Affective problem-solving strategies
	3.5 Community-based problem-solving
	3.6 Culture and spirituality as resilience-building strategies.

Table 4.1: Themes and subthemes identified through data collection

4.2.1 THEME 1: Perceived risk factors associated with drought

Understanding how youths in a rural South African setting, such as Leandra, perceive and thus contextually define drought is crucial in identifying and utilising the supportive resources available to them. These perceptions are often influenced by socio-demographic and gender-specific differences, which further impact their problem-solving abilities (Sartore et al., 2008.; Malan-van Rooyen, 2015; Theron, 2016; van Rensburg et al., 2018).

Risk perception studies have become increasingly more relevant, as research has indicated that exposure to environmental pressures influences individuals' belief systems, knowledge, values, attitudes and behaviours (Cori et al., 2020). As the research site of Leandra is within a drought disaster zone, the perceptions youths have of their environment and how they respond to the related stressors were taken into account (Evans, 2015; News 24 Correspondent, 2015; SABC news, 2018), as this will eventually influence how they solve problems.

As drought reflects the meteorological, agricultural, hydrological and socioeconomic characteristics of a region (du Pisani, Fouché & Venter, 1998), the drought-related risks, as identified by the youth participants were also further investigated. Various subthemes relating to the environmental, health, organisational and social perceived risks will be discussed in detail. Table 4.2 below indicates the inclusion and exclusion criteria for subthemes of theme 1:

Subtheme	Inclusion Criteria	Exclusion Criteria
Environmental risk factors	Any reference to natural, environmentally perceived or experienced risks, within the context of Leandra, during times of drought.	Any reference which excludes environmentally perceived or experienced risks, within the context of Leandra, during times of drought.
Economic risk factors	Any reference to the perceived or experienced economic risks within the context of drought in Leandra.	Any reference that excludes the perceived or experienced economic risks within the context of drought in Leandra.

Health- and hygiene-related risks	Any references made to health- and hygiene-related risks associated with the drought in Leandra.	Any references excluding health- and hygiene-related risks associated with the drought in Leandra.
Organisational risk factors	Any reference made to political, governmental or institutional infrastructure, services and resources made available during times of drought in Leandra.	Any reference excluding political, governmental or institutional infrastructure, services and resources made available during times of drought in Leandra.
Social risk factors	Any reference made to the social systems within Leandra during times of drought.	Any reference excluding the social systems within Leandra during times of drought.

Table 4.2: Inclusion and exclusion criteria for theme 1

4.2.1.1 Subtheme 1: Environmental risk factors

For the purpose of this research, the environmental risk factors refer to the stressors experienced during drought. The participant co-researchers identified various environmental risks, which indicated how they perceived drought within their contexts. The most prevalent of these included concrete examples of how drought was perceived in their direct environment.

Drought as a concept is difficult to define as its perception and the effect on the surroundings are subjective to the resident individuals. Currently, no standard global scale for the severity of drought exists. The severity is thus determined by those who are affected by the influence of drought (Vicente-Serrano et al., 2019). Drought is identifiable in four categories: meteorological, hydrological, agricultural and socioeconomic droughts (du Pisani et al., 1998; Hlalele et al., 2016; Wolchover, 2018). The socioeconomic stressors will be discussed as a separate subtheme.

The participant co-researchers identified the meteorological drought stressors by identifying the global impact of climate change. This included unseasonal rain spells

or heatwaves, as indicated by Xolani in Group 2, which contributed to the drought. Zandile (Group 8) concurs by stating:

We have this climate for years and years and there has been a trend of how we see rain, like from the start drought has been caused, because there is a change in climate and this causes a change in the weather and this causes a change in the rainfall patterns.

Zandile's statement above further relates to the occurrence of a hydrological drought. The commonalities of a hydrological drought identified by the participants included a sudden increase in temperature, lack of rainfall, drying up of dams and rivers, as well as witnessing the death of plants and animals due to the lack of water. Precious (Group 1) discussed how she drew fish in the river during the draw-and-talk activity, but that all the fish in the river had died as the river was dry. Bonele (Group 6) says it best:

When there is a drought, animals are dying, plants are dying, the ground starts to crack and there is no water whatsoever

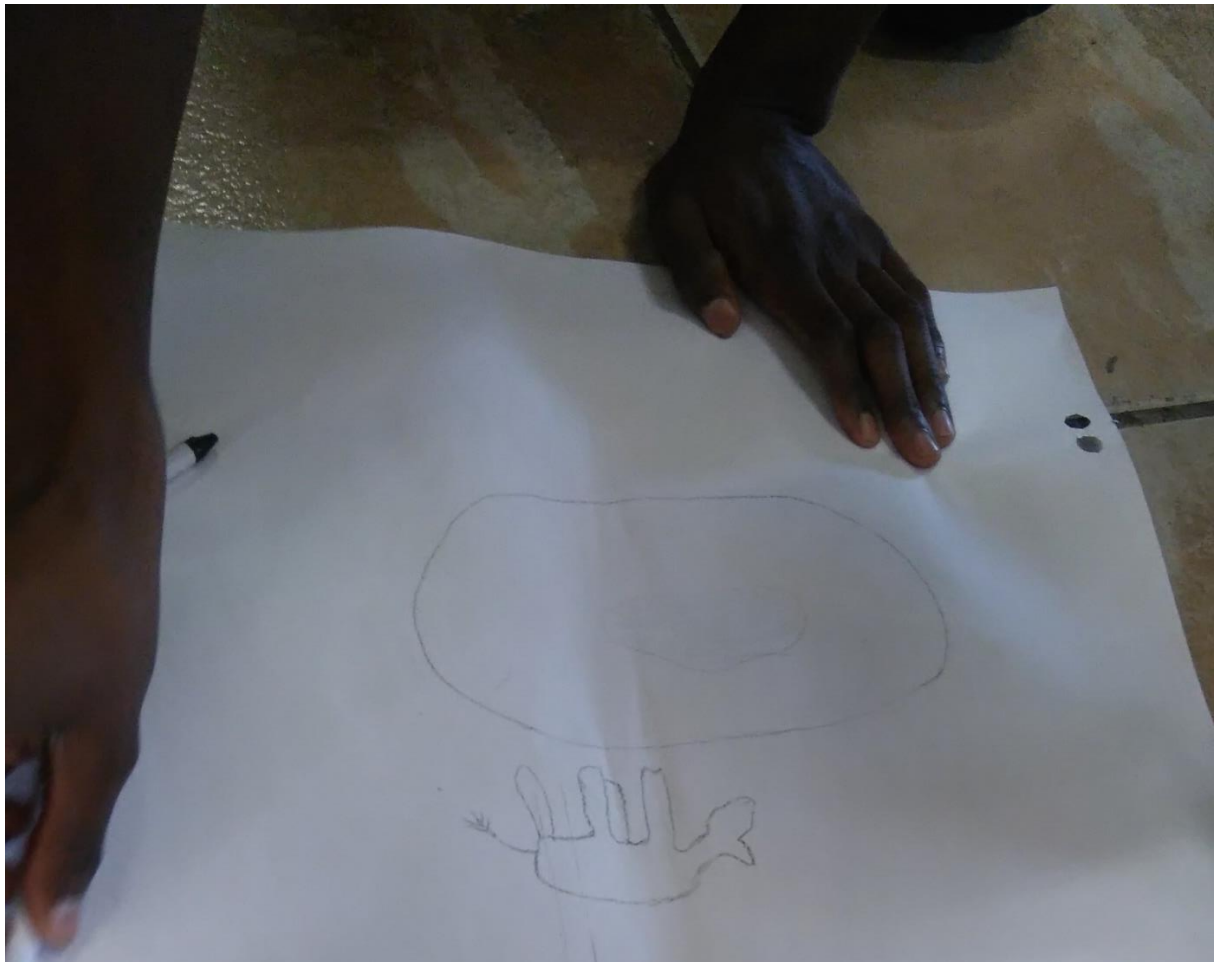


Figure 4.1: Drawing of an animal at an empty dam

Each focus group identified the impact of the drought on the agricultural sector, as many of the participants indicated that their family members work on farms in the surrounding area. In the drought, crops suffered and farmers experienced financial strain. This included having to lay off workers. Participants, such as Solomon (group 5) and his family, were personally affected by the drought. He shared his story with us:

We found that some of the goats and some of the crops, because he (father) had crops and the maize meal and all those things. And then people that he is supplying, they didn't get the products that they needed and then the business started to run out of money. The worst part of it, is he became sick and we lost, we had financial constraints, because we were depending on the business he was running. And I found out that the farm was supposed to be closed and he had to sell the farm, so he could buy less farm and have money to carry on with the business.

The research site of Leandra was chosen based on its rural location within the drought-stricken province of Mpumalanga. Figure 4.2 below indicates the rainfall data during the period of the initial data collection on the 4 and 5 of April 2017.

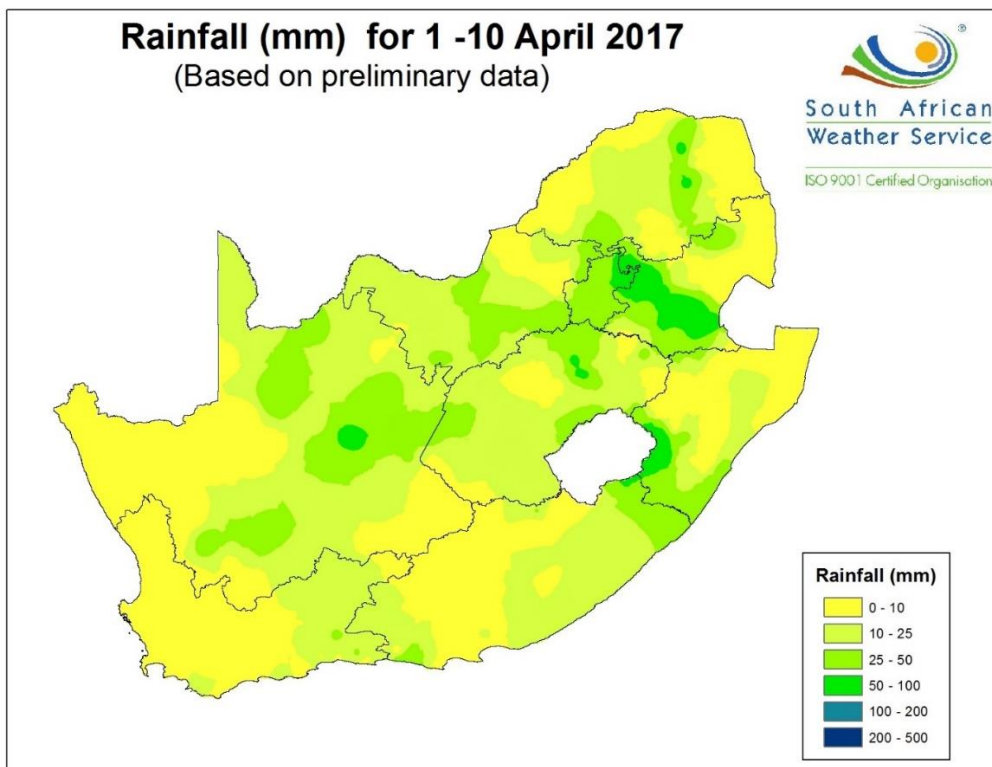


Figure 4.2: Historical rainfall (mm) for 1–10 April 2017 (Weather SA, 2022)

As Figure 4.2 indicates, rainfall within the region was relatively low, however, it became apparent that the perception of the participants was that they were not experiencing a drought at the time of the study (see Table 4.3):

Subtheme 1: Environmental risk factors related to drought – Perception of drought	
Participant, group and activity	Evidence from the data
Lefa (G2, A2)	Have we had a drought?
Xolani (G2, A2)	Ja, it is normal now.
Group 3 Timeline discussion	<p>During the Timeline activity (Activity 2) some of the groups indicated that they were not currently in a drought, but that the last drought was the previous year and a few years before that. Nocebo indicated that the first drought she remembers was in September of 2014, which was nearly three years prior to the research being conducted.</p> <p>Fission (G3, A2): 2016...</p> <p>Kutlo: 2014</p> <p>Kid'Eazy: A few months ago, as he was saying (Fission), we were experiencing drought in my section. They (Municipality) used to take the water during the day and bring it at night.</p> <p>Fission (G3, A2): I'm still not satisfied, because I know that my brother here he lives in an RDP (home) and they still take water there, so I don't know why they are saving it now, because we are not suffering that much these days.</p>
Lungile (G4, A 2)	If we wanna talk about our place, we won't have many points because our drought wasn't that extreme.
Khanyisile (G6, A2)	I think today there's no drought because I was able to drink water, I was able to wash dishes today and do my laundry. And we don't know what the future looks. We don't know if there's still going to be a drought.
Group 8 (graph discussion, A1)	It's current rain, so right now it is about 45%. Yeah, something like this. Then in Limpopo, estimation is 50%, KZN it's obvious right now, it is losing around 25%. For here it is even worse, Cape Town 40%. Nah, Alexandra, Alexandra barely 2%...Mpumalanga, our own province, just imagine...but now there's drought. Even KZN drought, drought, drought. Drought 50%, but now there is drought (Discussion continues):because Mpumalanga is the one with a lot of rain, because why she choose Mpumalanga, because Mpumalanga is the only province which received a lot of rain among the provinces. But last year there's drought. Among all provinces, but last year there was drought (2016).
John (G8, A3)	...to be realistic, we have not really encountered serious drought...

Table 4.3: Participants' perception of drought at the time of data collection

4.2.1.2 Subtheme 2: Economic risk factors

South Africa experiences economic pressure during times of drought, as the country depends on rain fed agriculture (Hlalele et al., 2016). In 2015, the Department of Agriculture and Fisheries reported that due to the current drought, SA had produced the lowest maize crops since 2008. This presents an economic challenge as many labourers were laid-off and has the potential of creating food security challenges (Caleni, 2017). Phumuzile (Group 4) indicated that ‘when there are no crops, there is no jobs’.

A socioeconomic drought is determined by a decrease in water supply due to low precipitation. This invariably creates a high demand, but low supply challenge (Caleni, 2017). Due to the agricultural shortfalls between 2014 and 2016, the price of South Africa’s staple food items increased so much that citizens paid on average 34 per cent of their income per month on food (Kalaba, 2019). Zar (Group 2) poignantly explained this by stating:

Okay, I am a guy and I am 22. Here I drew an indication of high inflation rate, which shows a high rate of demand and low amount of supply, because obviously if we are without water and are experiencing drought, they are things that we won’t be able to supply. It will leave the demand high and our trading pricing going high, obviously, because the demand is high and the supply is low...That can also affect the economic growth, affect environmental sustainability and it can also lead to unemployment, because the businesses will close down...entrepreneurship depends on sustainability of the environment as a whole.

From the data, it was evident that many participants were personally affected by the loss of income due to the drought. Wendy (Group 8) explained it as follows:

In our families there is only one breadwinner, you find that you can no longer afford food, because the prices has increased. That way it affects us as a family, because we perhaps in the future may suffer from starvation.

Charlotte (Group 3) concurred with this statement.

Like we did have water in town, so we went to town and bought some of it, but then it wasn’t, we didn’t have enough money, because some of our family members don’t work.

The participant co-researchers Kutlo, Kid’Eazy, Zar, Lungile and John discussed the economic challenges related to drought. Their responses are presented in Table 4.4.

Subtheme 2: Economic risk factors – Socioeconomic drought	
Participant, group and activity	Evidence from the data
Kutlo (G3, A1)	There is simply nothing to drink and there is no grass for the cows to eat. So that leads to bad (things) for all farmers. Farmers don't have enough money to do these things of theirs and each and every time, when you simply know, they simply pick up the budget for the year they know (it was bad). We did all experience that, food was starting to be expensive and each and everything was starting to be expensive. That leads to people who don't work. They don't have money to buy the food, so that leads to bad things. That is something that is bad for people and many people don't work here.
Kid'Eazy (G3, A1)	The plants are dying on the farm, the crops are dying, so the farmers don't make enough money to hire people. So, they end up lacking job opportunities so that people can support their families on those things. These things of lack of jobs and all those things affect the country's economy, because if we end up like, ok, South Africa depends on their exports. Like, we do a lot of exports, like in terms of crops and those things. So if there are no exports, the country's economy will stop and drop drastically.
Zar (G2, A1)	I think it also affects businesses, the ones that supply vegetation and stuff and so if there is drought, there is no water supply and obviously the plants die, and the markets here have no veggies to supply and then the business dies.
Lungile (G4, A1)	Then there is us as consumers in shops. We tend to complain about expenses of food. Especially the vegetables, they are expensive because of the shortage of rain.
John (G8, A1)	So this is leading to high costs of food production, also leading to consumers suffering, because of food and food items, food items are expensive at shops.

Table 4.4: Participants' perspectives on the socioeconomic impact of droughts

One of the elders, interviewed by the participant co-researchers provided insight into the socioeconomic drought the community experienced. The elder's drawing and explanation is depicted below:

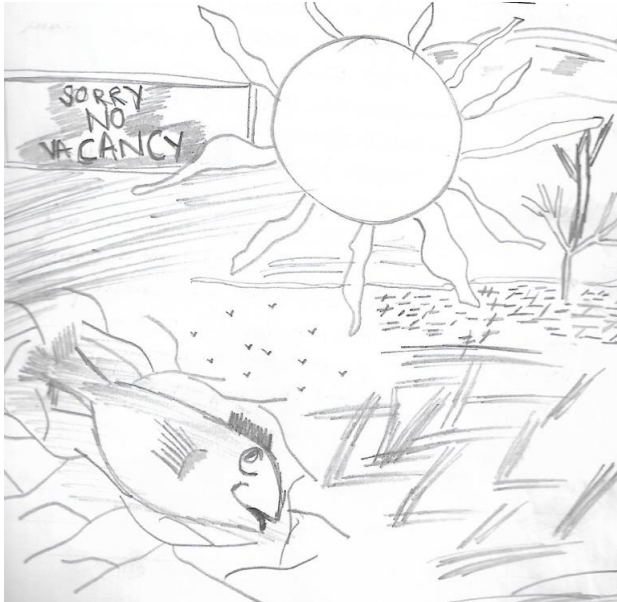


Figure 4.3: An elder's representation of a drought

I am living in the Community surrounded
 by a lot of agricultural business and Power station
 and what we need to understand is water is the
 common source into their every thing which means
 its is a need. A drought changes my community
 in many ways from the perspective of job most
 business are forced to retrenched people and some
 to close their business because there is no production.
 And as a Community we will suffer greatly
 because we will no longer have bread winners and
 our homes. Food on our market ~~is~~ is getting
 expensive due to the distance and scarcity of
 such food. Our lives as the Community
 transform into a hard and frustrating position
 due to drought and its impact.

Figure 4.4: An elder's explanation of drought's financial impact

4.2.1.3 Subtheme 3: Health- and hygiene-related risks

Droughts have globally been associated with a myriad of public health issues. This includes diseases that are airborne, mental health challenges, increased respiratory diseases, infectious diseases, as well as veldfire-related illnesses (Liu et al., 2020). Rural communities are especially vulnerable to drought-related illness as their access to health services is limited. Drought-related stress has been linked to increased mental health challenges, increased suicide rates, psychological distress and fewer help-seeking behaviours (Austin et al., 2018).

The participant co-researchers have identified various health-related challenges associated with drought. One of the major concerns was their inability to prepare healthy food. Kid'Eazy (Group 3) stated:

We were suffering, because you can't cook with dirty water, so in some cases we had no food to eat. The food was there, but we couldn't cook it, because you can't cook without water and you can't use dirty water to cook. So, in some cases it led to hunger, yeah.

John (Group 8) mentioned that he is concerned that the continuous drought may increase the possibility of widespread famine. Fission (Group 3) added to this statement, noting that they often had to resort to only eating bread, which he believed is very unhealthy. Immaculate (Group 7) and Angel (Group 7) both indicated that they were unable to eat fruit and vegetables during the drought, as crop production declined. Immaculate agreed with the statement made by Fission indicating that during the study she was modelling and gained weight due to healthy food being unavailable.

Group 4 reflected on the impact for schools the inability to access healthy food. This was one of their discussions:

Lungile (G4, A1): because you know when you are hungry, and you are thirsty, and you are focusing on something else.

Portia (G4, A1): There is no concentration.

Mandy (G4, A1): Drop out.

Phumuzile (G4, A1): There's no water at school. And then there is no food scheme at school. They are no longer getting food at school...Yes, but most of the kids go to school, because there is food...and most of the students depend on the food they get at school. Some of them leave home without eating anything, so they depend on the food at school.

Portia (Group 4), Sifiso (Group 4) and Immaculate (Group 7) all mentioned people becoming dehydrated and resorting to drinking the dirty water available to them at the

time. Immaculate indicated that she was aware of instances where people drank water with the animals in the dam causing illness.

Group 5 discussed a similar experience, where mentioned 'stinky water' present during times of drought. They implied that it was due to still-standing water. Solomon (Group 5) indicated:

And stinky water can mostly affect children, because children they are naughty. And little kids like to play around the stinky water and they getting some infections and maybe getting cholera or some other diseases that can affect them and that will also affect their parents, because some of them won't be able to get them to hospitals and clinics, because the environment where they are staying has a lack of maybe healthy developments.

Xolani (Group 2) echoed Solomon's concerns as he stated the following:

This is a very small town, so people get affected by drought due to no proper sanitation and due to the shortage, or lack of, water. People end up getting ill and stuff. So, it is another effect of drought, because people get sick, and we don't have like huge health facilities.

Zar (Group 2), Sifiso (Group 4) and Princess (Group 4) added to this statement, mentioning that the clinics in their community were ill-prepared and people were more prone to illness and unable to access the medication they needed (including indigenous medicinal plants). Junior (Group 6) reflected on the widespread effect drought has:

I'm going to talk about the points that, that human effect, that people can't go to school or work or other places, because if there's a drought, where are they going to get water to have, to cook, to wash their bodies before they go? They can't go to school and work stinking. Okay, People start getting sick and others die, because of drought. ...and then, infection spreads faster during serious drought, because you will drink maybe a certain water, which is dirty because you have no choice. You have to drink it or you will die. So, diseases and other infections grow faster

Both Junior (Group 6) and Zar (Group2) indicated that hygiene becomes more challenging during times of drought, as there is less water for bathing and washing clothing. Most of the groups mentioned that sanitation was one of the most difficult challenges to navigate during drought. Kid'Eazy (Group 3) and Nocebo (Group 2) both indicated that schools closed earlier in the day as they did not have ablution adequate facilities. The frequent use of toilets that were not clean resulted in learners contracting illnesses. A secondary effect was the inability of the schools to complete their syllabi before the final examinations as Nocebo explains it in the following excerpt:

We were really affected...it was two weeks before we were about to write our exams, final exams, because it was in November. Ja, okay, we were going to school hey, then at 10 o' clock we knock off (leave school) and we had nothing to do, because the kids would say: 'I want to go to the toilet. I want to drink water', but there was no water...Most of us failed, because there was a syllabus that was not completed.

During an informal discussion during a break, it was brought to the attention of the researcher that the female participants wanted to add to the sanitation discussion without the presence of the male participants. They indicated that during the drought, they stayed at home when they were menstruating or had to make use of members of the community's bathrooms, as the schools were not hygienic. This gender-specific challenge was alarming, as this contributed to the absenteeism previously discussed.

4.2.1.4 Subtheme 4: Organisational risk factors

Organisational risk factors refer to the participants' perceived lack of political-, governmental, municipal, infrastructural and institutional resources. Although South African disaster risk reduction protocols have improved over the last decade, they still focus on immediate relief in the agricultural sector and do not assess disasters such as droughts holistically to put preventative, support measures into place (Meza et al., 2021).

As mentioned previously, participants identified a lack of appropriate health care facilities during times of drought. This was indicated by Xolani (Group 2) indicating that 'people get sick, and we don't have like huge health facilities'.

Despite the schools' best efforts to assist the participant co-researchers, it was evident that drought had a far-reaching impact. Phumuzile and Sifiso (Group 2) mentioned that due to the water shortages at schools and places of work, absenteeism increased. Kutlo (Group 3) added to this stating 'we ended up not going to school, because we don't have water'. Khanyisile (Group 6) added 'I used to be late at school when, because my dad used to fetch the water in the morning'.

An underlying belief appearing throughout the data was a distrust of the municipality. Group 2 indicated that in the discussion of Activity 2, the water problems should not be blamed on a decrease in rainfall, but that the government is to blame. It would appear as though the distrust is not always overtly expressed, but instead blindly accepted as a norm. Xolani (Group 2) best expressed this belief:

Ja, not every water is worth consuming, hence people are not taught about that, especially in my community. Because I would tell my grandma that we have this crisis with water supply. She will (say) there is so much water. There is a lot of water in her community. We have lots of water in the dams. What do you mean we don't have water? I think basically people didn't feel the severity of the effects of droughts, because they did not understand the concept of the drought. It was not brought out to them as to the state of the nation is in right now and the township is right now regarding the situation. So they were like okay, it's just hot and the municipality decided to cut off the water.

Girl (Group 5) concurred, claiming that 'the municipality closes the water and then we don't have any water for days'. Both Girl and Xolani's statements above stress important key points. The first being the misinformation and miseducation of drought within their community. Solomon (Group 5) discussed illiteracy, especially among the older members of the community and how important information is often misinterpreted. The second key point relates to the belief that the municipality punishes the community, instead of putting measures in place to preserve the water resources that are available during times of drought. Solomon further explained:

The municipality has tried making pamphlets to give to people and telling them if they are misusing water, using water they don't have, they will have to pay for that (pay fines) and then that frightens people a little bit, so they can be able to use water in a good way.

Another stressor identified by the participants was faulty infrastructure that results in social conflict. Charlotte (Group 3) explained:

And the 2014 time is when they had a problem of pipes, where they just like broke down, underground pipes, so the water just like ran out in like, just came out. So there were many people who wanted the water, because they told us there will be time they will run out of water for two weeks. So like there were like many people who were fighting and stuff, wanting that water, but then they ended up some people guarding it.

It would appear as though the municipality did attempt to assist the residents of Leandra by sending water tankers to the drought-stricken community, however, Sifiso (Group 4) indicated that the tankers and reservoirs would 'run dry' quickly. Some participants specified that the ground was dry during times of drought. Willem (Group 5) noted that the use of the heavy water tankers brought with them their own infrastructural challenges, as he explained:

Adding on the roads, yeah, they are potholes and cracks (due to drought) and it causes lots of accidents on the roads.

Kutlo (Group 3) acknowledged Xolani's previous statement, by expressing her mistrust of the water tankers. She voiced her concern as follows:

You are wondering where did they get the water from. Is this truck clean, or the tap water to come and give it to us?...You don't feel comfortable and you are not sure about should I take this one or should I drink it? Should I boil it? I don't think everyone like the water that is boiled.

Figure 4.7 below demonstrates a skit performed by the participants showing how they waited for water.



Figure 4.5: Participants re-enacting a scene where they had to wait in line to receive water

4.2.1.5 Subtheme 5: Social risk factors

Drought exposes the complexities and inadequacies within a strained society. This includes the transactional challenges between individuals, their families and their communities. When there is a disaster, these challenges are often exacerbated (Orievulu et al., 2022).

From the data it was clear that the participant co-researchers experienced challenges as a connected unit within a larger familial or communal unit. When discussing the stressors they experienced as individuals, these were often portrayed as a shared experience. Gwanele (Group 7) expressed this best in their statement below:

Drought affects me, because I have to think about my family, because where are they going to get the water? Where are they going to bath? Where are they going to eat? That don't make me happy...

All the focus groups raised concerns regarding the well-being of their families as a major stressor during times of drought. Junior (Group 6) indicated this by stating:

When my family's fighting and we have a problem, let's say we're in a drought, and everybody wants water, I understand that everybody wants water, but we should share the water, so if my family is fighting, my heart gets broken and I just want to move on.

Wendy (Group 8) reiterated the financial strain experienced by her family during drought and how she feared that they may starve to death. Hakeem (Group 7) spoke of the conflict he experienced having to provide water for his family while having to focus on his schoolwork. He indicated that:

it was hard for my family, because most of the time when I come back to (from) school, I must take the wheelbarrow and go to the place. Like, it was far and I must study in that time. So I decided to take the wheelbarrow and put water, so that we can feed our family with that water and it was hard for me, because I need to focus on my school and that time I need to go and fetch water.

The data indicated that communities experienced anger and frustration during times of drought as the access to water resulted in fights and even death. Fission (Group 3) spoke to this in the story below:

Yes, 2014 and 2016, because I remember like we progressing to last year (2016), like they showed on the news people killing each other for water. I don't know like, there was a child who played with water and there wasn't water, so people were angry and they ended up killing that little child. Yeah and 2014 people were fighting for water, because water wasn't enough. Trucks didn't have enough water to supply everyone. Yeah, so okay, but 2014 and 2016 people fought for water.

The friction within the community was echoed by Solomon (Group 5). He first explained the conflict as a fictitious story of a hunter poaching animals on a farm. The farmer realises this, and they have a scuffle. The farmer then indicates to the hunter that the animals on the farm are dying, and he (hunter) is stealing what remains. Both

parties realise that they are fighting, as they want to provide for their families. Solomon further spoke of instances in the community where people were upset that certain areas received water while others could not access water, causing the community to feel discriminated against. He explains it in the excerpt below:

In this location area found that many people don't get water, because they were staying in RDP housing, but some of the houses this side had water. It is because it's a little bit steep and sometimes in that area water doesn't go and always find that many people come to that area to take water. And some other people were selling the water (municipal water) to make money and be able to pay rent. The people who had the water, 'I don't want you staying in town'. Even in Leandra are able to get water, because they are paying rent each month and in 2015 there was an economy drought.

The facilitators of the study became aware of one unifying theme within each of their groups. There was an unspoken acknowledgement of social standing within each group. The age ranges across all groups ranged from adolescents to young adults. In most of the groups, the oldest male acted as the spokesperson. During the data collection process, this created a problem, as the researchers had to question whether they received the true perceptions of the group and whether it reflected the views of the eldest member of the group. In contrast, Group 3, where the participant co-researchers were closer in age, the discussion felt more open, as all parties felt more comfortable to speak.

This hierarchical system within the community brought up a dilemma for some of the groups. In their discussions, Groups 1 and 2 indicated that they are raised to be respectful towards their elders, however, their elders do not always listen to their concerns. Nocebo (Group 2) said the following:

The elders, most of the time, but even people my age, I can say. There is a place called Highlands. Ja, they were not listening to us at all. First of all, they have one tap, the tap is there, one tap, but they are not listening to us. That is the funniest thing, because we are trying to help, but they see us as fools.

Group 5 discussed this dynamic and how this appears within the family structure. It was evident that the males in the family felt that they assumed the responsibility for the family's well-being while trying to shelter the females in the family from the responsibilities. The females in the group acknowledged that this happens within their families, however, Girl argued against this taking a more independent stance. Their discussion is presented in Table 4.8 below:

Subtheme 5: Social risk factors – Gender roles within the family	
Participant, group and activity	Evidence from the data
Solomon (G5, A4)	From line 751 to line 765 in the transcription, he speaks of a fictitious story of a farm, where the farmer is struggling with animals dying. He speaks of a hunter that tries to hunt on the farmer’s farm: the farmer is getting outside here standing outside here shouting to the hunter ‘what are you doing on my farm? This is my livestock, you know’, but the person is hunting for his own benefit, while the farmer is struggling.
Jabulile (G5, A4)	They speak differently to us. If I was a guy, they would say in a tough language ‘you see plants are dying’, ‘this and that are dying’, but then to us (girls) they will say to us like ‘ah, my kind (Afrikaans for child), crops are dying’ in a soft voice. You know, like they don’t want us to worry so much so that’s what I speak to guys mostly about those situations.
Willem (G5, A4)	...actually, let me say it from my culture, inheritors, people who inherit a lot are males, because they are carrying on with the same name and all those kind of things. They want to raise the same name, but girls they are going to get married into another family and so they’re focusing on boys, because they know they are the next leaders of the family and that’s why they should tell them (boys) everything as it is and don’t beat around the bush.
Solomon (G5, A4)	For girls, I don’t know much about girls, but from what I know, I know when there is a situation, they are the ones that are stressing, you know. They are the ones ‘what is going on?’ They are panicking by nature. They are panicking a lot, but a guy he has a way of taking it.
Girl (G5, A4)	I do not agree. Maybe in the olden days the women were stressing more, but now we do know about drought. We also do guys’ work now. It’s not like in the olden days ‘you are a woman; a woman should do this’. We know how to do men’s work. We are learning. We want to learn. We want to know how they do it. We are strong now!
Girl (G5, A4)	Because You can’t say that boys are close to their dads, because some of the boys are not close to the dad. Others are close to their mums and some of the girls are not close to their mums, they are close to their dads. They are sharing more with their father, so it is different. It depends on the family.

Table 4.5: Gender-specific participant perspectives on familial stressors, which hinder problem-solving

4.2.2 THEME 2: Problem-solving as a resilience building strategy

Problem-solving is considered a process of recurrent, goal-directed sequences of cognitive, affective and behavioural operations used by individuals and their families to adapt to stressful external and internal demands (Heppner & Krauskopf, 1987). This process is implemented to solve affective (emotional and well-being) or instrumental (basic needs) problems by utilising their individual and contextual resources (Heppner et al., 2004). In SA, the environmental demands are often instrumental in their experiences of stress and thus affects the individuals' problem-solving ability (Lazarus & Folkman, 1984). The Problem-Solving Skills Training (PSST) approach to problem-solving suggests that social modelling of behaviour, reinforcing the behaviour and adapting to find solutions to problems have been successful (Palermo et al., 2014). Various subthemes will address how adolescents or youths, their families and their community solve their perceived challenges during drought. Table 4.6 below indicates the inclusion and exclusion criteria for subthemes of theme 2:

Problem-solving as a resilience building strategy		
Subtheme	Inclusion Criteria	Exclusion Criteria
Youth problem-solving strategies	Any reference to youth-related, individually experienced problem-solving strategies, within the context of Leandra, during times of drought	Any reference which excludes youth-related, individually experienced problem-solving strategies employed within the context of Leandra, during times of drought.
Familial problem-solving strategies	Any reference made to problem-solving strategies employed by families of the participants, within the context of the drought-affected town of Leandra.	Any reference which excludes the problem-solving strategies employed by families of participants, within the context of the drought-affected town of Leandra.
Community-based problem-solving	Any reference made to problem-solving strategies employed by the community within the drought-affected town of Leandra.	Any reference not pertaining to problem-solving strategies employed by the community within the drought-affected town of Leandra.

Table 4.6: Inclusion and exclusion criteria for theme 2

4.2.2.1 Subtheme 1: Youth problem-solving strategies

Historically, there has been a gap in appropriately addressing the psychological needs of adolescents and youth within the African context. In SA, only 30 per cent of youth make use of mental health services; this is alarming as untreated mental health challenges has the potential to develop into advanced psychopathology in adulthood (Sorsdahl & al., 2021). Failure to address the psychological needs of youth correlates with increased risky behaviour, which includes substance abuse, alcohol abuse, unplanned pregnancies and unsafe sexual practices (Sorsdahl et al., 2012). For effective problem-solving to take place, it is important that individuals identify the problem, define it, generate solutions to solve the problem and then implement those solutions, determine the effectiveness of their problem-solving strategy. After reflection, this strategy can then be analysed and adapted (Palermo et al., 2014). Various problem-solving strategies employed by the participant co-researchers during drought will be discussed.

From the data, it became evident that the participants from all the focus groups opted for a positive outlook during times of drought. This is deemed as one of their affective coping resources during times of drought. Njabulo (Group 1) speaks not only to maintaining a positive outlook, but to keeping hope alive in times of drought. Njabulo further acknowledges the physiological impact stress has on the human body. Njabulo explained it below:

You must stay positive, be true to yourself. Staying negative is never a solution, because staying positive helps you to get through whatever situation you are facing. That will help you to stay healthy in your mind, heart and body.

Don't lose hope. Losing hope is another thing that's never a solution. Losing hope is not the good thing for your body, because if you lose hope, your body will do so and then the drought thing will start to attack you, because you don't have hope. But if you have hope and you stay positive, you will be able to overcome that situation... Staying positive in your mind will help your mind be able to see that these things need me to stay positive, then your mind will send the message to your body, then your body will be able to be positive, then you will be able to overcome the situation

Hope as a recurring theme was identified within the majority of the focus groups. Sifiso's (Group 4) answer encapsulates the underlying themes of positivity and having hope by stating:

There is a sun and a moon there. I believe that where there is sun and moon, there is always a better life to live tomorrow, or even today going upwards...in my heart, I feel very anxious in my heart, I feel very anxious and then I have also analysed as to how am I going to help myself to release this anxiousness that I have in my heart. Then by telling myself...I will try by all means to overcome it...You know when you wake up there is new hope in every day.

Nocebo (Group 2) echoes Njabulo's belief of staying positive and having faith during times of drought. Nocebo also speaks to Sifiso's experienced stress, by referring to the physiological effect of drought-related stressors:

Here I wrote: 'always have faith' then here, writing and singing helps me to clear my mind...I listen to music (gospel music) I take a walk...Okay, this is my belief, I believe that when we are facing challenges there shall be people who are strong and willing to change the situation and I think it's me. I wrote: 'not pushing hard on myself or stressing' because it is not good for my health and heart...you can cause yourself a lot of heart problems or heart failure.

During the body mapping activity, Zar (Group 2) explained that prayer is of personal importance to him: 'This is the church, so it is the house of the Lord. It's a sign of going to pray'. Ma'Fashion (Group 8) states that spirituality is a way in which stress is relieved:

Know what helps me in my heart is my family and praying to God and in my heart singing to God. It helps me to relieve everything.

The data seems to indicate that spirituality is of importance to the participants. This is one of the most prominent themes throughout the data. Xolani (Group 2) indicated the following while discussing his body map:

I believe you must be focused and keep your mind on the picture and never give up, no matter what happens...I have to be spiritually and intellectually fit during the course (of the drought). I need to be positive and supportive...stay fit by going to the gym, eating healthy and drinking enough water.

Remaining physically fit during times of drought was not only an indicator of keeping their bodies healthy, but also served as a coping mechanism for participants to remain mentally strong. Table 4.7 tabulates responses from participants, motivating for exercise as a resilience-building resource:

Subtheme 1: Youth problem-solving strategies – Exercise as a resilience-building resource	
Participant, group and activity	Evidence from the data
Njabulo (G1, A3)	Exercise. Go to the gym. Going to the gym will help your body stay healthy, especially your muscles and cells will be able to regain and reproduce even though there is not enough water in your body.
Precious (G1, A3)	Exercise to keep my mind better and you have to think about things. Keep my mind busy, you know...jogging, sit-ups, you know. Then I don't have to think of drought.
Zodwa (G1, A3)	I must be patient, I must exercise regularly, think positively in everything I do, I must tell myself something positive...I must tell myself to have self-love.
Mandy (G4, A3)	Sometimes I take several walks, then I pray. Physically, I do more exercising, like jogging, yeah. Warm-ups. Then I communicate and stay around others, Then I eat.
Phumuzile (G4, A3)	Physically, I exercise to keep my body strong. I read, yeah. Resting helps me a lot, because it calms my body down. I eat and drink water. Uh, I dance. Yeah, dancing helps me a lot...It helps me to stay fit.
Bonele (G6, A3)	Exercise helps me to relieve my body and mind.
Angel (G7, A3)	I love cooking, so when I'm heartbroken, I just think about the cooking, then I cook. I sing, I love house music, as I've written there...to keep my body, I used to exercise every morning.

Table 4.7: Exercise as a resilience-building resource during times of drought

The participant co-researchers indicated that socialising and spending time with their friends, was another strategy they used to cope during times of drought. Precious (Group 1) agrees with Phumuzile (Group 4) that speaking to friends assists them in maintaining their positivity. Phumuzile's contribution is as follows:

Emotionally, I surround myself with people who are gonna make me laugh. For example, when I am down I will sit with whoever that's gonna make jokes so I will be able to laugh and forget about what I was feeling or the sadness I had before

The participant co-researchers seem to find comfort in creative expression during crises such as droughts. This includes cooking, gardening, creative writing and music. Gugu (Group 2) and Fission (Group 3) indicated that they use music as a form of

comfort and distraction during times of drought. Hakeem (Group 7) indicated his creative expression by mentioning:

I do, music, reading, reading a story, writing story, writing lyrics of my song and do the things that will help me improve my career. I write down words and poems that do motivate people.

Angel (Group 7) and Palesa (Group 8) indicated that they enjoy cooking when they are feeling upset. Palesa further indicated that she enjoys spending time on social media, not only as a form of distraction, but as a means of communication and gaining information. This notion was prominent within each of the focus groups. Lefa (Group 2) mentioned that he receives information regarding drought through social media and the internet. Lefa posits that there is a lack of information, and that the younger generation should educate the elders. Precious (Group 1) adds to this, by stating that disaster alerts are sent via social media, which keeps her informed about the drought.

Zodwa (Group 1) claims:

I will be able to cope with situations in a positive way. Yes, and I have to be realistic, face the truth, understand that there is drought, find more information, research and find solutions. I must be patient and save water...I can use the internet...you can go to the library, there are computers

Fission (Group 3), Mandy, Phumuzile and Sifiso (Group 4) all indicated they would often watch television as a way of taking their minds off of the difficulties that they face. During tough times they prefer to watch comedic movies as a way of lightening their emotional distraught.

The arts-based activities employed a narrative approach to data collection, allowing the participant researchers to reflect on the artefacts that they have created and communally engage in solution-focused discussions. During the study, the participants were eager to share their own experiences during times of drought and offer instrumental solutions to drought-related challenges. Portia (Group 4) shared her thoughts on being adaptable whenever there is an experienced crisis. She responded:

I adapt to the environment. Hear what I refuse to confront with some thought, you know? Um, save water, you know, save food. You adapt to the environment so that water and food can last for longer. Unlike there's no drought, you don't care about saving water or saving food, you know?

With this statement, Portia indicated that her process of thinking changes during times of drought, as there are greater concerns to focus on regarding the accessibility of resources.

The focus groups shared possible solutions to practical challenges they have experienced. Njabulo, Simpiwe, Zodwa and Precious (Group 1) identified the water wastage associated with hygiene practices such as bathing, brushing teeth and washing clothes. Their advice is to close the tap when brushing teeth and bathe using a bottle of water. Ma'Fashion (Group 8) suggests bathing once a day and reusing bathing water to flush toilets or to water the garden. Zar (Group 2) suggests that clothes be worn more than once, as this will reduce the amount of water used to wash clothing.

The participant co-researchers indicated that they wanted to take ownership of their drought-related challenges by engaging in youth-driven agency. Lefa (Group 2) indicated that many elders could benefit from more knowledge regarding preventative drought measures. Group 3 added to this thought, by suggesting the following:

Another thing we can do is start programmes that teach people how to prevent, or how to cope with drought, and yeah. We could also like, start programmes and teach people in our communities about drought and how to cope when there is a drought.

Group 7's sand tray represented their houses, that have tanks installed, so that water could be stored for when there is a need. They also suggested that separate tanks with taps be set aside for the community to use. It could also be used to give water to their animals. Girl (Group 5) mentioned that although water-saving measures have increased, people still waste water. She advocates for the use of buckets, as individuals can physically see how much water had been used for the day. John Boze (Group 8) noticed that gutters are not installed on houses in his town. He suggested that the installation of gutters and water tanks would alleviate the water crisis, as this will allow for water to be stored responsibly by each household.

Group 3 indicated that past experiences of drought prepare individuals for future droughts, as they have already learnt the techniques to use and resources to utilise during times of drought. This relates to the knowledge systems individuals use in order to solve problems. Kid'Eazy had the following to contribute to the discussion:

I think the more we experience a drought, the more we learn about how to save water. We get to, we learn more things about drought the more we get to experience it... What I have learnt

is that you always have to save water for the future, because you never know what can happen. So, when tomorrow comes, you've got to be prepared.

Kutlo (Group 3) best describes the importance of experience in informing future problem-solving processes by stating:

I think now we know what is drought, what are the causes and what are the impacts and how it's affect us. So, in future, we will simply be prepared, because now we did learn about drought and we know more, know more about drought, so I don't think that it will difficult like the last time we just experienced it, because we didn't know anything about it, but now I think we do know anything about it.

4.2.2.2 Subtheme 2: Familial problem-solving strategies

The theme identified relates to family stress and coping theories that conclude that it is necessary to establish the individual and collective family perceptions to understand the severity and impact they experience in relation to a crisis, such as drought (Patterson, 1988; 2002). Bozalek (1999) acknowledges SA's diverse demographic, stating that it does not necessarily conform to the standards of a nuclear family unit. The author further indicates that the norm of having two parent households, with dual incomes, or enough income so that one parent can be a caregiver, is not the rule for countries such as SA. South African families are already strained due to poverty, unemployment, socioeconomic difficulties and political challenges, which may have a unique impact on how problems are perceived and resolved. Theron (2015) further noted that mothers were seen as the designated caregivers in the family and assume most familial tasks and responsibilities. In this study, the mothers were instrumental in affirming their children and reassuring them.

The participants indicated that the family unit is important. This is where they find their motivation, protection, where they are sheltered and are supported. Portia (Group 4) says it best in her statement:

Home means support. Home means love, care...I think that tomorrow will be better than today, even if we are struggling to adapt to the environment, but when you are home, we are okay. We feel welcomed, we don't have to stress about a lot of things, and we know that as long as we are home, there is a way to get through this.

The theme of the home environment as one that offers protective resources was addressed by each focus group. The pattern seems to be that the participants' parents or caregivers try to shelter them from crises. Solomon (Group 5) indicated how his family shelters him from crises:

The people who make us okay, it's usually our parents, because they make sure that we are not exposed to these situations, even now...they make sure we are protected...It makes you feel better if that person does not beat around the bush and that that person tells you straight that the situation is like this, but don't focus to it, rather focus on your academics...rather than focus on the situation, we as your elders will make sure that you know we will protect you and make you feel okay, if you may be exposed to the situation.

Lungile (Group 4) concurred with Solomon and stated the following:

So, imagine you are encountering that disaster of drought, I think everyone of us has a parent or a family, so obviously if there is something like of a drought, your mom or dad will want you to not be affected. She will make sure that you stay by her side all the time

Hakeem (Group 7) indicated that his mother fulfils his affective needs during times of drought:

Like, if I am feeling sad, I just talk to my mom...she has a way of to help me. She can help more she feels sad. She will say, 'No' Hakeem, everything will be ok, just focus on what you are doing'.

During activity 4 (sand tray), Group 6 created a scene in which the child figure is safe, surrounded by his family sheltering him from the effects of drought. The group questioned whether it is beneficial to the child if they are completely protected from the drought experience. The group suggested that the parents rather model behaviour to help the child recover from the effects of drought. Junior had the following to say about their scene:

We've used the parent as the person who makes the child to be okay...you see, if a kid feels safe and is playing, he or she doesn't have any worry

Some participants indicated that their grandparents were their protectors. Gwanele (Group 7) mentioned the following:

Okay, I have two parents, but the most that influence me the most is my grandparents, because my dad is always away and my mum is always away, so my grandparents help me understand that you have to have faith in life

This sentiment, however, was not shared by all participants. Njabulo (Group 1) stated the following:

It depends on what relationship you are in. There is a family relationship and there's a friend relationship. It depends whether the relationship is positive or negative...When it is positive, it helps a lot to me, because I will stay positive...Friends will advise me: 'my friend, don't lose hope.' The difference is that, this is a difference between how you talk to a friend and how you

talk to a family. If you talk to your friend, you will talk everything, you will feel free, not that in your family. Remember, you will not feel free, but you will need to have that thinking, that respect, that little respect to show that I am talking to an elder person, my parents, yes.

Njabulo further stated that respect within his culture could mean the difference between living harmoniously, or incessant fighting.

Njabulo's response can be considered in two ways. The first relates to the possibility of adolescents regarding friends as fulfilling familial roles. The second relates to the hierarchical patterns within family units, commanding respect, which may, in turn, hinder the communication process within the family unit.

The notion of respecting elder family members is echoed by Toni (Group 1) who states that his family is expected to respect not only themselves, but other families and their community. Thato (Group 6) shares a similar value and was stated as saying:

I must have my family on my side. They motivate me a lot and they teach me what's wrong and they teach me what's right...they taught me that I must be a kid in their house. I must assume the position myself in the space of my mother, which is respect. I must love anybody, show love and how much I care for them.

Although the importance of familial relationships was a key value shared among the participants, it was evident that family and friends would often be mentioned together, as though they were fulfilling the same purpose. Charlotte (Group 3) shared the following:

I just usually need some friends and family, just make like a group and talk about how we can save water and give them some advice or something like that.

Similar to Charlotte, Simpiwe (Group 5) referenced his support systems as being both his family members, as well as his friends, having equal importance. Simpiwe noted:

Well, actually all people help me to stay positive...friends...some take life like easy; they don't care...they do drugs and all of that...you also get people who care about how life is and how to respect life...it can be your grandma, your friends, your brother, people who are positive.

Spirituality and religious practices within the family were other protective resources identified by the participant co-researchers. Solomon (Group 7) described it best:

Me and my family, we are Christians and we believe that everything we ask from God, we get it. So by praying, we also asking for the assistance from the Almighty and it also helps a lot, because we believe that without God, nothing can happen, but with God, everything is possible and even the situation that we think is impossible, we can overcome it.

Sitembiso (Group 2) mentioned that families practice the veneration of their ancestors as a source of comfort during challenging times. During activity 4 (sand tray), Group 3 depicted a family visiting a graveyard, cleaning tombstones, while members of the family spoke to those who had passed away. Group 3 explained that this practice indicated respect towards their ancestors. During the cleaning process, the family would speak to the ancestors and ask for their guidance during difficult times in their lives.

4.2.2.3 Subtheme 3: Community-based problem-solving

The use of communal coping resources through the use of social relationships are vital in establishing adaptive coping pathways (Malan-van Rooyen, 2015). How individuals use their communal resources determines how their communities experience the severity of drought and how they effectively solve problems (Masten, 2014; Sartore et al., 2008).

The data reflected that communal problem-solving hinges on a social hierarchy that must be followed to find a solution. Xolani (Group 2) explained how meetings in the community are approached:

It consists of everyone who has an important role in the community... It's just to join hands and become one, one in spirit and in accord, saying we need this and we are praying for this now.

Zar and Xolani (Group 2) respectively, illustrated the social hierarchy in community meetings as follows:

I think another thing you know we do...there has to be someone from the government and someone from the chieftaincy...if you attend any meeting, you have your pastor, we have political leader, we have the royalty – Yes, the Mahlangu's...yes, it is tradition.

I think at first, we recognise them, because they play a major role in the community, but now it's more like the meeting cannot have depth, we cannot recognise the meeting if it does not have the pillars, you know. We need to have a pastor, we need to have someone from the ruling party, we need to have someone from the chieftaincy, so it is complete. Now we can have a meeting.

The participants demonstrated a deep-seated respect for their elders throughout the study. Sifiso (Group 4) indicated that the younger members of the community should respect their elders, as they have experienced droughts in the past and can speak from experience. The discussions between elders and the youth are beneficial to both parties.

Respect as a theme, especially regarding authority figures, was prominent in the study. Precious (Group 1) explained this in the excerpt:

Stay positive, we'll respect every decision, like the South African Department of water, things like that yes. You have to respect their decision, so that we can work together, unite, so we can have better solutions.

This belief is echoed by Toni (Group 1):

Respect everybody and love yourself and your community...Love everybody that you are staying with, your family, your friends and everybody in your community.

From Toni's answer, it is clear that the community of Leandra has a strong sense of unity and accountability upheld as core values. These values play a vital role in how problems are identified and addressed. Xolani (Group 2) refers to this in the following statement:

Support is not by giving people things, but...by being there with them...through unity...basically, since we are a spiritual community, it's mostly going to be churches and obviously the government, because they are, we know they are part of disaster management groups or offices. So, you know, we would go there and ask, since we are experiencing this type of disaster, and they can assist where they can. So, we make the best of the situation...In times like these, we need each other.

Tshiamo (Group 1) and Lefa (Group 2) speaks of this unity and how it is used in the community to find solutions. Tshiamo stated the following about Leandra:

Be useful in your community. You see, when you have a plan or solution to help...tell everyone, so that they can use it and work together...work together to find a solution to work together to get something useful to overcome drought

Simpiwe (Group 1) indicated that South Africans are unique as they are always able to 'make a plan'. Willem (Group 5) indicated that he has a lot of faith in his community's ability to find solutions:

They come together; they stick together. They stand together and talk to the municipality when there is a drought in the community

The participants seem to perceive the community of Leandra as a tight-knit community, where citizens are supportive of each other. Sharing and taking care of your neighbour are recurring themes throughout the study. Group 4 used their sand play activity to illustrate a child surrounded by the community, to protect the child from

the effects of drought. One of the members in the group challenged this notion, as they indicated that by protecting the child, they cannot learn from their community.

An overarching theme identified by each focus group pointed out, was the community's deep spiritual beliefs. It would appear as though the majority of Leandra's population belong to the Christian faith. Faith-based practices form an integral part of how the community solve problems, as they direct their problems towards God for assistance. Each group alluded to the prayer gathering they had as a community. Xolani (Group 2) explained it as follows:

There was an instance where the community just had to come together and pray for the rain...we are a small community and then we have a lot of churches, so we are like spiritual people. Ja, we are a spiritual community, so we believe that if we as people, okay, we believe that if we feel like we are somehow failed by nature...we just go back to God.

The community's religious beliefs to a great extent contribute to their positive attitude towards problem-solving and thus acts as a resilience-building resource within the community. This positive attitude encourages individuals within the community to reach out to one another. Thembi (Group 6) describes it as follows:

It helps me by helping others...and then it's helping me by helping others who suffer from drought and also young children, to keep their minds positive, to forget the negative.

Lefa (Group 2) responded to the community-based protective resources associated with caring for one another. This form of connectedness and caring, is referred to as 'Ubuntu', an African philosophy of solidarity, harmony, compassion, hospitality and sharing, which is entrenched within the indigenous African belief system (Chigangaidze, Matanga & Katsuro, 2022). Lefa's profound expression reflects the spirit of 'Ubuntu' in the following statement:

They say it takes a village to raise a child, then if ever we aren't standing up for what we know or for what we believe is right, who will do so?

More examples of the participants' community-based problem-solving strategies engendering the philosophy of 'Ubuntu' is presented in Table 4.8.

Subtheme 3: Community-based problem-solving : Ubuntu	
Participant, group and activity	Evidence from the data
Njabulo (G1, A3)	Help each other. If someone says to you: 'I don't have enough water, please give me some water', give that water to that person, because we need each other to overcome difficult situations we are facing.
Toni (G1, A3)	Sometimes you find somebody who is suffering of getting water, who's disabled, don't have legs and go and fetch for him water with a bucket, and cook for him or her.
Zar (G2, A3)	It happens that when we are short of water, there should be a household having some for such situation, so we share with other households as a form of giving and not to develop selfishness. So that is a matter of the heart, so giving is like a matter of the heart
Thato (G6, A1)	Maybe as we're the government of Mpumalanga, we may speak to maybe a mayor or something, to socialise with people who are not in this situation. Maybe countries or provinces can co-operate with us...we can ask for help maybe in another province or maybe in another country. Maybe they can transfer water with pipes or trucks.

Table 4.8: Evidence of community-based problem-solving strategies as indicated by the participant co-researchers.

4.3 CONCLUSION

This chapter discussed the predominant themes that emerged from the data. It aimed at evaluating the perceptions of adolescents and their families of drought and how these observations influence their problem-solving skills. These unique perspectives were then examined to identify problem-solving strategies used within the context of a drought-stricken South African community. The problem-solving skills identified were analysed to determine their role in family resiliency research within the South African context. Brief references to associated research are made to determine whether the study's findings correlate to existing South African and international research.

In the following chapter, the results will be linked to the theoretical framework used and address the research questions underpinning the study. The researcher will discuss the findings and limitations of the study, while reflecting on their own experience of the study. The study will conclude with recommendations for practice and suggestions for future research.

CHAPTER 5: DISCUSSION OF FINDINGS

5.1 INTRODUCTION

This chapter revisits the conceptual framework and aims to answer the research questions posed by the study. This chapter further considers the findings obtained in the previous chapter and compares it to the literature review. The limitations of the study, with recommendations for future research, are included in the conclusion.

5.2 ADDRESSING THE RESEARCH QUESTIONS

The research questions of the study will be answered in this section. The main research question is: ‘How do the effects of drought affect the problem-solving skills employed by youths and their families?’ In order to answer the primary research question, two secondary research questions were asked: ‘Does the way in which a problem is perceived determine problem-solving strategies?’ and: ‘In what way does problem-solving affect family resilience processes in times of drought?’ Figure 5.1 below visually represents the primary and secondary research questions.

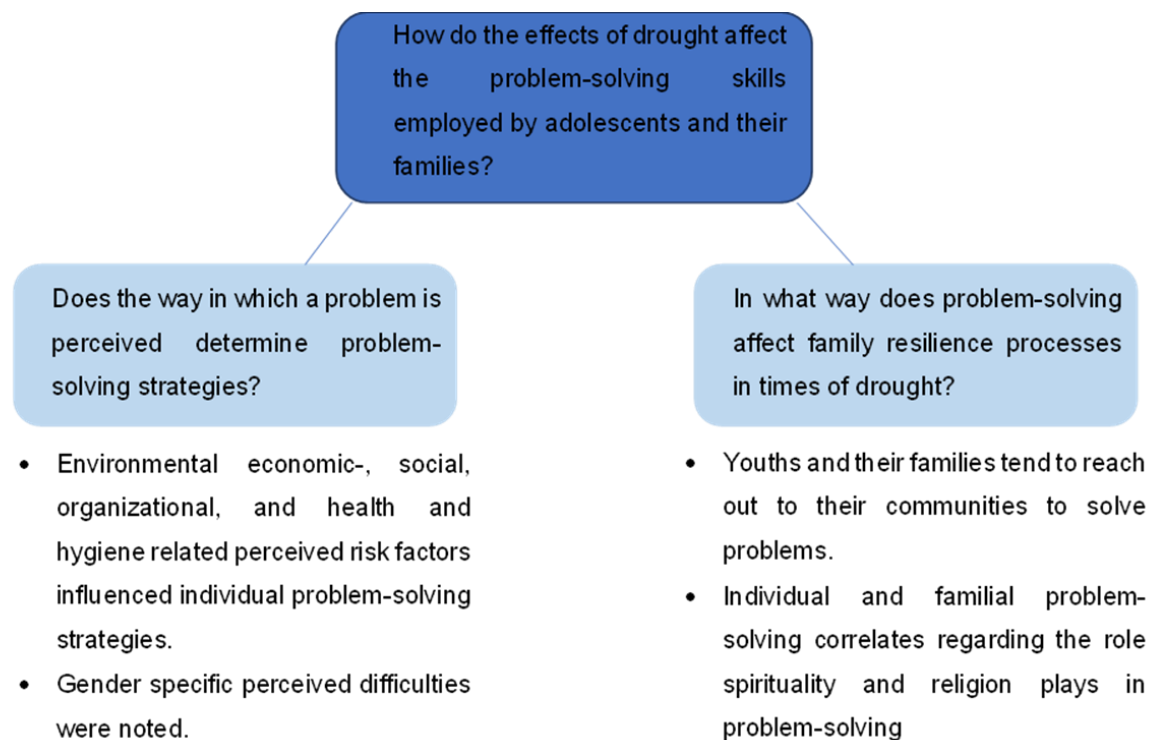


Figure 5.1: Summary of the primary and secondary research questions

5.2.1 ADDRESSING THE SECONDARY RESEARCH QUESTIONS

5.2.1.1 Secondary research question 1: Does the way in which a problem is perceived determine problem-solving strategies?

Addressing how problems are perceived was deemed more complicated than initially suspected. De Lange, Heilbron and Kok (2018) concluded in their study that perception often hinges on the prior knowledge systems individuals possess and how this influences how they experience their contexts. This creates pre-emptive expectations within individuals, which they can utilise to respond to what is perceived. Cori et al. (2020) posits that environmental risks, such as natural disasters, combined with prior knowledge and trust in the organisational hierarchies to respond appropriately to the stressor, impacted positively on the participants' experience of the perceived risk.

The research participants within each focus group initially focused on the instrumental and environmental factors describing and identifying a drought. The initial assumption in the study was that the participants live in a rural community with very few resources available. These were proven incorrect, as the participants entered the research site with cellular phones and access to the internet. It became clear during the initial activities that the participants researched what a drought is beforehand and initially gave the answers they thought were expected from them. When asked where the participants learnt about drought, most participants responded that they either learnt about it within the classroom setting or by doing research online. This thus created a fixed point of reference for the participants to work from and indicated how they cognitively understood and perceived droughts.

The reliability of the data collected initially was questioned, as the focus groups worked from a similar point of reference, which was not experienced, but rather researched and taught. Throughout the data analysis, it became evident that how the drought was perceived, individually and collectively, as a group was, to a large degree, socially constructed. When asked how the participants experienced the drought, many different focus groups responded by saying that they did not realise that they were in a drought at the time of data collection. In turn, this also advocates for the use of the multi-theoretical framework for familial problem-solving, as this framework was instrumental in guiding the researcher and also structuring the problem-solving processes of the participants.

As they participated in the arts-based research activities, they collectively constructed a timeline of periods of drought, by identifying legislation and precautionary measures within their communities. By engaging with the participants in this manner, more effective information was gathered.

5.2.1.2 Secondary research question 2: In what way does problem-solving affect family resilience processes in times of drought?

Family resilience research is extremely complex, as it entails evaluating a family's potential to enhance functioning through processes of adaptation, recovery and growth when faced with adversities (Black & Lobo, 2008; Bhana & Bachoo, 2011; Walsh, 2012). Any perceived stressors would affect the family as a unit (Patterson, 2002), resulting in shifts within the familial relationship context (Hall et al., 2011). These experienced stressors further determine the family's ability to utilise resources (McCubbin & McCubbin, 1993).

From the data, it became evident that the participants solved problems individually and collectively. Youth participant data reflected that their communities collectively solved instrumental or day-to-day problems. Neighbours and Non-profit organisations could assist with basic necessities. It was interesting to note that the affective needs of the participants were largely met by their family members, followed closely by their friends. When viewed from the perspective of Black South African families, the reciprocal interaction between families and their communities constituted a transactional approach to showing appreciation and care for one another (Bozalek, 1999). The dependency on a collective perception of drought with a combined approach to problem-solving correlates with research conducted by Theron (2010). This emphasises the 'ubuntu' values instrumental in enhancing the resilience practices of families within rural communities (Black & Lobo, 2008).

Participants indicated that, as a family, they valued their spirituality and traditional practices. This allows individuals and their families to take care of their mental well-being, by engaging in culture, rituals, practices and familial belief systems (Greeff & Loubser, 2007; Walsh, 2012). Many participants indicated that they would go to church with their families to pray for peace, hope and provision (Dreyer, 2015). They further indicated that they also participated in traditional practices, for example, cleaning the graves of their ancestors so that the participants and their families would appease the dead and ask for guidance. This finding aligns with South African faith-based research

confirming that African Christians turn to God for comfort and guidance (Mokhoathi, 2017). According to Fukuyama and Sevig (1999), cultures engage in spirituality, as this promotes physical and psychological well-being, as feelings of stress and depression are prevented. Greeff and Loubser (2008) further indicate that faith-based practices within a South African familial setting are incorporated into their daily lives and have promoted hope, meaning-making, values, peace and an intimate relationship with God.

Interestingly, the participants indicated that when they needed to communicate their feelings towards crises, they would turn to their peers for support. A unique perspective on this states that intimate bonds between individuals, be it friends, community members or elders, could be considered a 'family unit' (Oswald, 2002; Walsh, 2012). The youth participants further indicated that their main mode of communicating with their friends was via social media applications, such as 'WhatsApp'. This data was interesting, as it suggests that social media plays a bigger role in the coping processes of youths and should be considered in future research.

5.3 REVISITING THE CONCEPTUAL FRAMEWORK

The research corresponds with the multi-theoretical framework (Bronfenbrenner, 1995; Greenberg & Ramsey, 2005; Engel, 1977; Engel, 1980; Walsh, 2003, 2012; & Patterson, 1988, 1989, 1995, 2002), which evaluates how adolescents' and their families' ability to adjust and adapt to perceived crises influence their problem-solving skills, and whether those skills enhance family resilience processes.

Figure 5.2 represents the family within a state of crisis, such as experienced during times of drought. Each family unit presents its own resistance capabilities, resources and coping mechanisms. In the case of the data, these reflected the participant's dependency on spirituality, cultural practices and connectedness with community members. The level of resistance capabilities the family uses as a resource will directly determine how they perceive the demands (stressors and strains) placed on them during times of crisis.

Within the context of the research site of Leandra, the perceived crisis was that of the long-term drought experienced in the Govan Mbeki Municipality in Mpumalanga. The participants indicated that this created in them feelings of uncertainty, powerlessness and fear of not being able to access appropriate resources to address their needs,

during times of drought. This is similar to the findings of Wu and Xu (2020) relating to the emotional-, psychosocial-, financial- and physical distress experienced by the participants during a time of crisis.

The themes identified in Chapter 4 has been incorporated into the conceptual framework used to structure the research. The participant co-researchers' adjustment phase at the time of the study, is visually presented in Figure 5.2 below:

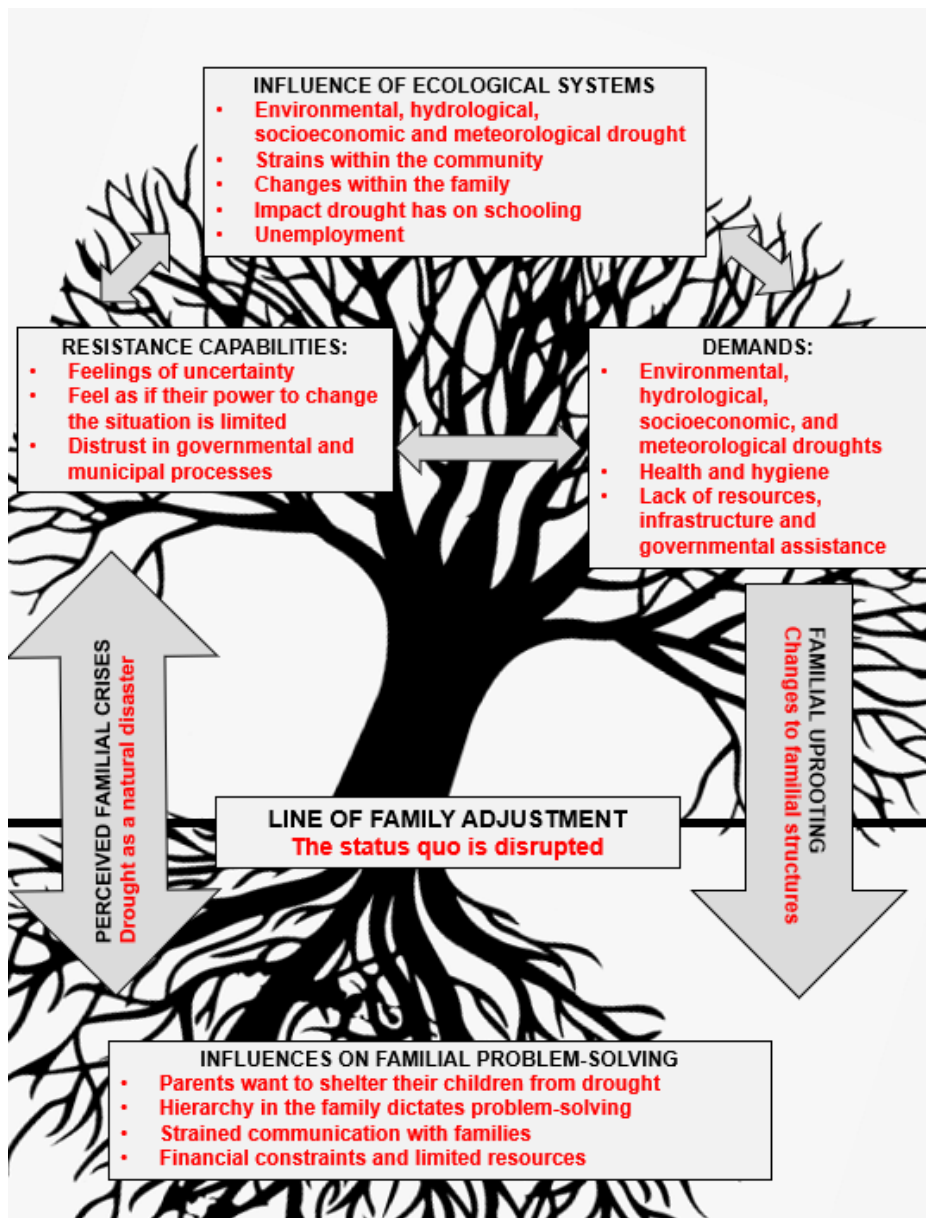


Figure 5.2 The multi-theoretical framework for familial problem-solving: Adjustment (Adapted from Bronfenbrenner, 1995; Greenberg & Ramsey, 2005; Engel, 1977; Engel, 1980; Walsh, 2003, 2012; & Patterson, 1988, 1989, 1995, 2002)

The participants indicated that many families suffered financially, had parents working in neighbouring towns to earn money and had to adapt to waking up early in the morning to collect water for the family. Family members often had to drive great distances to collect or purchase water, adding to the financial strain already experienced. Due to the strain experienced within the farming community surrounding Leandra, many breadwinners faced unemployment. Further strain within families relate to the hierarchical structure in which problem-solving takes place. Although communal, there exist constraints within each family regarding communication between caregivers who want to shelter their children, and the children suggesting problem-solving strategies to utilise. These constraints often demonstrated cultural and gender differences, with particular roles being assigned to particular family members. When compounded, these strains could become too much for the family to deal with and result in the uprooting of the family. The family is thus placed in a state of uncertainty and disarray. How families utilise their belief systems, family roles and communication processes affect how quickly the family can access resources available to them. This leads to a period of adjustment to the experienced drought and the demands it places on individuals, families and the community.

After the families have gone through a period of adjustment, they slowly adapt to the changes they have experienced while transitioning during the crisis. This indicated that the participants and their families have entered into the adaptation phase of the conceptual framework. Through reflection, the families can recognise adaptive capabilities identified during the adjustment phase. During the course of the research, the participant co-researchers indicated that they have gained new knowledge and insight after each experience with drought they encountered, resulting in less strain and stress experienced during a crisis. This in turn resulted in feelings of hope, staying positive and working together as a community unit to address the needs they experience. Participants and elders in the community of Leandra identified spiritual and religious practices as one of their main coping resources during crises. It was interesting comparing perceived problem-solving between elders and participants, as the elders focussed more on instrumental problem-solving, where the younger participants focussed on affective problem-solving. Participants identified exercise, creative expression such as music, friendships, and religious practices as individual problem-solving resources.

Citizens of Leandra became more familiar with the municipal and governmental resources available to them, which is thus easier to access during another period of drought, as the process is more familiar to them. This seemed to have spurred the youth on to engage in agency, promoting water-saving measures and support during times of drought. Throughout the research, the data suggested that the needs of the individuals, their families and their communities overlapped, with social cohesion coming to the fore. Not only had the support they were able to give their fellow community members provide practical assistance, but also fulfilled their affective need.

Figure 5.3 below indicates the adaptation phase of the multi-theoretical framework for familial problem-solving.

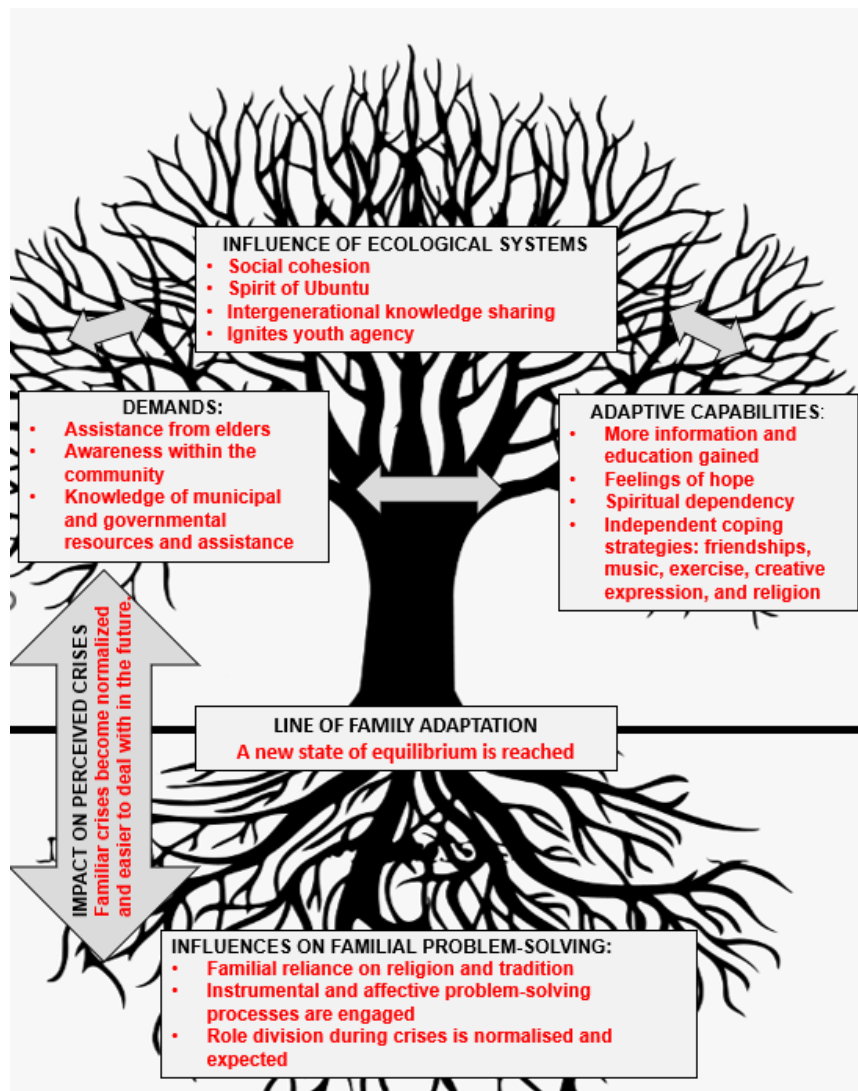


Figure 5.3 The multi-theoretical framework for familial problem-solving: Adaptation (Adapted from Bronfenbrenner, 1995; Greenberg & Ramsey, 2005; Engel, 1977; 1980; Walsh, 2003; 2012 & Patterson, 1988; 1989; 1995; 2002)

Within the context of the data, the participants initially did not know that they were in the midst of a drought. That perception indicated that they did not experience the effects of the drought in the same severity as the elders and older participants, who could remember the previous droughts. This indicates that a full phase from adjustment to adaptation took place.

From the data, the elders indicated various methods by which they dealt with the effects of the drought. This entailed teaching the youth about the purification and storage of water, which opened up a gateway to intergenerational knowledge sharing. As these processes were incorporated as adaptive capabilities and into the participants' daily lives, the adaptation phase was reached.

5.4 LIMITATIONS OF THE STUDY

The study presented itself with various limitations. As a facilitator forming part of a greater research project, the researcher did not have control over the location of the research site or determining the sample size and population necessary. As the project worked in partnership with Khulisa Social Solutions, who were logistically responsible for the recruitment process of participants, the researcher could not engage in recruiting participants for the study.

Upon entering the research facility, participants were grouped on an ad hoc basis, resulting in focus groups whose participants' age differences varied between the ages of 14 and 25 years. The researcher's particular focus group's age differences were between 14 and 18 years, which would have worked well if focus was only required for that particular group; however, all groups' data was integrated and formed part of the sample size. The facilitators soon realised that a social and cultural hierarchy was prevalent within each group. The male participants spoke more than the female participants, and the elder members of each focus group served as the spokesperson for that particular group. When questioned about this separately, the younger members indicated that as they are their elders, they needed to allow them to be their group's spokesperson. Mzimande (2021) found in her research that very often, Zulu males and females will revert to their cultural norms and roles when confounded within a group setting, similar to what was seen within our focus groups. This echoes the study by Malan-van Rooyen (2015), which emphasises the need for cultural sensitivity within the research setting.

The choice regarding the qualitative, arts-based data collection strategies was limited, as this had already been included in the main research project. The supplies required were provided for by the University of Pretoria, and thus the facilitators had limited control over the resources available to use during the data collection process. Although all the facilitators were trained in each of the arts-based activities prior to the research, there was still great uncertainty as to how the application of the various skills would impact different focus groups. The researcher was a first-year master's student at that time, and her knowledge regarding data collection and the correct application of each of the data collection strategies chosen, was limited.

A further limitation experienced was regarding the consistency of the application of data collection strategies within each of the focus groups. This is because the facilitators had a limited amount of time to interact with each other and serve as peer reflectors during the process of data collection. As each facilitator focused on not only their research questions while conducting research for the overarching research project, but they also needed to gather enough information that would be of use to the other groups. With regard to this research, the focus changed after data collection was completed, which meant that the data available had to be used, which did not particularly focus on problem-solving strategies. Fortunately, the data was sufficient to be used in this research study.

It was further noted that the different facilitators approached the data collection in a manner that would answer specific questions related to their own research studies. Again, this creates a possible bias (Galdas, 2017) and could include leading questions and probing to find answers that would suit individual studies. By doing so, the reliability of the data could have been compromised.

As most of the participants spoke and received instruction in isiZulu, language played a role in their ability to express themselves freely in their home language. Instructions for each activity was provided in English, however, when they discussed underlying themes and engaged in the activities, they spoke to each other in isiZulu. After discussion, the participants would then answer the facilitators in English. In many cases, the participants acted as translators for each when describing concepts, they felt could only be best described in their mother tongue. In this way, language could be deemed a limitation within this study.

5.5 ADDRESSING INITIAL ASSUMPTIONS

Within the context of the study, the researcher had to constantly be aware of her worldview and pre-conceptions about the research and produce research of a high standard. The data obtained should truthfully represent the collaborative efforts of the participant co-researchers and the research team (McMillan & Schumacher, 2014; Ponterotto, 2013; Ferreira & Ebersöhn, 2012; Holmes, 2020).

The study was of personal value to the researcher, as they originate from the Eastern Cape, which presently still suffers from water shortages and severe water restrictions. The researcher worked as an educator at a rural school, whose water contamination via nearby farmlands nearly had the school closed. The running water could not be used for drinking, only to flush toilets, or had to be boiled before being used to clean surfaces. Drinking water had to be transported weekly to the school in the form of water tanks. These tanks were the learners' and educators' only source of fresh drinking water (Capa, 2017).

During the study, the researcher became aware of how her beliefs and assumptions were questioned and challenged (Holmes, 2020). The first assumption when collecting data was that this community had a scarcity of water but that there was also a lack of infrastructure, communal resources and access to information. Upon entering the research site, this assumption was not completely accurate. The research participants all had cellular phones, the facility had running water and the participants had access to the internet. The community and the site of Leandra were dry and arid; however, the participants did not seem to notice that they were living in an area declared a drought disaster zone.

The study assumed that there would be gender-specific differences in how drought is perceived by the youth (Sartore et al., 2008). This assumption seemed to be confirmed, as the biologically gendered females in the group spoke to the facilitators after the male participants left to inform us that they struggled with hygiene during times of drought. This was because their school regularly did not have running water, which caused them to either stay at home during their menstruation period or utilise the facilities of neighbours during school hours. Lethargy during this timeframe was further exacerbated by a limited supply of water to be used for cooking and hygiene

purposes. This had a secondary effect of influencing the number of days these participants could attend school, impacting their scholastic achievement.

A knock-on effect of the aforementioned gender-specific differences related to the gathering and distribution of water was noted. Mentions were made of children waking up at four o'clock in the morning and walking to fetch fresh water with buckets. Others mentioned that the ladies of the household were responsible for collecting water. Other participants indicated that the men in the communities had to travel to surrounding towns to buy water and financially hampered an already underprivileged community. It was, however, clear that the elders served as protectors, shielding the younger members of the family from drought-related stress. Unfortunately, due to the different ecologies the families interact, shielding their completely was not always successful.

A further assumption was that youth and their families perceived drought differently (Theron, 2016; Sartore et al., 2008), which ultimately influenced how they used problem-solving skills to combat drought-related challenges. This assumption was accurate to a certain degree. As part of the data collection, participants were trained to conduct similar research within their communities and report back to the facilitators how their elders experienced drought. By comparing the information, it was evident that the elders in the community were acutely aware of the drought-related restrictions and the measures they needed to take for their families to receive fresh water. This seemed to correspond with the information the younger participants provided, although they shared it as a second-hand account of what happened. The older participants' (18 years and above) accounts were closer to those experienced by the elders. This historic information evoked feelings of anger and frustration, as they could recall fighting over water during the previous drought.

Although it was assumed that the unprecedented climate change might affect the biopsychosocial well-being of the participants, this hypothesis began by indicating that due to prior knowledge and known processes, the participants could adapt to these changes in a positive way, thus enhancing resilience processes (Ungar, 2012; Greenberg & Ramsey, 2005). The youth participants in the study identified that their elders supplied them with interesting information regarding the storage and sanitization of drinking water. This relates to using indigenous and prior knowledge systems within communities and how this may serve as a resilience resource for

individuals and their families. This in turn stimulated intergenerational communication pathways between the elders in the community and the participant co-researchers.

5.6 CONTRIBUTION OF THE STUDY

This particular study attempted to use youth-based data to determine how young people and adolescents experience drought and thus, how they respond to it. The study further championed youth, by using their own lived experiences to yield valuable data. Their unique experiences gave the researcher insight into problem identification, as well as problem-solving strategies employed by young people within a drought-stricken, rural South African town, and how this affects family resilience within their context.

The data and findings obtained from this study formed part of an international project investigating youth-related drought experiences. As the adverse effects of climate change continue to rise, it is crucial to spearhead practical, applicable solution-focused research, which could generate information to be used locally and internationally in alleviating specific needs within these countries.

Within the field of educational psychology, the study contributed to South African knowledge systems, regarding the identification of drought, how individuals and their families utilised the assets available to them, and how the use of these culminated in the individuals and their families' abilities to solve problems.

5.7 RECOMMENDATIONS

5.7.1 RECOMMENDATIONS FOR FURTHER RESEARCH

The study revealed evidence that the perception of crises, such as drought, played a crucial role in determining how adolescents and their families will solve problems, and how this could enhance family resilience. The recommendation is for further investigation into the following research areas:

- A follow-up study, focusing particularly on how South African youths perceive crises and how this relates directly to how problems are solved. Recommendations are that further investigation be conducted into the cognitive, emotional, spiritual and relational processes youths undergo when having to solve problems.

- Research into how biological gender differences could impact problem-solving strategies should be considered. The reasoning is that South Africa has a great history of cultures and traditions, within which each of these lies stereotypical gender roles and expectations. Studies into how different South African cultures respond to problems could indicate specific organisational, societal and norm-gendered hierarchies, which could affect how South Africans solve problems.
- Considering that a dearth of familial problem-solving and resilience research within the South African context exists, further studies into this field are recommended. With the construction of the conceptual framework used in this research, it became evident that problem-solving touches on stress theory and risk perception theory, and that problem-solving, as a concept, is an intricate process. The process becomes even more complex when framed within the familial context. By further investigating these areas, the researcher believes that important information could be gained on how preventative actions to perceived crises could be increased. Knowledge regarding problem-solving must be leveraged, so that appropriate education and crisis-prevention strategies can be implemented.

5.7.2 RECOMMENDATIONS FOR EDUCATIONAL PSYCHOLOGISTS

As educational psychologists, we do not yet have enough research to evaluate the long-term effects drought will have on physiological, spiritual, emotional, societal, financial and psychological functioning (Black & Lobo, 2008; Kousky, 2016). Their well-being impacts the overall health of their families, as each individual is impacted by and influences each member of the family structure. When stressors are experienced within the family, they could either pull together and enhance family resilience processes or pull away from their families, resulting in familial uprooting. This collapse could mean that families may become more susceptible to feelings of helplessness, loss of control, uncertainty, depression and anxiety during an experienced crisis (Kousky, 2016; Sartore et al., 2008; Wu & Xu, 2020). By this measure, families would not be able to utilise the resources available, as their perceived crises overrule their ability to solve problems effectively (Black & Lobo, 2008; Kousky, 2016).

Furthermore, research has shown that ecological changes, such as drought in South Africa, are not only experienced by individuals and their families but affect the surrounding communities in the process. Thus, we must consider wellness within South African communities not only individually but rather as a societal phenomenon. It is by furthering knowledge that growth and empowerment within vulnerable communities can take place (Theron et al., 2020; Greenberg & Ramsey, 2005; Hart et al., 2016).

As educational psychologists, the role is to advocate for change within communities by linking them to the resources they have at their disposal and bringing hope to vulnerable communities and enhancing their resistance capabilities, so they can adapt and adjust to the changes experienced around them. By doing this, we become more sensitive and more aware of specific contexts and needs, which will guide us in developing culturally specific support programmes.

Educational psychologists could use the multi-theoretical framework utilised in this study to evaluate the balance between protective resources and stressors experienced by families within their unique contexts. It could further serve as a basis to determine the level of familial uprooting experienced and how this affects the individual family and each individual within the family system. It could serve as a guide to determine which crises are perceived individually, as well as collectively so that open communication could be encouraged within the problem-solving process.

Within an educational setting, utilising the conceptual framework and gaining understanding into the experienced crises of individuals, could lead to agency and making effective use of available assets. One of the identified themes indicated that adolescents experienced educational institutions, as a place of safety and as a resilience building asset. This knowledge necessitates that the school environment be made conducive to learning, whether it be academically, socially or practically (such as soup kitchens and proper hygiene facilities). Theron et al. (2020) emphasised the importance of these findings, as the impact drought had on the school environment was significant. During times of drought schools closed earlier, learners struggled to concentrate, and hygiene and sanitation (particularly that of adolescent females) had a profound impact on their school experience. This meant that the adolescents not only experienced the academical challenges, but holistically could not utilise their schools as the asset previously identified.

Institutionally, the findings are of value to the education sector, as droughts and its widespread reach within South Africa should not be viewed as a separate entity from the mandate of the Department of Basic Education (DBE) to provide appropriate facilities and governance of schools, through which learning is made possible. Within the parameters of the study this is of significance, as Mpumalanga has been identified as one of the provinces with the lowest percentage of young people completing formal education, thus impacting future employment and financial empowerment (DBE, 2020). Drought should thus be evaluated holistically, and the burden thereof be shouldered by all forms of national governance.

5.8 CONCLUDING REMARKS

This study was instrumental in the understanding of problem-solving processes and provided unique insight into the complexities regarding how problems are perceived within a South African context. The researcher believes that the depth of an individual's perception and how this influences their values, attitudes and belief systems and those around them determine the actions that follow. The power of lived experiences should not be underestimated, particularly how this shape their worldviews. It is, therefore, crucial to be sensitive to all people from all walks of life.

A prominent American science fiction writer, Philip K. Dick, used to write about the complexities of the human experience. He noted that many realities depend on the vantage point you choose from which to perceive an experience. He was quoted (Holloway, 2013) as saying the following:

Maybe each human being lives in a unique world, a private world different from those inhabited and experienced by all other humans. . . If reality differs from person to person, can we speak of reality singular, or shouldn't we really be talking about plural realities? And if there are plural realities, are some more true (more real) than others? What about the world of a schizophrenic? Maybe it's as real as our world. Maybe we cannot say that we are in touch with reality, and he is not, but should instead say, his reality is so different from ours that he can't explain his to us, and we can't explain ours to him. The problem, then, is that if subjective worlds are experienced too differently, there occurs a breakdown in communication ... and there is the real illness.

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APPENDICES:

APPENDIX A: RECRUITMENT ADVERTISEMENT BY KHULISA SOCIAL SOLUTIONS

Looking for volunteers

Are you:

- **15-24** years old,
- Living in **the Secunda area**, Mpumalanga, *and*
- OK speaking, writing and reading **English**?

Do you want to spend one **Saturday** per month (March to July 2017) **being a researcher** and helping other researchers learn about what **helps young people** in **drought-affected** communities **to do OK in life**?

If you answered yes to all of the above, please ask the person who gave you this advert for more information about the research project.

APPENDIX B: PARTICIPANT INVITATION AND ASSENT FORM FOR ADOLESCENTS

PARTICIPANT INVITATION AND ASSENT FORM (Adolescents)

We invite you to participate in a project called: *Patterns of resilience among young people in a community affected by drought: Historical and contextual perspectives.*

Who are we?

We are researchers from the University of Pretoria (South Africa), the University of Brighton (United Kingdom), and two organisations called BoingBoing (United Kingdom) and Khulisa Social Solutions (South Africa). Our contact details are at the end of this letter if you need them.

What are we doing in this project?

We want to learn from you (and about 50 other young people from Govan Mbeki municipality) about what helps young people, whose communities are badly affected by drought, to be resilient. To be resilient is to keep doing OK in life even when life is hard. With your help, we also want to learn what adults in your community know about what has helped your community to keep doing OK in times of drought. Together with you, we want to come up with a plan that will help communities to help young people to be resilient.

The Research Ethics Committee of the Faculty of Education, University of Pretoria has said it is OK for us to do this study (number: ##). They know we will work carefully using South Africa's and international ethical rules (this is actually called the guidelines and principles of the international Declaration of Helsinki and the ethical guidelines of the National Health Research Ethics Council). The committee will maybe want to look at the forms you sign (if you say yes to being in this study) to check that we did everything in the right way.

Why are we asking you to be part of this project?

Because you

1. Are 15-17 years old, *and*
2. Are OK speaking English and can read and write in English, *and*.
3. Live in Secunda area, Mpumalanga.

What do you need to know?

- You can say no. If you say no, there will be no problem, you don't need to give a reason. Even if you say yes now, it is OK for you to change

your mind later and stop taking part. The only time that you will not be able to change your mind, is if you choose to participate in Activity 6 and if this activity has been video-recorded.

- If you want to participate, then you must ask your parents/caregivers to agree that you can participate. If they say no, then we unfortunately cannot let you participate. If they say yes, but you say no, then there will be no problem: nobody can force you to say yes. If they say yes and you say yes, then you and your parents/caregivers must complete and sign pages 6-7.

If something (like drug use) makes it hard for you to understand clearly what this project is about, we will not be able to let you take part.

If you say yes, what will you be asked to do?

You will be asked to do all six activities listed below. We will ask your permission to audio-record activities 1-2 and 4-6.

Activity Number	Date & Time	Place	Description of Activity
	25 March 2017, 09.00 – 16.00	Secunda	<p>Make a drawing or a model out of clay (we will give you everything you need to do this) that will help answer the following questions:</p> <ol style="list-style-type: none"> 1. What is the most important health/wellbeing (feeling good about life) issue for young people? 2. What does it mean to be resilient (do OK in life) when there is drought? 3. What/who makes it possible for young people to be resilient when there is drought?

	22 April 2017 09.00 – 16.00	Secunda	Learn how to be a researcher – we will teach you how to ‘interview’ (talk to) an older adult in your community about what he/she remembers about (i) how drought changed your community and (ii) how the community coped with/solved these changes. We will also teach you how to first ask this older adult to agree in writing that it is OK for you to do the interview and we will show you how to make notes about what this older adult says (we will give you a list of questions and a little book in which to write down the answers).
	Any date between 23 April and 19 May that suits you and the adult you will interview	Secunda	You ‘interview’ the older adult and write up the answers. Doing the interview will take about 1 hour of your time. The time you spend travelling to do the interview will depend on where you meet the older adult.
	20 May 2017 09.00 – 16.00	Secunda	Share what you have learnt from the older adults with us – you can choose to read to us what you wrote down or tell us the story about what you have learnt. We will ask for your permission to keep the written notes you made.

	24 June 2017 09.00 – 16.00	Secunda	We will use what you taught us in Activity 1-3 to come up with a theory about what helps young people to keep doing OK in times of drought, but we need you to check this theory. You can change it or add to it. Then, together we will use this theory to think about a plan that will help communities to help young people to do OK (be resilient) in times of drought. With your help we also need to think about how best to tell your community about this plan (e.g., via an exhibition or a play or a song, etc.) We will bring people who are good at drama to help with this plan.
	29 July 09.00 – 16.00	Secunda	This last activity is about putting the plan into action. Depending on what form the plan will take, we might be able to video it and upload the video onto YouTube.

What do you get out of this?

Because you will be working as a co-researcher in this project, we would like to offer you a R500 Checkers voucher¹ for each activity that you take part in. We will give you the voucher at the end of the day's activity. For Activity 3, we will give you the voucher at the end of Activity 4. Plus, you will learn a set of research skills that could be very useful to you in other areas of your life.

Can you get hurt by taking part?

We don't think that you can get hurt physically, but there are some other risks. We explain them below and what we will do to manage them.

<i>Probable/possible risks/discomforts</i>	<i>Strategies to minimize risk/discomfort</i>
You will spend your whole Saturday participating in Activities 1-2, 4-6.	Because this is a long time, we will have two tea breaks and a lunch break. During the breaks we will give you a juice and some fruit (e.g., an apple). For lunch, we will provide hot food (e.g., pap and wors).

¹ Tentative; to be confirmed by community partners at January meeting

Speaking English could be tiring or difficult.	If you prefer, you can speak in your home language. We will ask members of the research team or others in your group to translate into English so that the researchers who speak English can also understand.
You will complete Activities 1-2, 4-6 in a group.	Because you will be part of a group, other young people will know that you participated and what you said. To try and minimize outsiders knowing what you said, we will agree on group rules (e.g., treating one another respectfully; not talking to others about what specific participants said/did).
If we video Activity 6 your community and many other people will know that you participated.	You do not have to take part in the video. Alternatively, if you do want to take part but you don't want other people to identify you, then we can find ways of hiding your face (e.g., by wearing a mask). You can also choose whether your name is added to the credits or list of people who are in the video.

There is one other thing that you must know: If you tell us, while we are doing the research with you that you are planning to hurt someone or that someone is abusing you, then we must tell people (including the police) who can help.

What will happen to what you write or draw or make or say during the study?

We will ask a person/people to listen to the audio-recordings of activities 1-2 and 4-6 and type what you and the others said. This person/these people will sign a form in which they promise to keep the recording private (meaning they can't tell anyone anything about what they listen to and type up). Once everything is typed up, the researchers from the University of Pretoria will delete (erase/wipe out) what was recorded.

We (the researchers from the Universities of Pretoria and Brighton and from Khulisa and BoingBoing) will study the typed-up version of what you and others said. We will also study your written notes about what you learnt from the older adult. If you make drawings/clay models during Activity 1, we will ask your permission to take photographs of your drawings/clay models and we will also study these photographs. We will probably quote what you said/wrote or show the photographs of what you made when we write about what we learnt from you or when we tell others about what we learnt from you (e.g., at a conference or when we teach students).

We will keep a copy of what you said/wrote and/or drew/made in a safe place at the University of Pretoria. We will keep the copies for 10 years. Your name will not be on any of these copies. We will allow university

students who have to complete research projects about resilience or drought or communities or adolescents to use these copies for their research projects.

Who will see the forms you sign and what happens to them?

Only the researchers from the University of Pretoria and Khulisa Social Solutions will see the forms you sign. They will store these forms for 10 years.

Will it cost you anything to take part in this study?

No, it will not cost you anything. We will pay the cost of the local bus/local taxi that you use to participate in activities 1 to 6.

Do you have questions you want to ask?

- You can contact Linda Theron at 016 910 3076 or Linda.theron@nwu.ac.za if you have any further queries or encounter any problems. If you prefer you can meet her in her office: 105, Building 11B, Vaal Triangle Campus, NWU.
- You can contact the chair of the Research Ethics Committee, **DETAILS TO BE ADDED** if you have any concerns or complaints that have not been adequately addressed by the researcher.
- You will receive a copy of this information and consent form for your own records.

Declaration by participant

By signing below, I [full name] agree to take part in a research study named: *Patterns of resilience among young people in a community affected by drought: Historical and contextual perspectives*

I say that:

- I have read and understood this information and consent form and it is written in a language with which I am fluent enough and comfortable.
- I have had a chance to ask questions to both the person obtaining consent, as well as the researcher (if this is a different person), and all my questions have been adequately answered.
- I understand that taking part in this study is **voluntary** (I can say no) and I have not been pressurised to take part.
- I understand that my parents/legal caregiver must also say yes (in writing) before I can participate.
- I understand that what I contribute (what I say/write/draw/produce visually) could be reproduced publicly and/or quoted).
- I reserve the right to decide whether or not my actual name or a made-up one will be used in the research. I will decide this at the end of my participation once I have a better understanding of what is involved, and once I have talked through what that would mean with the university researchers.
- I understand that if a video is made as part of this study, other people could recognise me and know that I participated. I give permission for this.
- I understand that I may choose to leave the study at any time and that will not be a problem. I also understand that if I will only get a Checkers voucher for the activities that I complete.
- I may be asked to leave the study before it has finished, if the researcher feels it is in my best interests.

Signed at (*place*) on (*date*) 2015

.....
Signature of participant

.....
Signature of witness

- | | | |
|---|------------|-----------|
| • You may contact me again | Yes | No |
| • I would like a summary of the findings of this research | Yes | No |

The best way to reach me is:

Name & Surname: _____

Postal Address: _____

Email: _____

Phone Number: _____

Cell Phone Number: _____

In case the above details change, please contact the following person who knows me well and who does not live with me and who will help you to contact me:

Name & Surname: _____

Phone/ Cell Phone Number /Email: _____

Declaration by Parent/Legal Guardian

By signing below, I [full name] agree to allow my child/the child I legally care for [child's full name:] to take part in a research study entitled: *Patterns of resilience among young people in a community affected by drought: Historical and contextual perspectives*

I declare that:

- My child asked me to read the information about this study. I have read and understood this information and consent form and it is written in a language with which I am fluent enough and comfortable.
- I have had a chance to ask questions to both the person obtaining consent, as well as the researcher (if this is a different person), and all my questions have been adequately answered.
- I understand that my child's participation in this study is **voluntary** (I can say no and my child can too) and I have not been pressurised to allow him/her to take part.
- I understand that what he/she contributes will be shared with international researchers.
- I understand that what he/she contributes (says/writes/draws/produces visually) could be reproduced publicly and/or quoted).
- I understand that my child has the right to decide whether or not his/her actual name or a made-up one will be used in the research and that this decision will be made at the end of the study once my child has a better understanding of what is involved, and once he/she have talked through what that would mean with the university researchers.
- I understand that if a video is made as part of this study, other people could recognise my child and know that he/she participated. I give permission for this.
- My child may be asked to leave the study before it has finished, if the researcher feels it is in his/her best interests.
- I understand that researchers will not be asking questions about abuse/harm, but that they have will have to report abuse/harm to child protection services if they should become aware that your child is being abused/harmed.

Signed at (*place*) on (*date*) 2015

.....
Signature of parent/legal guardian

.....
Signature of witness

Declaration by person obtaining consent

I (*name*) declare that:

- I explained the information in this document to
- I encouraged him/her to ask questions and took adequate time to answer them.
- I am satisfied that he/she adequately understands all aspects of the research, as discussed above.
- I did/did not use an interpreter.

Signed at (*place*) on (*date*) 2015

.....
Signature of person obtaining consent

.....
Signature of witness

Declaration by researcher

I (*name*) declare that:

- I explained the information in this document to
- I encouraged him/her to ask questions and took adequate time to answer them.
- I am satisfied that he/she adequately understands all aspects of the research, as discussed above.
- I did/did not use an interpreter.

Signed at (*place*) on (*date*) 2015

.....
Signature of researcher

.....
Signature of witness

APPENDIX C: PARTICIPATION INVITATION AND CONSENT FORM FOR YOUNG ADULTS

PARTICIPANT INVITATION AND CONSENT FORM (Young adults)

We invite you to participate in a project called: *Patterns of resilience among young people in a community affected by drought: Historical and contextual perspectives.*

Who are we?

We are researchers from the University of Pretoria (South Africa), the University of Brighton (United Kingdom), and two organisations called BoingBoing (United Kingdom) and Khulisa Social Solutions (South Africa). Our contact details are at the end of this letter if you need them.

What are we doing in this project?

We want to learn from you (and about 50 other young people from Govan Mbeki municipality) about what helps young people, whose communities are badly affected by drought, to be resilient. To be resilient is to keep doing OK in life even when life is hard. With your help, we also want to learn what adults in your community know about what has helped your community to keep doing OK in times of drought. Together with you, we want to come up with a plan that will help communities to help young people to be resilient.

The Research Ethics Committee of the Faculty of Education, University of Pretoria has said it is OK for us to do this study (number: ##). They know we will work carefully using South African and international ethical rules (this is actually called the guidelines and principles of the international Declaration of Helsinki and the ethical guidelines of the National Health Research Ethics Council). The committee will maybe want to look at the forms you sign (if you say yes to being in this study) to check that we did everything in the right way.

Why are we asking you to be part of this project?

Because you

1. Are 18-24 years old, *and*
2. Are OK speaking English and can read and write in English, *and*.
3. Live in the Secunda area, Mpumalanga.

What do you need to know?

- You can say no. If you say no, there will be no problem, you don't need to give a reason. Even if you say yes now, it is OK for you to change

your mind later and stop taking part. The only time that you will not be able to change your mind, is if you choose to participate in Activity 6 and if this activity has been video-recorded.

- If something (like drug use) makes it hard for you to understand clearly what this project is about, we will not be able to let you take part.

If you say yes, what will you be asked to do?

You will be asked to do all six activities listed below. We will ask your permission to audio-record activities 1-2 and 4-6.

Activity Number	Date & Time	Place	Description of Activity
	25 March 2017, 09.00 – 16.00	Secunda	<p>Make a drawing or a model out of clay (we will give you everything you need to do this) that will help answer the following questions:</p> <ol style="list-style-type: none"> 4. What is the most important health/wellbeing (feeling good about life) issue for young people? 5. What does it mean to be resilient (do OK in life) when there is drought? 6. What/who makes it possible for young people to be resilient when there is drought?
	22 April 2017 09.00 – 16.00	Secunda	<p>Learn how to be a researcher – we will teach you how to 'interview' (talk to) an older adult in your community about what he/she remembers about (i) how drought changed your community and (ii) how the community coped with/solved these changes. We will also teach you how to first ask this older adult to agree in writing that it is OK for you to do the interview and we will show you how to make notes about what this older adult says (we will give you a list of questions and a little book in which to write down the answers).</p>

	Any date between 23 April and 19 May that suits you and the adult you will interview	Secunda	You 'interview' the older adult and write up the answers. Doing the interview will take about one hour of your time. The time you spend travelling to do the interview will depend on where you meet the older adult.
	20 May 2017 09.00 – 16.00	Secunda	Share what you have learnt from the older adults with us – you can choose to read to us what you wrote down or tell us the story about what you have learnt. We will ask for your permission to keep the written notes you made.
	24 June 2017 09.00 – 16.00	Secunda	We will use what you taught us in Activity 1-3 to come up with a theory about what helps young people to keep doing OK in times of drought, but we need you to check this theory. You can change it or add to it. Then, together we will use this theory to think about a plan that will help communities to help young people to do OK (be resilient) in times of drought. With your help we also need to think about how best to tell your community about this plan (e.g., via an exhibition or a play or a song, etc.) We will bring people who are good at drama to help with this plan.
	29 July 09.00 – 16.00	Secunda	This last activity is about putting the plan into action. Depending on what form the plan will take, we might be able to video it and upload the video onto YouTube.

What do you get out of this?

Because you will be working as a co-researcher in this project, we would like to offer you a R500 Checkers voucher² for each activity that you take part in. We will give you the voucher at the end of the day's activity. For Activity 3, we will give you the voucher at the end of Activity 4. Plus, you will learn a set of research skills that could be very useful to you in other areas of your life.

Can you get hurt by taking part?

We don't think that you can get hurt physically, but there are some other risks. We explain them below and what we will do to manage them.

<i>Probable/possible risks/discomforts</i>	<i>Strategies to minimize risk/discomfort</i>
You will spend your whole Saturday participating in Activities 1-2, 4-6.	Because this is a long time, we will have two tea breaks and a lunch break. During the breaks we will give you a juice and some fruit (e.g., an apple). For lunch, we will provide hot food (e.g., pap and wors).
Speaking English could be tiring or difficult.	If you prefer, you can speak in your home language. We will ask members of the research team or others in your group to translate into English so that the researchers who speak English can also understand.
You will complete Activities 1-2, 4-6 in a group.	Because you will be part of a group, other young people will know that you participated and what you said. To try and minimize outsiders knowing what you said, we will agree on group rules (e.g., treating one another respectfully; not talking to others about what specific participants said/did).
If we video Activity 6 your community and many other people will know that you participated.	You do not have to take part in the video. Alternatively, if you do want to take part but you don't want other people to identify you, then we can find ways of hiding your face (e.g., by wearing a mask). You can also choose whether your name is added to the credits or list of people who are in the video.

² Tentative; to be confirmed by community partners at January meeting

What will happen to what you write or draw or make or say during the study?

We will ask a person/people to listen to the audio-recordings of activities 1-2 and 4-6 and type what you and the others said. This person/these people will sign a form in which they promise to keep the recording private (meaning they can't tell anyone anything about what they listen to and type up). Once everything is typed up, the researchers from the University of Pretoria will delete (erase/wipe out) what was recorded.

We (the researchers from the Universities of Pretoria and Brighton and from Khulisa and BoingBoing) will study the typed-up version of what you and others said. We will also study your written notes about what you learnt from the older adult. If you make drawings/clay models during Activity 1, we will ask your permission to take photographs of your drawings/clay models and we will also study these photographs. We will probably quote what you said/wrote or show the photographs of what you made when we write about what we learnt from you or when we tell others about what we learnt from you (e.g., at a conference or when we teach students).

We will keep a copy of what you said/wrote and/or drew/made in a safe place at the University of Pretoria. We will keep the copies for 10 years. Your name will not be on any of these copies. We will allow university students who have to complete research projects about resilience or drought or communities or adolescents to use these copies for their research projects.

Who will see the forms you sign and what happens to them?

Only the researchers from the University of Pretoria and Khulisa Social Solutions will see the forms you sign. They will store these forms for 10 years.

Will it cost you anything to take part in this study?

No, it will not cost you anything. We will pay the cost of the local bus/local taxi that you use to participate in activities 1 to 6.

Do you have questions you want to ask?

- You can contact Linda Theron at 016 910 3076 or Linda.theron@nwu.ac.za if you have any further queries or encounter any problems. If you prefer you can meet her in her office: 105, Building 11B, Vaal Triangle Campus, NWU.
- You can contact the chair of the Research Ethics Committee, **CONTACT DETAILS FOR 2017 CHAIR WILL BE ADDED** if you have any concerns or complaints that have not been adequately addressed by the researcher.
- You will receive a copy of this information and consent form for your own records.

Declaration by participant

By signing below, I [full name] agree to take part in a research study named: *Patterns of resilience among young people in a community affected by drought: Historical and contextual perspectives*

I say that:

- I have read and understood this information and consent form and it is written in a language with which I am fluent enough and comfortable.
- I have had a chance to ask questions to both the person obtaining consent, as well as the researcher (if this is a different person), and all my questions have been adequately answered.
- I understand that what I contribute (what I say/write/draw/produce visually) could be reproduced publicly and/or quoted).
- I reserve the right to decide whether or not my actual name or a made-up one will be used in the research. I will decide this at the end of my participation once I have a better understanding of what is involved, and once I have talked through what that would mean with the university researchers.
- I understand that taking part in this study is **voluntary** (I can say no) and I have not been pressurised to take part.
- I understand that if a video is made as part of this study, other people could recognise me and know that I participated. I give permission for this.
- I understand that I may choose to leave the study at any time and that will not be a problem. I also understand that if I will only get a Checkers voucher for the activities that I complete.
- I may be asked to leave the study before it has finished, if the researcher feels it is in my best interests.

Signed at (*place*) on (*date*) 2015

.....
Signature of participant

.....
Signature of witness

- | | |
|---|----------------------|
| • You may contact me again | Yes No |
| • I would like a summary of the findings of this research | Yes No |

The best way to reach me is:

Name & Surname: _____

Postal Address: _____

Email: _____

Phone Number: _____

Cell Phone Number: _____

In case the above details change, please contact the following person who knows me well and who does not live with me and who will help you to contact me:

Name & Surname:

Phone/ Cell Phone Number /Email:

Declaration by person obtaining consent

I (*name*) declare that:

- I explained the information in this document to
- I encouraged him/her to ask questions and took adequate time to answer them.
- I am satisfied that he/she adequately understands all aspects of the research, as discussed above.
- I did/did not use an interpreter.

Signed at (*place*) on (*date*) 2015

.....
Signature of person obtaining consent

.....
Signature of witness

Declaration by researcher

I (*name*) declare that:

- I explained the information in this document to
- I encouraged him/her to ask questions and took adequate time to answer them.
- I am satisfied that he/she adequately understands all aspects of the research, as discussed above.
- I did/did not use an interpreter.

Signed at (*place*) on (*date*) 2015

.....
Signature of researcher

.....
Signature of witness

APPENDIX D: PARTICIPANT INVITATION AND CONSENT FORM FOR COMMUNITY MEMBERS AND ELDERS

PARTICIPANT INVITATION AND CONSENT FORM

(Community Members/Elders)

We invite you to participate in a project called: *Patterns of resilience among young people in a community affected by drought: Historical and contextual perspectives*.

Who are we?

We are researchers from the University of Pretoria (South Africa), the University of Brighton (United Kingdom), and two organisations called BoingBoing (United Kingdom) and Khulisa Social Solutions (South Africa). Our contacts are at the end of this letter if you need them.

What are we doing in this project?

With the help of young people from Govan Mbeki Municipality, we are learning what helps young people whose communities are badly affected by drought to be resilient. To be resilient is to keep doing OK in life even when life is hard. As part of this, we would like to understand how drought changed communities in the Govan Mbeki Municipality and how the community coped with/solved these changes.

The Research Ethics Committee of the Faculty of Education, University of Pretoria has said it is OK for us to do this study (number: ##). They know we will work carefully using South Africa's and international ethical rules (this is actually called the guidelines and principles of the international Declaration of Helsinki and the ethical guidelines of the National Health Research Ethics Council). The committee will maybe want to look at the forms you sign (if you say yes to being in this study) to check that we did everything in the right way.

Why are we asking you to be part of this project?

Because a young person who is working with us in this project identified you as someone who is knowledgeable about the community and how the community coped with/solved drought-related changes.

What do you need to know?

You can say no. If you say no, there will be no problem, you don't need to give a reason. Even if you say yes now, it is OK for you to change your mind later and stop taking part.

- If you say yes, what will you be asked to do?
- You will be asked to meet with the young person who brought you this form at a time that is convenient to you. The young person will ask you two main questions and write down your answers to this question. As part of the second question, the young person will also ask you to make a drawing and to explain your drawing. The questions are as follows:
 - How has drought changed communities in the Govan Mbeki Municipality?
 - How has your community coped with/solved these changes?
 - What was the most effective thing your community did to cope with drought-related changes. Please draw this and briefly explain your drawing to the young person.

What do you get out of this?

You will contribute historical perspectives to the study that young people themselves do not have. In making this contribution, you will help researchers to get a fuller understanding of what helps young people whose communities are badly affected by drought to be resilient.

Are there any disadvantages to taking part?

Other than the fact that talking to the young person will take about an hour of your time, we cannot think of any risks/disadvantages if you were to take part.

What will happen to what you explain and draw?

The young person will report what you remembered and explained, but without making your identity public. With your permission, the young person will give us the drawing you made.

We (the researchers from the Universities of Pretoria and Brighton and from Khulisa and BoingBoing) will study what you said and drew. We could quote what you said or show your drawing when we write about what we learnt from you or when we tell others about what we learnt from you (e.g., at a conference or when we teach students).

We will keep a copy of what you said and/or drew in a safe place at the University of Pretoria. We will keep the copies for 10 years. Your name will not be on any of these copies. We will allow university students who have to complete research projects about resilience or drought or communities or adolescents to use these copies for their research projects.

Who will see the forms you sign and what happens to them?

Only the researchers from the University of Pretoria and Khulisa Social Solutions will see the forms you sign. They will store these forms for 10 years.

Will it cost you anything to take part in this study?

No, it will not cost you anything. With your permission, the young person will meet you in a safe space that is convenient for you.

Do you have questions you want to ask?

- You can contact Mosna Khaile, the project manager, at 0767756180 or mosnak@live.com if you have any further queries. You can also email Linda Theron at Linda.theron@up.ac.za or Angie Hart at A.Hart@brighton.ac.uk
- You can contact the chair of the Research Ethics Committee, if you have any concerns or complaints that have not been adequately addressed by the researcher.
- You will receive a copy of this information and consent form for your own records.

Thank you for considering this invitation

Mosna, Angie, Linda and the team

Declaration by participant

By signing below, I [full name] agree to take part in a research study named: *Patterns of resilience among young people in a community affected by drought: Historical and contextual perspectives*

I say that:

- I have read and understood this information and consent form and it is written in a language with which I am fluent enough and comfortable.
- I have had a chance to ask questions to the young person obtaining consent.
- I understand that taking part in this study is **voluntary** (I can say no) and I have not been pressurised to take part.
- I understand that what I contribute (what I say/write/draw/produce visually) could be reproduced publicly and/or quoted).
- I reserve the right to decide whether or not my actual name or a made-up one will be used in the research. I will decide this at the end of my participation once I have a better understanding of what is involved.

Signed at (*place*) on (*date*) 2015

.....

.....

Signature of participant

Signature of witness

- You may contact me again Yes No
- I would like a summary of the findings of this research Yes No

The best way to reach me is:

Name & Surname: _____

Postal Address: _____

Email: _____

Phone Number: _____

Cell Phone Number: _____

In case the above details change, please contact the following person who knows me well and who does not live with me and who will help you to contact me:

Name & Surname:

Phone/ Cell Phone Number /Email:

Declaration by person obtaining consent

I (*name*) declare that:

- I explained the information in this document to
- I encouraged him/her to ask questions and took adequate time to answer them.
- I am satisfied that he/she adequately understands all aspects of the research, as discussed above.
- I did/did not use an interpreter.

Signed at (*place*) on (*date*) 2015

.....

Signature of person obtaining consent

Signature of witness

Declaration by researcher

I (*name*) declare that:

- I explained the information in this document to
- I encouraged him/her to ask questions and took adequate time to answer them.
- I am satisfied that he/she adequately understands all aspects of the research, as discussed above.
- I did/did not use an interpreter.

Signed at (*place*) on (*date*) 2015

.....

Signature of researcher

Signature of witness

APPENDIX E: WORKING GUIDELINES FOR THE MULTI-DISCIPLINARY RESEARCH STUDY

Research Activity Guidelines:

Patterns of resilience among young people in a community affected by drought: Historical and contextual perspectives.

Day 1			
Activity		Time	Page
Intro	Masekitlana	15 Minutes	3
A	Drawings and Clay	1 Hour	5
B	Timeline	1 Hour	8
C	Bodymapping	1 hour	9
D	Sand Tray	1 hour	11
E	Poem, Story, song	1 Hour	12

Introduction: Masekitlana

Time: 15 Minutes

Description of the game

- Masekitlana is a stone game used by children to enact their experiences (everyday proximal processes), their dreams and what they have observed using a particular storyline.
- The game is verbal – the person (normally a child) becomes a narrator – the game is about a story to tell / or an experience to share / or something that is bothering a child.
- Masekitlana is about giving the child an opportunity to verbally share their story. Sometimes it can be seen as a catharsis.
- Stones are used to represent objects and subject of the story. Stones are ‘toys’ in the game, they are very important.
- Imagination is core in Masekitlana.
- The story line is also important, it has beginning middle and end – there are not rules to how the story is told, but the child will start and end the game (showing some structure and storyline).
- Masekitlana is played, it is an active involvement, the communication is not with the audience but with the stones (which represents subjects and objects of the game); that is why many children can play their own game because they speak ‘through stones to the stones’.
- Masekitlana is played sitting – the most relaxed position.

The narrator does not always require an audience (it can be played alone, in the company of others or every child can play her own Masekitlana) – this game is common with girls. Normally, the best narrator will get an audience when others leave their game to listen, but this is not the norm. The storyline is determined by the player.

Material Needed:

- Stones (small stones to play with – child fist size stones)
 - Stones represent objects / people in the storyline
 - The narrator can have as many stones as needed in the story

- Sand or soil (used to construct objects / resources used in the storyline)- sometimes when children are not allowed to use sand (especially in their classrooms, they can use a pencil / pen / crayon to draw what they want to represent as a resource, e.g., a bed, house, food, etc.)
 - Resources can include the house of the people in the story, their possessions.

Instructions

- Pose a stimulating question that will require participants to reflect on their own experiences of a phenomenon
- Ask the participant to tell their story using Masekitlana
- Ask participants to sit comfortably
- Give them stones to play with
- Demonstrate the game if participants have never seen the game before

Resources

Kekae-Moletsane, M. (2008). Masekitlana: South African traditional play as a therapeutic tool in child psychotherapy. *South African Journal of Psychology*, 38 (2), 367-375.

John, S. A. (2013). The use of Masekitlana as a therapeutic technique for children affected by HIV/AIDS (Doctoral dissertation).

Odendaal, N. D. (2010). Investigating indigenous stone play as a projection medium in child psychological assessment (Doctoral dissertation).

Joseph, M., Ramani, E., Tlowane, M. & Mashatole, A. (2014). Masekitlana re-membered: A performance-based ethnography of South African black children's pretend play. *South African Journal of Childhood Education*, 4 (1), 18-41.

Activity A: Draw-&-Talk (or –Write)/Clay Modelling

Time: 1 Hour

Instructions

Drawing-&-talking³ or clay-modelling⁴ activities invite participants to make an artefact of their choosing that offers a concrete (and often also symbolic) answer to a specific research question⁵. This answer represents the participants' insights at a given point in time and within the confines of a participant's lived realities (i.e., this answer is nuanced by the participant's positionality and intersecting identities) and can offer a starting point for a group discussion about the phenomenon that researchers are interested in.⁶ Importantly, participants are invited to explain (co-analyse) what they have produced and their explanation guides the researcher's understanding of what the artefact means.

Material Needed (Drawing activity):

A4 White paper

Colouring pencils

Pens

Grey pencils

Material Needed (Clay Modelling):

1 Box of a Clay kit [clay, beads, sticks and round cloth]

Instructions

1. Facilitators support group members to think about drought and to move from individual insights to shared/ones. (5-10 minutes)

³ Mitchell, C., Theron, L. C., Stuart, J., Smith, A. & Campbell, Z. (2011). Drawings as research method. In L. C. Theron., C. Mitchell., A. Smith & J. Stuart (Eds.), *Picturing research: Drawings as visual methodology* (pp. 19-36). Rotterdam, NL: Sense.

⁴ Roos, V. (2012). The Mmogo-method: An exploration of experiences through visual Projections. *Qualitative Research in Psychology*, 9 (3), 249-261.

⁵ Liebenberg, L. & Theron, L. C. (2015). Innovative qualitative explorations of culture and resilience. In L. C. Theron, L. Liebenberg & M. Ungar (Eds.), *Youth resilience and culture: Commonalities and complexities* (pp. 203–216). Dordrecht, the Netherlands: Springer.

⁶ Theron, L. C. (2016). Researching resilience: Lessons learned from working with rural, Sesotho-speaking South African young people. *Qualitative Research*, ahead of print, doi: 10.1177/1468794116652451

- i. *How do you know when there is a drought? Take a minute and think how you would answer this question.*
 - ii. *Now share your answers with your group. In a little bit we are going to ask you to provide a group answer so it is important that you as a group talk about how you know when there is a drought.*
2. Facilitators then invite a group answer and explain that groups have a choice about whether they make a drawing or a representation out of clay and that the purpose is to answer a specific question. Remember to put participants at ease (i.e., it's not about how well they draw/model). The activity is not strictly time-limited but because you want to make sure that participants explain what they have drawn/built try to have this done within 15-20 minutes.

*iii Now we would like you to come up with a group answer to the question, 'How do you know when there is a drought?' As a group you can choose. Would you like to use a piece of paper (show large piece of paper) and crayons/coloured markers (show crayons/coloured markers) to make a drawing that will help us understand how you know when there is a drought? Or, would you like to use some clay and beads and sticks (show clay and beads and sticks) to make a representation (to make a clay picture or clay story) that will help us understand how you know when there is a drought? Or, would you like to do both? Remember, it does not matter how well you draw and/or build a clay picture. Also there are no right or wrong answers. What we are interested in is what you know and how your drawing/clay picture will help us to understand the answer to the question: **How do you know when there is a drought?***

Try to make your drawing/clay picture within about 15-20 minutes. After that I will ask you, as a group, to explain what your drawing/clay picture means.

Double-check that participants are OK with you/the Hons students photographing their drawing/clay representations [*Are you OK with us taking photographs of your drawing and/or clay picture so we can show it to other people? Remember, it's OK for you to say no to us taking photographs*].

3. Facilitators ask groups to explain what their artefact/s mean and probe respectfully for clarity/examples as needed. Try to limit to 10 minutes.

4. Facilitators introduce the next question relating to the severity of drought. Again, try to limit this to 10 minutes.

*iv. Now, take another look at your drawing/clay picture. **We want to know how you know when a drought is serious and how a serious drought affects you.** Does your drawing/clay picture explain this? Do you need to add something to your drawing/clay picture that will help us understand when a drought is serious and how a serious drought affects you? Or, do you perhaps need to make a different drawing/clay picture to show when a drought is serious and how a serious drought affects you? If yes, we have more paper/ clay and beads and sticks for you to use. Remember, it does not matter how well you draw and/or build a clay picture. Also there are no right or wrong answers. What we are interested in is what you know and how your drawing/clay picture will help us to understand the answer to the question: **When is a drought is serious and how does a serious drought affect you?***

Try to add to your drawing/clay picture or make a new one within about 10 minutes.

After that I will ask you, as a group, to explain how you know when a drought is serious and, importantly, how a serious drought affects you.

5. Facilitators explore how the group knows when a drought is serious and how a serious drought affects young people. Probe respectfully for clarity/examples as needed. Remember to try and include all the group members.

Examples of probes could be:

- i. Can you tell me more about [whatever group described as serious/the effect a serious drought has]?
- ii. Can you please give me an example of [whatever group described as serious/the effect a serious drought has]?
- iii. Can anyone else give me an example of [whatever group described as serious/the effect a serious drought has]?
- iv. When would someone not experience [whatever group described as the effect a serious drought has]?
- v. Does [whatever group described as the effect a serious drought has] affect girls and boys in the same way?

Activity B: Timeline

Time: 1 Hour

Instructions

Timeline (sometimes referred to as a lifeline) is viewed as a tool or a method to conduct life story research. Chronological symbols and lines are used to connect events (sequence is important with lifeline). Timelines can be used in interviews as visual methodology to mark the significant events in the life story of the participant. Depending on the information required, the paper used (large sheet of paper is required) can be divided into sections to capture context and As the participants construct the lifeline, they can become aware of the sequence of events, (leading to construction / deconstruction and reconstruction of events), it is important to understand that this process of rearranging events is acceptable with timeline methodology. Furthermore, identifying cause and effect of events is possible with timeline methodology because it has the possibility of linking events. The most important thing to note with this methodology is that, the participant can include other events that are not connected to the phenomenon of research; the research should be able to know when to refocus the participant and bring them to the phenomenon under investigation.

Material Needed:

- A3 paper for drawing the timeline / large piece of paper
- A number of coloured crayons / pencils

Activity instructions:

Present a question requiring lifeline measure / life history

[Specific Prompt: ***Draw a timeline showing when was the last drought you can remember. Do you remember any other droughts***]

Instruct participants to use lines, symbols or pictures to depict events in their lives when addressing the question asked. Let the participants indicate connections between events (depiction of causes and effects / their perception of how events connect to each other)

Each line or symbol should represent a depiction of a significant event and can be indicated on the timeline using coloured pens / different colour to present (**each colour can be used to present a significant event**)

Make sure the participants understand the significance of the **chronology** of events

How to use the paper: It is important to indicate where the timeline should **begin and end** (position of the paper / horizontal or vertical position to ensure that the life events can fit on one paper) - future events can also be included should that be part of the question.

Resources

Adriansen, H. K. (2012). Timeline interviews: A tool for conducting life history research. *Qualitative Studies*, 3 (1), 40-55.

Bagnoli, A. (2009). Beyond the standard interview: The use of graphic elicitation and arts-based methods. *Qualitative Research*, 9 (5), 547-570.

Kolar, K., Ahmad, F., Chan, L. & Erickson, P. G. (2015). Timeline mapping in qualitative interviews: A study of resilience with marginalized groups. *International Journal of Qualitative Methods*, 14 (3), 13-32.

Activity C: Bodymapping

Time: 1 Hour

Instructions

Bodymaps focus on the present, the here and now experiences and stories of the creator in a specific situation. Bodymaps refer to a portrayal of an image (a body) at a given time. As is the case with any artistic expression, a bodymap portrays the iconographic, contextual and intrapersonal (introspective) experiences of a creator. Capturing these expressions in life-size body-format intensifies the situatedness and interaction of the body with the world and context in which the creator finds him/herself.⁷

Material Needed:

- Paper large enough to trace whole body (roll of paper)
- Crayons, felt pens, paint & brushes

Introduction to all participants:

- Explain what a bodymap is. Show the paper to the group and say: *‘we are going to use this paper so that you can each tell a story of how your whole body, head and heart feels and thinks about It will be like a life-size photograph that you make of yourself.’*
- Say: *‘you will help each other to draw your bodymaps. Let us show you how’.*
- Show a completed bodymap where details have already been added. Exhibit this completed bodymap centrally in the room for the duration of the bodymapping activity for participants to refer to. (Each facilitator has their own completed bodymap as reference point to facilitate their groups activities).

⁷ Ebersöhn, L., Ferreira, R., van der Walt, A., & Moen, M. (2016). Bodymapping to step into your future: life design in a context of high risk and high diversity. Chapter in: Ferreira, R. (Ed.) (in process, 2015). *Thinking innovatively about psychological assessment in a context of diversity*. pp. 228-241 Cape Town: Juta.

Ebersöhn, L. (2015). Body mapping: life design with groups of youth in high risk and high need settings. Chapter in: Mary McMahon and Wendy Patton (Editors). McMahon, M. & Patton, W. (2015). *Ideas for career practitioners: Celebrating excellence in career practice*. Brisbane, Australia: Australian Academic Press.

Ferreira, R., Ebersöhn, L. & McCallaghan, M. 2010. Die gebruik van liggaamsporette deur opvoeders tydens vervulling van hulle pastorale rol. *Tydskrif vir Geesteswetenskappe*, 50(2), 197-215

- Demonstrate the steps of how a bodymap is made (two sheets of life-size paper and drawing material is required):
 - Lay a sheet of paper down flat on the floor.
 - One person lies down on the paper leaving space on the paper above the head and below the feet where information may be added.
 - The other person traces the outline of his/her body with a marker or pencil.
- Say: *‘After this we each decorate and write our own bodymaps. Then we take turns to tell the story of our own bodymaps to the facilitator who will take photographs of the bodymaps, take notes while you tell your story, and audio record you as you tell your story. The map remains your property and you may take it with you at the end of today’s time together.’*
- Divide the participants into groups with one facilitator each.

Individual group instructions:

- Facilitators divide their groups into pairs of two.
 - Facilitators hand out:
 - a sheet of paper per person; and
 - crayons, felt pens, paint & brushes per binary group.
 - Facilitators give instructions and assist per step. Refer to completed bodymap to clarify (Own completed bodymap).
1. *‘Help each other in your groups of two to draw your bodymaps in the way we demonstrated earlier’.*
 Monitor and assist so that participants lay sheets of paper down on the floor; one person lies down on the paper leaving space on the paper above the head and below the feet; the other person traces the outline of his/her body with a marker or pencil.
 2. *‘Now you will each only work on your own bodymap to tell the story of how your whole body, head and heart feels and thinks about
 You can draw or paint your face, hair, clothing, accessories and if you want to you can add details of parts of your body (heart, brain, lungs, and so on).’*
 Monitor and assist as participants add detail on their individual bodymaps.
 3. *‘Now it is time to add the words to tell the story of your bodymap. Explain how makes you feel.*

Where do you feel this in your body? Write this on the bodymap to explain this feeling in your body.'

Explain what your thoughts are when you live with Write this on the bodymap to explain this thinking.

What do you do when you think and feel this? Write this on the bodymap to explain these actions of your body.'

Monitor and assist as participants add descriptions. Repeat the prompts in step 3 frequently to assist them.

- 4. 'Now I will come spend time with each of you so that you can tell me the story of how your whole body, head and heart feels and thinks about I will take photographs of your bodymap, take notes while you tell your story, and audio record you as you tell your story. The map remains your property and you may take it with you at the end of today's time together'.*

Circulate amongst participants to listen to and document their stories.

Activity D: Sand Tray

Time: 1 Hour

Instructions

A sand tray is a non-verbal modality of creating scenes in a sand-filled tray to express the inner-world of the self. You create a three-dimensional picture in a tray filled with sand by using figurines. The scene is a projection of the creator's personal and social reality where experiences are transferred into a sand tray using miniature figurines⁸.

Materials Needed:

- Sand-filled wooden tray (50 cm x 70 cm x 7 cm) which is painted blue (water or sky)
- Container with figurines

Individual group instructions:

- Each group receives one sand tray and collection of figurines.
- Explain the activity. Show the group the sand-filled tray and container with figurines and explain that the group will build a story together in the sand tray.
- *'You will build the story of your world in this sand tray.'*
- *'Close your eyes for a moment and imagine a scene you want to create. Now talk amongst each other to decide how you want to build this story. Then build your world in the sand/ build a world in the sand/ create your world in the sand/ create a world in the sand.'*
- After completion of the sand tray the facilitator asks the creator(-s) to tell the story of your world built in the sand tray.

'Now I will come spend time with each of you so that you can tell me the story you built in your sand tray. I will take a photograph of your sand tray, take notes while you tell your story, and audio record you as you tell your story. (if you want you can also photograph the sand tray with your cell phone?)'

- Prompts when listening to the story includes:
 - a) What is the title of your world/ scene?
 - b) Tell me about it?

⁸ Nel, M. (2015). *Analysing risk and resilience of rural school youth by means of the first sand tray*. MEd-dissertation, University of Pretoria. repository.up.ac.za/handle/2263/52955

- c) Tell me more about what is happening?
- e) Ask about miniatures in the tray and which miniature represents which creator..
- f) Ask about drought and water portrayed.
 - o The completed scene must not be disassembled in the presence of the creator. So the facilitator does the disassembling away from the group, not within their view.

Activity E: Poetry, Songs and Storytelling

Time: 1 Hour

Instructions

Poetry, songs and stories are mediums used for creative expression. This method is rooted in the oral culture of Africans, where stories, poems and music have been used to orally pass down history from one generation to the next (Finnegan, 2012). Creative expression is helpful in conveying a personalised, deep and rich account of one's experiences (Furman, 2004). For this activity we will request the participants to prepare either a poem, song/ rap or story to communicate their day's experiences through creative expression.

Material Needed:

- A4 Piece of paper
- Pen

Group Instructions

1. Facilitators to support a brief discussion of the day's activities with participants. Ask the participants to give a brief account on their experiences of the day of research activities. [5 -15 minute discussion]
2. Pass out the material and ask the participants: *Think back on today, all the activities that you did, what you have learnt, what you have taught and what you have experienced. Prepare a poem, story or song to perform in front of everyone that will tell them how your group experienced today. Your performance should be a maximum of 5 minutes.* [30- 40 minutes]
3. If there is uncertainty in the group encourage the participants to:
 - a. *Decide on a medium of expression (poetry, song/ rap, storytelling)*
 - b. *Discuss your experience of this day and write down which themes stand out in a mind map*
 - c. *Create a poem, song/rap or story using one of the themes to express how the group experienced the day's activities.*

Resources

- Bacon, J. N. (2011). Culturally responsive poetry. *Journal of Poetry Therapy*, 24(1), 1–15.
doi:10.1080/08893675.2011.549681
- Eisner, E. (1981). On the differences between scientific and artistic approaches to qualitative research. *Educational Researcher*, 10(4), 5-9.
- Finnegan, R. 2012. *Oral literature in Africa*. Open book publishers.
- Furman, R. (2004). Poetry as Qualitative Data for Exploring Social Development and Human Experience in Latin America. *Journal of Latino/Latin American Studies*, 1(3), 81-104.

APPENDIX F: AGENDA FOR RESEARCHER TRAINING OF DATA COLLECTION STRATEGIES

Agenda: 3 April 2017

Time	Activity	Presenter
09:00 – 09:10	Overview of research activities	Mosna Khaile
09:10 - 09:30	Introductions and icebreaker (Masikitlana)	Dr Ruth Mampane
09: 30- 10:30	Co-productive methods	Professor Angie Hart and UK Research Team
10:30 – 10:45	Break	
10:45 - 11:30	Multi-Media (drawings and clay modelling)	Professor Linda Theron and Mosna Khaile
11:30 - 12:15	Timeline	Dr Ruth Mampane
12:15 -13:00	Body mapping	Professor Liesel Ebersöhn
13:00- 13:30	Break	
13:30 – 14:15	Sand trays	Professor Liesel Ebersöhn
14:15 – 14:45	Poem and storytelling	Professor Linda Theron and Mosna Khaile
14:45 - 15:30	Outline of Activities for 5 April 2017	Whole Research Team
15:30 – 16:00	Co-researcher reflections	Professor Angie Hart and Research team

APPENDIX G: PLANNING REGARDING THE FIRST DAY OF DATA COLLECTION

Planning, 4 April

Participants clustered via age into

7 groups (mixed gender): 6 each

1 group: 8

Icebreaker activity in groups: masikitlane (Moletsane) [Ruth will bring stones & facilitate] **15 mins**

Check/confirm consent in groups

Activity A: in groups, use any of the available media (clay, paper/crayons/pencils) to tell a story that answers the following questions: [Linda & Mosna] **1 hour**

7. How do you know there is a drought?
8. When is a drought serious (when does a drought affect you?)
 - a. How does 'this' [whatever young people answer in response to 2) affect you?

Activity B: Timeline in groups – individual and then pasted onto collective/group timeline [Ruth] **1 hour**

9. What is the last drought that you can remember?
 - a. Do you remember any other droughts?

Activity C: Bodymap in groups: partner with somebody in your group to each create a bodymap to answer the following questions [Liesel] **1 hour**

10. How does drought affect the health of young people in this community?
 - a. When there is a drought, what helps you stay healthy (i) in your body, (ii) in your mind and (iii) in your heart?

Activity D: In groups, use the sandtray to tell a story that answers the following questions [get original instructions from Megan; Liesel; L&L to check instructions] **1 hour**

11. What does it mean for a young person to be OK when there is drought?
12. What/who makes it possible for young people to be OK when there is drought?

Activity E: In groups, write a poem/story or choose a song or sing a song that explains how your group experienced today [Mosna & Linda] **1 hour**

Present poem/story to big group with honoured guest present [1 hour]

Follow-up responsibilities:

- L, R, L send Mosna instructions [with a reference list] for each activity and media needed; d-date: 22 March
- co-authored book on participatory methods for well-being/resilience research [thin go-to book?; L, R, M, Marlize, A, L, BB]
- Mosna, invite Abednigo to be present as honoured guest for Activity E (i.e., at end of day)
- Mosna, create observation schedule for NOS students; level of engagement and per gender/photos; engagement as active participation in activity and verbal participation
- Linda & Ruth, email NOS students to be present 3 April and facilitate separate training at end of day for their role on 4/5 April [Masters to facilitate activity per group; Nos student: taking notes/completing observation schedules, taking photos, and audio-recording]
- Linda to ask Ronel for info on recorders and Mosna to purchase recorders
- Mosna to organise decent budget accommodation
- Mosna to purchase necessary stationery [and fetch pens, pencils, Mmogos]
- Mosna to compile participants-researcher packs
- Mosna to book UP cars [Quantam vehicles: 1 for Ms, 1 for NOS]; 5 April: Ruth, Liesel and Ms to leave at 12.00
- Linda & Ruth to negotiate student drivers and make sure they register to drive UP cars
- Linda to check with Angie re transport for UK team

APPENDIX H: PERSONAL REFLECTIONS ON THE FIRST ROUND OF DATA COLLECTION

Reflections on the visit to Leandra (Summarised) 4 and 5 April

Elmarie Jonker u17263337

Changes in expectation:

- Young people were fluent in English, which was a surprise to me, since we told that their Home Language is Zulu and that they might struggle to communicate.
- The participants did not respond to 'How do you feel Okay?', as was suggested, but rather preferred: 'How do you cope?'
- My group preferred to speak (narrative) instead of drawing during the Timeline and Draw-and-Talk activities, yet felt comfortable with the sand trays and body mapping.
- The group was respectful towards us as 'outsiders' and shared information freely.
- Did not focus as much on their families as I had expected, but rather referred mostly to their friends and music as primary coping mechanisms.
- It was well organised, the facilities were quite large, albeit very basic, and were clean. (I don't know why I thought the facilities would be worse than it was?)
- Both the girls and the boys in the group allowed each other to speak an equal amount of times. (The boys did not dominate the discussion and the girls did not always agree with what the boys were saying, due to respect for males, which I thought might be a cultural occurrence.)

Themes that emerged throughout the activities:

- **Health issues** (Thirsty, tired, no water for sanitation and hospitals send people home, people get sick and die).
- **Nutrition** (Junk food and lots of bread and fruit. No water to cook meals.).
- **Sanitation** (Dirty, cannot wash properly, feel dirty, impacts education – girls' sanitation).
- **Social impact** (People had to travel to collect water, families fought over water, due to drought on the farms people lost their jobs, sense of despondency, have

to wake up early to fetch water, older people in the community have different opinions on how to deal with the drought).

- **Psychological impact** (Live in constant unsureness of whether there will be drought again, still saves water out of fear, depression, self-worth is doubted, asking why did this happen?, only focuses on the future, they do not want to talk about what happened during drought. When asked, they said it makes them upset and they don't want to think of it).
- **Coping Mechanisms:** Family, friends, culture, traditions, sport and music (all the participants agreed on music).
- **Environment:** Farms and crops are failing, dams are empty, animals are dying, dry and dusty. One participant referred to loving nature and enjoy having flowers in the garden that 'cheers them up'. With the drought, all the plants died. It affected her family, since there was nothing left that was pretty to look at, or cheer them up.
- **Education:** The participants indicated that they felt thirsty, tired and could not concentrate in class. This led to their grades declining. The girls indicated that sanitation during menstruation was a problem and that they would either not go to school, or have to go to neighbours' houses, when they needed to use the toilet, while at school, since the water at the school was the first to run out.
- **Recreational:** One of the coping mechanisms employed by the participants, were sport. However, drought made it difficult for them to remain healthy and fit and to relax, since they were thirsty and tired. One participant indicated that he plays even when he is tired and feels faint, because he knows his soccer team needs him, although he needed to rest and rehydrate. The children were scolded when they wanted to play in the water.

Personal realisations:

- The first thing I wanted to do when I got home, was to take a nice long bath. It was then that I realised that it was a luxury that many of these participants did not experience.
- I came home, put the kettle on to make coffee and thought of what I was going to make for dinner, then I realised that many or the people in the community did

not have water to boil for tea/coffee and did not even have enough water to cook meals.

- After I bathed, I climbed into a warm bed, with fresh, clean sheets, only to wake up the next morning at 6:00. I realised that many of the participants could not wash their clothes regularly. They had to walk to the river or to dams to fetch water with which they could wash the clothes with. They said that they felt very sticky and unclean during that period of time.
- I could sleep comfortably through the night, without having to set an alarm to wake up early in the morning, to grab buckets and start walking to where the water trucks were going to be, praying that there will be water for the day to come.
- I also have the luxury of owning a car, which makes travelling easy. The community must walk far to fetch water, by which time they are thirsty and only wish to drink some water.
- I realised that I am in a privileged position, through acknowledging the small things that I took for granted.
- Sanitation is not something that I have to negotiate on. I regard it as a necessity, which is unfortunately not the case for the participants, who had to decide whether they need water to drink or whether they need water to wash their faces with, or to clean themselves.

APPENDIX I: EXAMPLE OF GREATER RESEARCH STUDY POST-CONSENSUS TABLE

WHICH CHARACTERISTICS OF YOUNG PEOPLE MAKE THEM MORE RESILIENT TO DROUGHT-RELATED STRESS?			
Theme	Choosing a Positive Lifestyle		
Subthemes	Inclusion	Exclusion	Evidence
Positive Outlook	<ul style="list-style-type: none"> - Thinking positively; - Accepting the reality of drought; - Positive mind-set/meaning making to the drought situation. 	Exclude all non-meaning making	<p>(A2, L617): “Yeah, it simply brings back memories so sometimes you don’t want to talk about bad memories.”</p> <p>(A4, L1132-1138): “I would simply like to add, to what Fission had already said. I think now we know what is drought, what are the causes and what are the impacts and how it’s affect us. So, in future, we will simply be prepared, because now we did learn about drought and we know more, know more about drought, so I don’t think that it will difficult like the last time we just experienced it, because we didn’t know anything about it, but now I think we do know anything about it.”</p> <p>(A4, L1143-1146): “Oh, okay we did talk about it and I simply knew the things that you need, you need to do, when you are focussing on that time, what you are experiencing. So, we already talked about many things about drought, what you should do, what you should not, so I simply understand.”</p> <p>(A4, L1161-1163): “I think the more we experience a drought, the more we learn about how to save water We get to, we learn more things about drought the more we get to experience it.”</p> <p>(A4, L1171-1173): “What I have learned is that you always have to save water for the future, because you never know what can happen. So, when tomorrow comes, you’ve got to be prepared.”</p>

WHICH CHARACTERISTICS OF FAMILY MAKE YOUNG PEOPLE MORE RESILIENT TO DROUGHT-RELATED STRESS?			
Theme	Protective parenting		
Subthemes	Inclusion	Exclusion	Evidence
Emotional parenting	<ul style="list-style-type: none"> - Any family member (living/dead) who supports/ protects/ encourages youth - Any family member (living/dead) who teaches/ encourages cultural beliefs - Any family member (living/dead) who distracts the children from negative impacts of drought 	<ul style="list-style-type: none"> - Exclude any evidence of peer support/ peer guidance 	<p>(A2, L 454 – 456): “F: ...his mom was a big support, so what helped you during that time? P3: Prayer.”</p> <p>(A3, L 889 – 891): “ To keep me strong emotionally, I pray, because my mother is a church person, so yeah, we pray together, we hope that things get better, because everything is possible with God...that is what they told me.”</p> <p>(A3, L 899 – 902): “ So, I put that cross there to represent prayer, that we pray a lot in my house. F: So, it is a family thing? P3: Yes, it’s a family thing, yes.”</p> <p>(A3, L 911 – 917): “ F: How do they do it? How they support you? P3: Like, they do everything. Making sure we are still connected to God, our ancestors and all those things. Like, telling us that those people are still will be looking after us, like, yeah, doing those kinds of things. And we grew up, we grew up, like in that environment, where they tell us that, uh, our ancestors will always look after us, so that, somehow, gives us strength and gives us hope and all those things.”</p>

WHICH CHARACTERISTICS OF THE COMMUNITY (COMMUNITY OF LEANDRA) MAKE YOUNG PEOPLE MORE RESILIENT TO DROUGHT-RELATED STRESS?

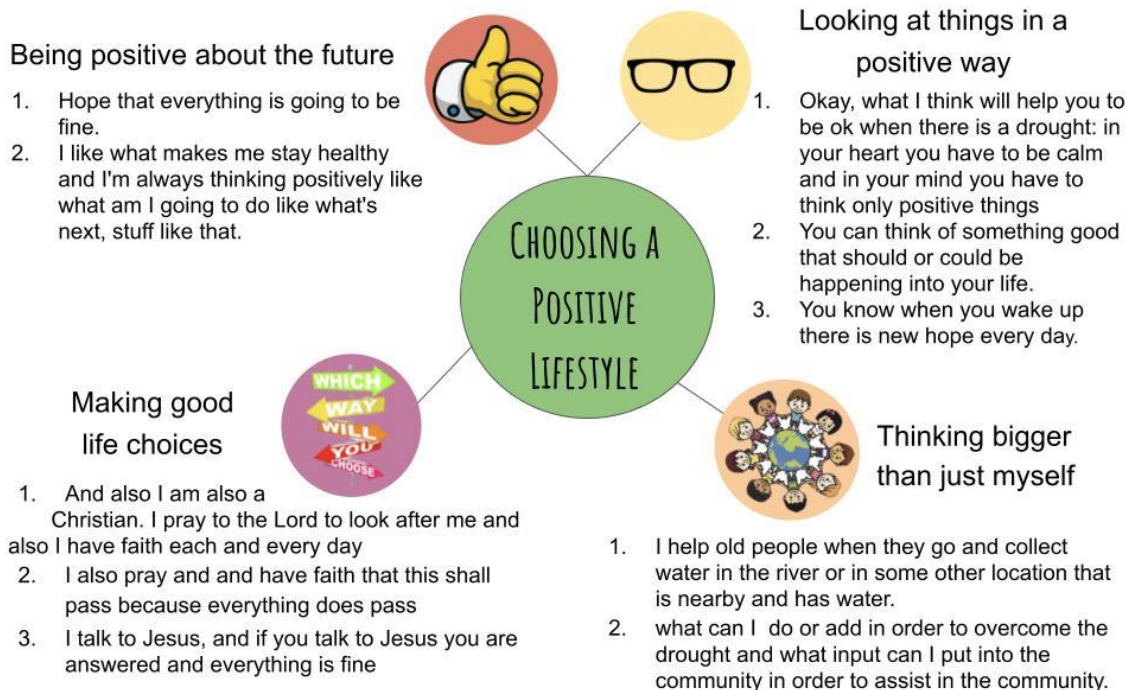
Theme	Managing drought related challenges		
Subthemes	Inclusion	Exclusion	Evidence
Informal pragmatic initiatives	<ul style="list-style-type: none"> - Informal/ ad-hoc communal activities that facilitates access to water/ solves the drought e.g. Sharing resources (water, food), Guarding water supplies and planting crops, trees, plants; - Learning how to manage drought 	<ul style="list-style-type: none"> - Not government, NGO 	<p>(A1, L 145): “We did all experience that...”</p> <p>(A3, L 883 – 884): “ See like everyone else that’s in our community, I save enough water to keep me running for the entire period.”</p> <p>(A2, L161 – 163): “P4:...there were many people who wanted that water because they told us there will be a time they will run out of water for two weeks...but then they ended up some people guarding that water.”</p>
Formal pragmatic initiatives	<ul style="list-style-type: none"> - Efforts by NGO, Government - Schools and clinics teaching water preservation skills 	<ul style="list-style-type: none"> - Not informal/ not neighbours - Not about what they want the government to do 	<p>(A4, L432-443): “Anyone else? Were there people who came to speak to you about what to do in drought times, or did you just speak about it in the community, or where did you find out how to save water when there was a drought?”</p> <p>P3:</p> <p>We live in a world of technology... Yeah, like we see all these things on the TV and we have smartphones. We search about these things and at school they teach us about these things, so yeah, that’s how we get information about these things.”</p>

WHICH CHARACTERISTICS OF THE PHYSICAL ENVIRONMENT MAKE YOUNG PEOPLE MORE RESILIENT TO DROUGHT-RELATED STRESS?

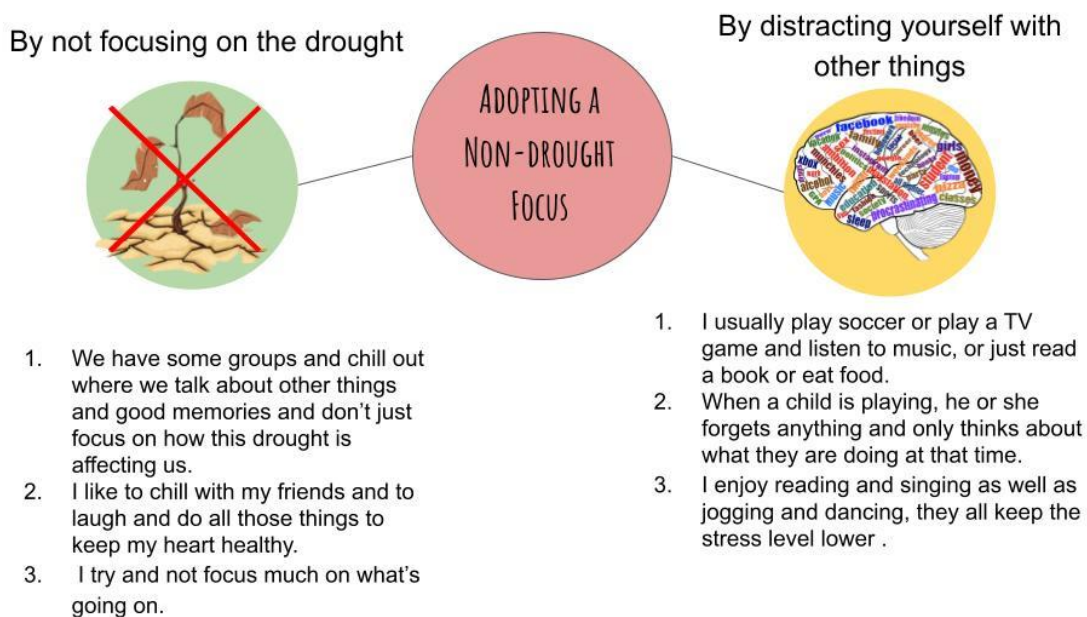
Theme	Maintaining natural vegetation and animal life		
Subthemes	Inclusion	Exclusion	Evidence
	<ul style="list-style-type: none"> - Positive references to naturally occurring greenery - Animal life 	<ul style="list-style-type: none"> - Exclude references to crops. 	<p>(A3, L 745 – 751): “... I wanted to draw a garden. The garden, the garden when there is a drought, I don’t usually have much water to water the plants. It’s not really a garden for vegetables and fruit, it’s like, flowers and different things also</p> <p>F: And does that also make you feel better, having nice flowers and everything around?</p> <p>P5: Yeah.”</p>
Theme	Infrastructure to harvest water		
Subthemes	Inclusion	Exclusion	Evidence
	<ul style="list-style-type: none"> - Gutters - Tanks - Dams 	<ul style="list-style-type: none"> - Community, individual or family initiatives to harvest water; - Examples should not include what the government should do. 	<p>(A4, L472-474): “I think, if I was a farmer, I was gonna build a dam for irrigation. Now that I live here in drought, I have to be prepared. What I would do to be prepared, is to save water with cans, bottles, or maybe buy a tank. That will save me water for the future.”</p>

APPENDIX J: POST-CONSENSUS DATA COLLECTION POSTERS

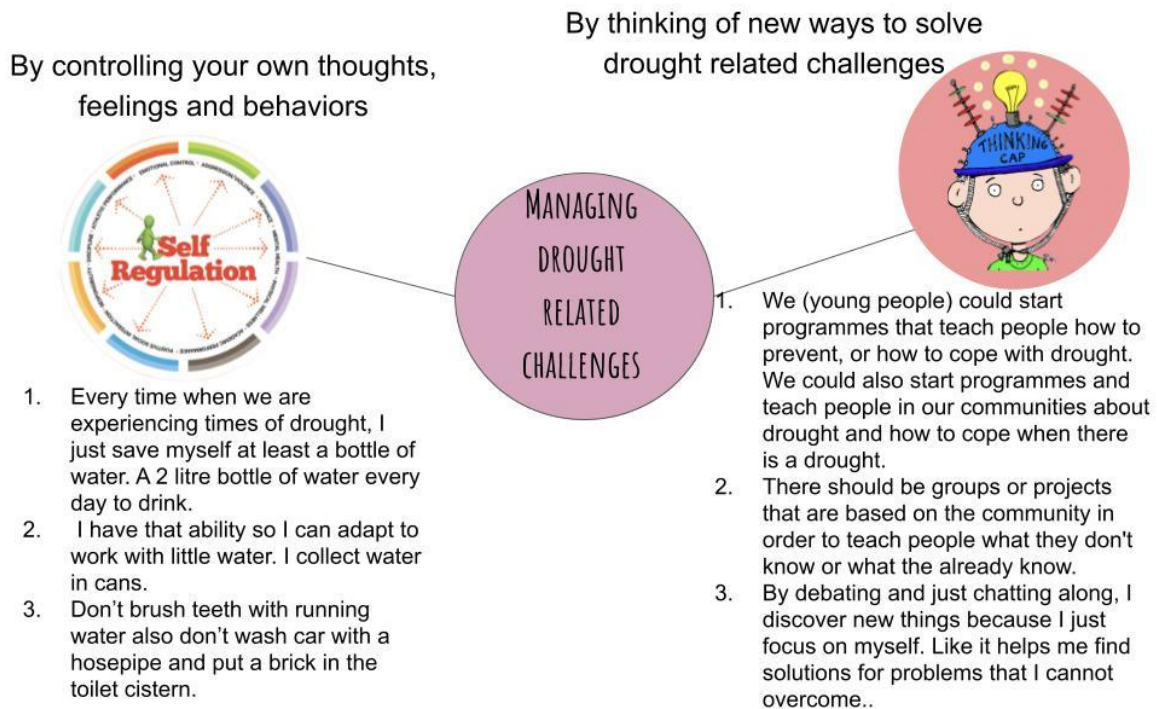
WHICH CHARACTERISTICS OF YOUNG PEOPLE MAKE THEM RESILIENT TO DROUGHT-RELATED STRESS?



WHICH CHARACTERISTICS OF YOUNG PEOPLE MAKE THEM RESILIENT TO DROUGHT-RELATED STRESS?



WHICH CHARACTERISTICS OF YOUNG PEOPLE MAKE THEM RESILIENT TO DROUGHT-RELATED STRESS



WHICH CHARACTERISTICS OF YOUNG PEOPLE MAKE THEM RESILIENT TO DROUGHT-RELATED STRESS



WHICH CHARACTERISTICS OF THE FAMILY MAKE YOUNG PEOPLE MORE RESILIENT TO DROUGHT-RELATED STRESS?

Family who are supportive and helpful



1. I believe in my mother and everything she tells me I believe will happen so she used to tell me that everything was going to be OK, everything was going to be right even when it was difficult
2. My family keeps me going and with them I can overcome every problem i face
3. They do a lot to support me , they protect me, they cant allows anything to happen to my future



Family who help guide us and teach us by giving us advice



1. My family is very supportive, even though things are never going to get better, they give you that hope that something is going to come up. They believe in making us as their children stronger than they are, during that time, so, yeah."
2. Have my family on my side and they support me and motivate me and teach me what wrong and what is right
3. Our parents make sure that we are not exposed to these situations even though they affect us but they make sure that we are being protected and they make sure that they do something that will take our minds from this



Family who make sure that we have enough and will be fine

1. Family would wake up early in the morning to go get water
2. My dad would go and fetch water
3. My parents make it possible my dad goes somewhere to fetch water

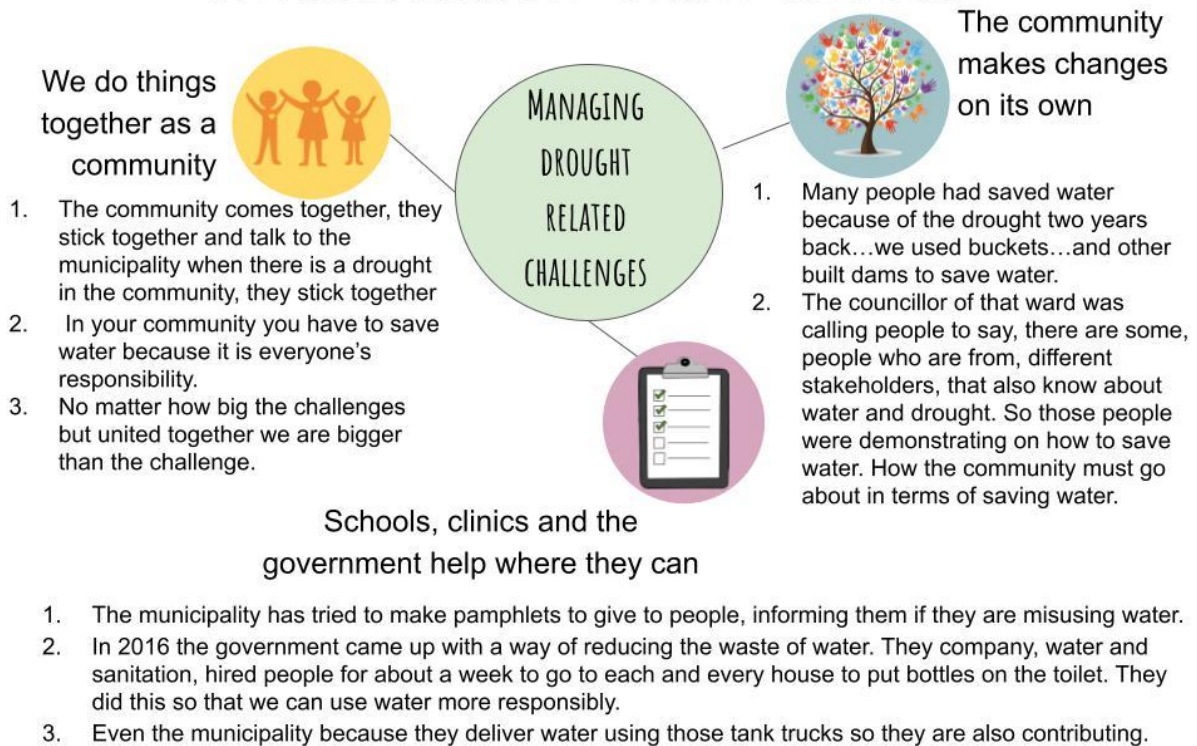
WHICH CHARACTERISTICS OF THE FAMILY MAKE YOUNG PEOPLE MORE RESILIENT TO DROUGHT-RELATED STRESS?

As a family we change how we live



1. We no longer leave the taps running. We no longer allow my younger siblings to play in the water like they used to before, so I think now we are more cautious.
2. We will use one bath of water to wash our family. My father will start first and then my mother, then my brothers and sisters and then myself.
3. Yes it did affect us because we needed to have food then there was little food to eat, so you store it for the night, tomorrow you have to eat a little and store it for the night.

WHICH CHARACTERISTICS OF THE COMMUNITY (COMMUNITY OF LEANDRA) MAKE YOUNG PEOPLE MORE RESILIENT TO DROUGHT-RELATED STRESS?



WHICH CHARACTERISTICS OF THE COMMUNITY (COMMUNITY OF LEANDRA) MAKE YOUNG PEOPLE MORE RESILIENT TO DROUGHT-RELATED STRESS?

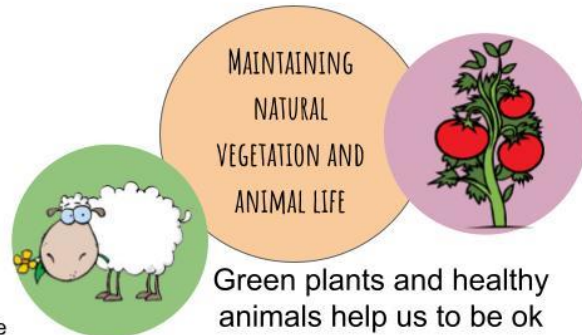


WHICH CHARACTERISTICS OF THE PHYSICAL ENVIRONMENT MAKES YOUNG PEOPLE MORE RESILIENT TO DROUGHT-RELATED STRESS?



Gutters and water tanks help us with water

1. If you find yourself in this kind of situation, maybe like the farm and you experience a drought like this, one thing that will assist us is maybe buying water tanks to store water.
2. Do You know what's a gutter is? You collect rainwater when you collect rainwater you can reuse it. You can recycle and reuse it. So whenever you can advise someone who is building his house put gutters on your on your house in order to collect that water for future use.
3. Then practice water harvesting. It's just one and the same thing you harvest plants and you harvest water. Especially rainwater you harvest it using the gutters.



Green plants and healthy animals help us to be ok

1. I don't usually have much water to water the plants. It's not really a garden for vegetables and fruit, it's like, flowers and different things which make me feel better by having nice flowers and everything around.
2. So we have to plant a lot of trees and this also helps in catching lots of moist so you can avoid drought.
3. I remember one night when my grandfather had to fill buckets full of water to take to the kraal and give to the cows and sheep to drink.

APPENDIX K: EXAMPLES OF DATA ANALYSIS AND CODING

Subtheme 1: Environmental risk factors related to drought	
Participant, group and activity	Evidence from the data
Precious (G1, A1)	What I have drawn here is a piece of land that is experiencing drought. Plants are dying, because there's no water. Trees have no leaves, and the sun is hot and the land becomes very dry. Animals like cows die because of thirst. When it's hot, they get dry and need water, but they end up with no water. Here I have drawn a river flowing with fishes inside and then there is a drought. The river becomes dry and you find no fish there, because there is no water.
Lefa (G2, A2)	Have we had a drought?
Xolani (G2, A2)	It wasn't dry-dry, but you could see the effects you know...drought is not only just not having rain, but is also the increase in temperature. In fact, the increase in temperature now causes the shortage of water. So what had happened was that it was too hot. During the days where it was too hot, the water was cut off.
Xolani (G2, A2)	Ja, it is normal now.
Group 3 Timeline discussion	<p>During the Timeline activity (Activity 2), some groups indicated that they were not currently in a drought, but that the last drought was the previous year and a few years before that. Nocebo indicated that the first drought she remembers was in September of 2014, which was nearly three years prior to the research being conducted.</p> <p>Fission (G3, A2): 2016...</p> <p>F: Kutlo, when last did you experience drought?</p> <p>Kutlo: 2014</p> <p>Kid'Eazy: A few months ago, as he was saying (Fission), we were experiencing drought in my section. They (Municipality) used to take the water during the day and bring it at night.</p> <p>Fission (G3, A2): I'm still not satisfied, because I know that my brother here he lives in an RDP (home) and they still take water there, so I don't know why they are saving it now, because we are not suffering that much these days.</p>
Lungile (G4, A1)	Because producers, owners are losing a lot of money, because people are not buying any more. Even if there are products, they are very expensive
Princess (G4, A1)	It's a result of soil erosion

Lungile (G4, A 2)	If we wanna talk about our place, we won't have much points, because our drought wasn't that extreme.
Solomon (G5, A1)	Here we have potholes, potholes in the road and soil erosion in the road. And here we wanted to make grass, but because we don't have the colourful plant colour, we decided to take sticks to make brown grass to show that if there is soil erosion, you find the grass turning brown and changing colour. And then here we have a dead cow, because of the grass. Here we have a tree that is bending and bending the tree because it gets water. This tree has a lack of leaves. It doesn't have many leaves. We finding that some of them are turning brown. And the tree dries and it dies.
Jabulile (G5, A2)	I remember we don't have water for two weeks, that is how I remember 2013.
Bonele (G6, A1)	When there is a drought, animals are dying, plants are dying, ground starts to crack and there is no water whatsoever
Junior (G6, A1)	I'm going to talk about the points that, that human effect, that people can't go to school or work or other places, because if there's a drought, where are they going to get water to have, to cook, to wash their bodies before they go? They can't go to school and work stinking. Okay, People start getting sick and others die, because of drought. Then animals and plants also die, because they need water to drink and then there's no water. They will die or others will seriously, seriously (get) sick. Okay and inflation goes up in the stores, because where they buy there, the products, maybe fruit and vegetables and other stuff, they will grow. The price of selling (will grow), because of the water. Not the water you get from nature you see...and then, infection spreads faster during serious drought, because you will drink maybe a certain water, which is dirty because you have no choice. You have to drink it or you will die. So, diseases and other infections grow faster. Trees will start losing their leaves and they start shrinking. This is before the drought as you can see. Before the drought, it was more bigger than during the drought as you can see... Checkers will maybe lose profit, because they don't have vegetables to sell.
Khanyisile (G6, A2)	I think today there's no drought, because I was able to drink water, I was able to wash dishes today and do my laundry. And we don't know what the future looks. We don't know if there's still going to be a drought.
John (G8, A1)	When the percentage of dams, the water level decreases, leading to a lot of farmers won't be able to do a lot of irrigation. So there'll be a lot of drought. It affects as it also leads to famine, a lot of things will change. The climate, the weather, so yeah

<p>Group 8 (graph discussion, A1)</p>	<p>It's current rain, so right now it is about 45%. Yeah, something like this. Then in Limpopo, estimation is 50%, KZN it's obvious right now, it is losing around 25%. For here it is even worse, Cape Town 40%. Nah, Alexandra, Alexandra barely 2%...Mpumalanga, our own province, just imagine...but now there's drought. Even KZN drought, drought, drought. Drought 50%, but now there is drought.</p> <p>Discussion continues):because Mpumalanga is the one with a lot of rain, because why she choose Mpumalanga, because Mpumalanga is the only province which received a lot of rain among the provinces. But last year there's drought. Among all provinces, but last year there was drought (2016).</p>
<p>Zandile (G8, A1)</p>	<p>For me in the Southern Hemisphere we have this climate for years and years and there has been a trend of how we see rain, like from the start drought has been caused, because there is a change in climate and this causes a change in the weather and this causes a change in the rainfall patterns. So I think, since I was a boy, when you know that we receive it rain in summer time, but if we look last year especially, we received rain until we entered into June. So that is what I wanted to show. The rainfall we expected 75% in Limpopo and Gauteng, what we expected for the year. But now last year for the previous two years the rainfall pattern has decreased.</p>
<p>Group 8 (A2)</p>	<p>The group often discussed that there had been a period of drought, which was then followed by flooding. It would appear as though the occurrence of the floods indicated to the participants that there was thus no more drought.</p> <p>Wendy (G8, A2):It went dry like here the animals weren't getting enough water from the dams and like the grass just went dry, like couldn't get more rain to grow for animals to get fresh grasses.</p> <p>Palesa (G8, A2): But during 2016 there was a serious drought, there was no availability of water, but there was water, but the water was not enough...yeah, we don't say there is a drought.</p> <p>Palesa (G8, A2) in response to 2017 rain: There was a lot of rain. Even animals died in this lots of rain flooding here. Many animals died in rivers, maybe gone to drink water and then gone deeper.</p>
<p>John (G8, A3)</p>	<p>...to be realistic, we have not really encountered serious drought...</p>

Subtheme 2: Economic risk factors	
Participant, group and activity	Evidence from the data
Kutlo (G3, A1)	There is simply nothing to drink and there is no grass for the cows to eat. So that leads to bad (things) for all farmers. Farmers don't have enough money to do these things of theirs and each and every time, when you simply know, they simply pick up the budget for the year they know (it was bad). We did all experience that, food was starting to be expensive and each and everything was starting to be expensive. That leads to people who don't work. They don't have money to buy the food, so that leads to bad things. That is something that is bad for people and many people don't work here.
Kid'Eazy (G3, A1)	The plants are dying on the farm, the crops are dying, so the farmers don't make enough money to hire people. So, they end up lacking job opportunities so that people can support their families on those things. These things of lack of jobs and all those things affect the country's economy, because if we end up like, ok, South Africa depends on their exports. Like, we do a lot of exports, like in terms of crops and those things. So if there are no exports, the country's economy will stop and drop drastically.
Zar (G2, A1)	I think it also affects businesses, the ones that supply vegetation and stuff and so if there is drought, there is no water supply and obviously the plants die, and the markets here have no veggies to supply and then the business dies.
Zar (G2, A1)	Okay, I am a guy and I am 22. Here I drew an indication of high inflation rate, which shows a high rate of demand and low amount of supply, because obviously if we are without water and are experiencing drought, they are things that we won't be able to supply. It will leave the demand high and our trading pricing going high, obviously, because the demand is high and the supply is low. That can also affect the economic growth, affect environmental sustainability and it can also lead to unemployment because the businesses will close down...entrepreneurship depends on sustainability of the environment as a whole.
Charlotte (G3, A2)	Like we did have water in town, so we went to town and bought some of it, but then it wasn't, we didn't have enough money because some of our family members don't work. Yeah.
Lungile (G4, A1)	Then there is us as consumers in shops. We tend to complain about expenses of food. Especially the vegetables, they are expensive because of the shortage of rain.

Phumuzile (G4, A1)	Because there are people who work in the farms. When there are no crops, there is no jobs.
Solomon (G5, A1)	We found that some of the goats and some of the crops, because he (father) had crops and the maize meal and all those things. And then people that he is supplying, they didn't get the products that they needed and then the business started to run out of money. The worst part of it, is he became sick and we lost, we had financial constraints, because we were depending on the business he was running. And I found out that the farm was supposed to be closed and he had to sell the farm, so he could buy less farm and have money to carry on with the business.
John (G8, A1)	So this is leading to high costs of food production, also leading to consumers suffering, because of food and food items, food items are expensive at shops.
Wendy (G8, A1)	...in our families there is only one breadwinner, you find that you can no longer afford food, because the prices has increased. That way it affects us as a family, because we perhaps in the future may suffer from starvation. Ja, I think so.

Subtheme 3: Health- and hygiene-related risks	
Participant, group and activity	Evidence from the data
Zodwa (G1, A1)	I made a person, a thin person. Yes, he is thirsty. Yes, showing that there is no water. People become sick and some die, because (of) the lack of water. Drought affects us in such a way that it kills people, cows die, so water is very important in our lives
Xolani (G2, A1)	The other problem is the health issue regarding drought, because we...I basically want to speak about the area. This is a very small town, so people get affected by drought due to no proper sanitation and due to the shortage, or lack of, water. People end up getting ill and stuff. So it is another effect of drought, because people get sick, and we don't have like huge health facilities.
Zar (G2, A1)	Finding that we are unable to get certain medicines (indigenous medicinal plants included) in the long run and it adds to the people not being able to be cured.
Nocebo (G2, A2) (Female)	We were really affected...it was two weeks before we were about to write our exams, final exams, because it was in November. Ja, okay, we were going to school hey, then at 10 o' clock we knock off (leave school) and we had nothing to do, because the kids would say: 'I want to go to the toilet. I want to drink water', but there was no water...Most of us failed, because there was a syllabus that was not completed.
Sithembiso (G2, A2)	The children were fainting at school due to no water. She further states in Activity 3 that she exercises every day, as she believes that if she had been overweight, she would be more prone to fainting at school due to dehydration.
Zar (G2, A3)	I say stay hygienic and keep clothes clean. So I stay as clean as possible, especially avoiding changing clothes often, so I cannot use water for washing more.
Kid'Eazy (G3, A1)	We were suffering, because you can't cook with dirty water, so in some cases we had no food to eat. The food was there, but we couldn't cook it, because you can't cook without water and you can't use dirty water to cook. So, in some cases it led to hunger, yeah.
Kid'Eazy (G3, A1)	In the toilets when there is not enough water, toilets become dirty and leads to an increase in sicknesses

Fission (G3, A2)	Since there was no water, we couldn't cook. Like, we spend much time eating bread and I don't think it is healthy
Kid'Eazy (G3, A2)	Imagine not feeling free to go to the toilet. That's because it's going to be dirty. That's uncool.
Portia (G4, A1)	People become dehydrated.
Sifiso (G4, A1)	No, in terms of this clinic, people are getting sick. They are getting dehydrated and sometimes there are people who are dependent on medication, so if there is no water, how are they going to be able to drink their medication?
Princess (G4, A1):	She was talking about kwashiorkor. The more people are experiencing the kwashiorkor, the less medication at the clinic.
Group 4, Activity 1	Group 4 further indicated that drought had a tremendous impact on schools: Lungile (G4, A1): because you know when you are hungry, and you are thirsty, and you are focusing on something else. Portia (G4, A1): There is no concentration. Mandy (G4, A1): Drop out. Phumuzile (G4, A1): There's no water at school. And then there is no food scheme at school. They are no longer getting food at school...Yes, but most of the kids go to school, because there is food...and most of the students depend on the food they get at school. Some of them leave home without eating anything, so they depend on the food at school.
Group 5, Activity 1 and Solomon (G5, A1)	Group 5 made mention of 'stinky water' that is present during times of drought. They implied that it was due to still-standing water. They made mention of it carrying diseases. Solomon (G5, A1): And stinky water can mostly affect children, because children they are naughty. And little kids like to play around the stinky water and they getting some infections and maybe getting cholera or some other diseases that can affect them and that will also affect their parents, because some of them won't be able to get them to hospitals and clinics, because the environment where they are staying has a lack of maybe healthy developments.
Junior (G6, A1)	I'm going to talk about the points that, that human effect, that people can't go to school or work or other places, because if there's a drought, where are they going to get water to have, to cook, to wash their bodies before they go? They can't go to school and work stinking. Okay, People start getting sick and others die, because of drought. ...and then, infection spreads faster during serious drought, because you will drink maybe a certain water, which is dirty

	because you have no choice. You have to drink it or you will die. So, diseases and other infections grow faster
Thembi (G6, A2)	...I experienced the drought. It was last year, 2016. Drought, many people were dying because of it. Some of them give birth, but they are babies. They don't live long and then others who those give birth, they just can't give it (food) properly, because there's no water and when they are done...People were dying, because of there's no water and then they were busy crying and so on. And then many of them usually with children, were dying, because when they are done playing, they want water to drink and then go back, but they didn't, so they just...
Immaculate (G7, A1)	...people need water, because when there's a drought, there's no water and now people need water. They become thirsty and they end up drinking dirty water with animals.
Immaculate (G7, A2)	In 2012, it was very hot. There was no water. Then people ended up going to dams taking water whereby animals drink water there and then they pee and then people took that water and drink it and then some of them became sick, because they didn't know how to purify the water in making it clean.
Angel (G7, A3)	...when there is a drought, I can't eat healthy foods, because fruits can't grow when there is a drought.
Immaculate (g7, A3)	...I'm into modelling and it becomes a challenge...I have to keep my body healthy, and then so I don't get water and fruit and it becomes a very big challenge, because I gain weight...
John (G8, A1)	When the percentage of dams, the water level decreases, leading to a lot of farmers won't be able to do a lot of irrigation. So there'll be a lot of drought. It affects as it also leads to famine, a lot of things will change. The climate, the weather, so yeah

Subtheme 4: Organisational risk factors	
Participant, group and activity	Evidence from the data
Xolani (G2, A2)	Ja, not every water is worth consuming, hence people are not taught about that, especially in my community. Because I would tell my grandma that we have this crisis with water supply. She will (say) there is so much water. There is a lot of water in her community. We have lots of water in the dams. What do you mean we don't have water? I think basically people didn't feel the severity of the effects of droughts, because they did not understand the concept of the drought. It was not brought out to them as to the state of the nation is in right now and the township is right now regarding the situation. So they were like okay, it's just hot and the municipality decided to cut off the water.
Kutlo (G3, A1)	I think we all know that South Africa is a kind country...South Africa transports water to Lesotho...if there is a drought, Lesotho is not going to have water, so in Lesotho there is no water and in South Africa there is no water. What will happen?
Kutlo (G3, A1)	They simply take the trucks, and then simply take to this place end then mainly people needed water. Many things need water without water there is nothing we can do. So many people end up dying and there is something so not ensured when you go to the clinic they simply tell you that there is no water, there is nothing you can do. They even can't give you pills to drink, because what are you going to drink the pills with? And even if you try and go and buy water here in town, they simply tell you that the water is gone and when there is no water, there is nothing you can do. Even fresh produce, they simply did not get enough water to produce it.
Kutlo (G3,A1)	We ended up not going to school, because we don't have water, and through the sanitation at the school, the person get diseases. So, that is something bad.
Charlotte (G3, A2)	And the 2014 time is when they had a problem of pipes, where they just like broke down, underground pipes, so the water just like ran out in like, just came out. So there were many people who wanted the water, because they told us there will be time they will run out of water for two weeks. So like there were like many people who were fighting and stuff, wanting that water, but then they ended up some people guarding it.
Kutlo (G3, A2)	You are wondering where did they get the water from. Is this truck clean, or the tap water to come and give it to us?...You don't feel comfortable and you

	are not sure about should I take this one or should I drink it? Should I boil it? I don't think everyone like the water that is boiled.
Phumuzile and Sifiso (G4, A2):	Absenteeism at school, at work, because there was no water.
Sifiso (G4, A2)	This is a reservoir. During the drought, the tankers run dry.
Willem (G5, A1)	Adding on the roads, yeah, they are potholes and cracks (due to drought) and it causes lots of accidents on the roads.
Girl (G5, A1)	Sometimes the municipality closes the water and then we don't have any water for days.
Solomon (G5, A3)	The municipality has tried making pamphlets to give to people and telling them if they are misusing water, using water they don't have, they will have to pay for that (pay fines) and then that frightens people a little bit, so they can be able to use water in a good way.
Khanyisile (G6, A2)	...So I used to be late at school when, because my dad used to fetch the water in the morning

Subtheme 5: Social risk factors	
Participant, group and activity	Evidence from the data
Fission (G3, A2)	Yes, 2014 and 2016, because I remember like we progressing to last year (2016), like they showed on the news people killing each other for water. I don't know like, there was a child who played with water and there wasn't water, so people were angry and they ended up killing that little child. Yeah and 2014 people were fighting for water, because water wasn't enough. Trucks didn't have enough water to supply everyone. Yeah, so okay, but 2014 and 2016 people fought for water.
Solomon (G5, A2)	In this location area found that many people don't get water, because they were staying in RDP housing, but some of the houses this side had water. It is because it's a little bit steep and sometimes in that area water doesn't go and always find that many people come to that area to take water. And some other people were selling the water (municipal water) to make money and be able to pay rent. The people who had the water, 'I don't want you staying in town'. Even in Leandra are able to get water, because they are paying rent each month and in 2015 there was an economy drought.
Solomon (G5, A3)	They (municipality) come to people to teach the community that you should do like this and you find that the old person doesn't understand what they are talking about, especially those that are not fortunate enough to go to school...You know when we are talking about this, especially when you are getting pamphlets to people, she is unable to read or he is unable to read, then by doing so some of the people don't get to know how to use water
Solomon (G5, A4)	From line 751 to line 765 in the transcription, he speaks of a fictitious story of a farm, where the farmer is struggling with animals dying. He speaks of a hunter that tries to hunt on the farmer's farm: The farmer is getting outside here standing outside here shouting to the hunter 'what are you doing on my farm? This is my livestock, you know', but the person is hunting for his own benefit, while the farmer is struggling.
Jabulile (G5, A4)	They speak differently to us. If I was a guy, they would say in a tough language 'you see plants are dying', 'this and that are dying', but then to us (girls) they will say to us like 'ah, my kind (Afrikaans for child), crops are dying' in a soft voice. You know, like they don't want us to worry so much so that's what I speak to guys mostly about those situations.
Willem (G5, A4)	...actually, let me say it from my culture, inheritors, people who inherit a lot are males, because they are carrying on with the same name and all those

	kind of things. They want to raise the same name, but girls they are going to get married into another family and so they're focusing on boys, because they know they are the next leaders of the family and that's why they should tell them (boys) everything as it is and don't beat around the bush.
Solomon (G5, A4)	For girls, I don't know much about girls, but from what I know, I know when there is a situation, they are the ones that are stressing, you know. They are the ones 'what is going on?' They are panicking by nature. They are panicking a lot, but a guy he has a way of taking it.
Girl (G5, A4)	I do not agree. Maybe in the olden days the women were stressing more, but now we do know about drought. We also do guys' work now. It's not like in the olden days 'you are a woman, a woman should do this.' We know how to do men's work. We are learning. We want to learn. We want to know how they do it. We are strong now!
Girl (G5, A4)	Because You can't say that boys are close to their dads, because some of the boys are not close to the dad. Others are close to their mums and some of the girls are not close to their mums, they are close to their dads. They are sharing more with their father, so it is different. It depends on the family.
Junior (G6, A3)	...When my family's fighting and we have a problem, let's say we're in a drought, and everybody wants water, I understand that everybody wants water, but we should share the water, so if my family is fighting, my heart gets broken and I just want to move on.
Hakeem (G7, A2)	...it was hard for my family, because most of the time when I come back to (from) school, I must take the wheelbarrow and go to the place. Like, it was far and I must study in that time. So I decided to take the wheelbarrow and put water, so that we can fed our family with that water and it was hard for me, because I need to focus on my school and that time I need to go and fetch water.
Gwanele (G7, A3)	Drought affects me, because I have to think about my family, because where are they going to get the water? Where are they going to bath? Where are they going to eat? That don't make me happy...
Wendy (G8, A1)	...in our families there is only one breadwinner, you find that you can no longer afford food, because the prices has increased. That way it affects us as a family, because we perhaps in the future may suffer from starvation. Ja, I think so.

Subtheme 1: Youth problem-solving strategies	
Participant, group and activity	Evidence from the data
Njabulo (G1, A3)	Exercise. Go to the gym. Going to the gym will help your body stay healthy, especially your muscles and cells will be able to regain and reproduce even though there is not enough water in your body.
Njabulo (G1, A3)	Save water. Saving water, it means that you'll be able, when a drought take place...you'll be able to have some water... don't waste water, bathe with a five litre of water...Use water responsibly
Njabulo (G1, A3)	No, what helps me will also help girls. There is nothing different. Drought doesn't choose whether you are a boy or a girl. It attacks everyone.
Precious (G1, A3)	Exercise to keep my mind better and you have to think about things. Keep my mind busy, you know...jogging, sit-ups, you know. Then I don't have to think of drought.
Precious (G1, A3)	Friends. Staying with friends, hanging out with friends, talking about different things other than drought, I can keep my mind off worries
Precious (G1, A3)	Precious further mentioned that she makes use of the internet to find out more about the drought and to get 'alerts' whenever there are disasters, such as drought.
Toni (G1, A3)	Everything that you do, you need to be positive with it
Toni and Tshiamo (G1, A3)	Both made mention of staying positive and not to give up hope.
Simpiwe (G1, A3)	So you have to think smart for example, you must think positive, think that there is always a solution that can fix problems and all that you must also have is faith...(Speaks in Afrikaans): 'Gehoorzaamheid. Wel, teen ander mense moet jy gehoorzaam wees, kalm wees en rustig. Jy moet kalm en rustig wees en respektvol wees, sodat jy dan kan soos ander mense wat nie droogte weet nie, ook kan kalm wees. Want sê nou maar die person wat droogte weet en ander nie...sênou dis jou ma-hulle, hulle raak woedend en dan kan hulle nie soos woedend wees nie, want hulle weet hoe om dit te hanteer.' (You have to stay calm, be obedient and be respectful. If you stay calm during times of drought and know what to do, then those around you will remain calm as well. If your parents become frustrated, they will have to remain calm, because they will then know what to do.)

Zodwa (G1, A3)	I must be patient, I must exercise regularly, think positively in everything I do, I must tell myself something positive...I must tell myself to have self love
Simpiwe, Zodwa and Precious (Group1, A3)	Save water by not opening the tap fully when having to drink water or brush teeth. Close the tap after wetting your toothbrush. Bathe using water sparingly
Zodwa (G1, A3)	I will be able to cope with situations in a positive way. Yes, and I have to be realistic, face the truth, understand that there is drought, find more information, research and find solutions. I must be patient and save water...I can use the internet...you can go to the library, there are computers
Lefa (G2, A2)	Lefa mentioned that he receives information regarding drought through social media and the internet. He further indicates that the older members in the community don't understand the concept of droughts, if they open a tap and there is water. Lefa posits that there is a lack of information and that the younger generation should educate the elders.
Zar (G2, A3)	Stay hygienic and keep clothes clean. So I stay as clean as possible, especially avoiding changing clothes often, so I cannot use water for washing more.
Zar (G2, A3)	This is the church, so it is the house of the Lord. It's a sign of going to pray
Gugu (G2, A3)	I am thinking in my mind, I am thinking about education, saving water and listening to music...eating healthy food to keep my body strong...I want to change people's lives
Kutlo (G3, A2)	Yeah, it simply brings back memories so sometimes you don't want to talk about bad memories.
Kutlo (G3, A4)	I would simply like to add, to what Fission had already said. I think now we know what is drought, what are the causes and what are the impacts and how it's affect us. So, in future, we will simply be prepared, because now we did learn about drought and we know more, know more about drought, so I don't think that it will difficult like the last time we just experienced it, because we didn't know anything about it, but now I think we do know anything about it
Kid'Eazy (G3, A4)	I think the more we experience a drought, the more we learn about how to save water. We get to, we learn more things about drought the more we get to experience it... What I have learnt is that you always have to save water for the future, because you never know what can happen. So, when tomorrow comes, you've got to be prepared.'
Fission (G3, A4)	This is me, listening to my music at home, yeah, trying to forget about all the bad things happening in drought.

Fission (G3, A4)	We see all these things on TV's and smartphones. We search about these things and at school they teach us about these things, so yeah. That is how we get information about these things.
Group 3, A4	Another thing we can do is start programmes that teach people how to prevent, or how to cope with drought, and yeah. We could also like, start programmes and teach people in our communities about drought and how to cope when there is a drought. (Youth-driven agency)
Mandy (G4, A3)	What makes me to stay healthy when there is drought? Mentally, I read. I read and I listen to music and watch TV and social networking on WhatsApp and Facebook. Emotionally I feel down and I sleep most of the time. Sometimes I take several walks, then I pray. Physically, I do more exercising, like jogging, yeah. Warm-ups. Then I communicate and stay around others, Then I eat.
Phumuzile (G4, A3)	Physically, I exercise to keep my body strong. I read, yeah. Resting helps me a lot, because it calms my body down. I eat and drink water. Uh, I dance. Yeah, dancing helps me a lot...It helps me to stay fit. And then emotionally, I surround myself with people who are gonna make me laugh. For example, when I am down I will sit with whoever that's gonna make jokes so I will be able to laugh and forget about what I was feeling or the sadness I had before. Then I go to church. It also helps me to listen to the pastors, to listen to some of the congregation giving advice and so forth. Um, I watch TV. Comedy and movies. That helps me a lot. Mentally I always think of positive things only. I try to forget about the drought and think positively. Uhm, I take walks to clear my mind...
Portia (G4, A3)	I adapt to the environment. Hear what I refuse to confront with some thought, you know? Um, save water, you know, save food. You adapt to the environment so that water and food can last for longer. Unlike there's no drought, you don't care about saving water or saving food, you know?
Sifiso (G4, A3)	There is a sun and a moon there. I believe that where there is sun and moon, there is always a better life to live tomorrow, or even today going upwards...in my heart, I feel very anxious in my heart, I feel very anxious and then I have also analysed as to how am I going to help myself to release this anxiousness that I have in my heart. Then by telling myself...I will try by all means to overcome it...You know when you wake up there is new hope in every day.
Sifiso (G4, A3)	Me coming here, I have learnt something from (them), they learnt something from me. I have learnt something from you guys...So you guys coming here, we just wanna thank you , because we learnt a lot today. Maybe some of us,

	we were going to sit at home doing nothing, but we have socialised in many ways. We have come out with some things that I didn't know about them...
Girl (G5, A1)	Sometimes we used to have water all the time, now we have water in a bucket, so when there isn't water, we use the water and sometimes the municipality brings that truck that will bring us water.
Bonele (G6, A3)	Exercise helps me to relieve my body and mind. I also play with young kids for fun and that's what also relieves me. Talking to people relieves me. I help old people when they collect water in the river or some other location that is near and has water. I also encourage young people to help those who are in need, especially those people who are old and unable to do anything by themselves.
Angel (G7, A3)	I love cooking, so when I'm heartbroken, I just think about the cooking, then I cook. I sing, I love house music, as I've written there...to keep my body, I used to exercise every morning
Hakeem (G7, A3)	I did the things that I do, music, reading, reading a story, writing story, writing lyrics of my song and do the things that will help me improve my career. I write down words and poems that do motivate people.
Group 7 (A4)	The group's sand tray represented their houses, that have tanks installed, so that water could be stored for alter use, when there is a need. They also suggested that separate tanks with taps be set aside for the community to use. It could also be used to give water to their animals
Ma'Fashion (G8, A4)	Know what helps me in my heart is my family and praying to God and in my heart singing to God. It helps me to relieve everything. What helps me to stay healthy in my body is advice, my friends to use water wisely. Reusing bathing water to flush toilets, using a cup to brush your teeth, bathing once a day, boiling the delivered water before using it.
Palesa (G8, A3)	Palesa indicated that she enjoys cooking, eating healthy, spending time with family and friends, as well as spending time on social media. She explained that healthy vegetables she would get from their garden, however, during the drought, the vegetables were dried out. Palesa mentioned that she enjoys helping others, as this she cares deeply about those in need.
John Boze (G8, A3)	John Boze mentioned that the houses in his community do not have gutters. He suggested that all the houses be fitted with gutters, so that water could be harvested when it rains.

641 Who would like to go first? Okay, let's start with you so just take this there we
 642 go and speak nice and lovely so that we can hear you. So, I see a lot of
 643 interesting things on your photo. Please remember to speak loudly, so that
 644 we can hear you and also say your name and gender before you start.
 645 P4: Okay, my name is Kutlo Morabe and I am a female in terms of gender. In
 646 terms of drought, generally I experience I simply need support from
 647 family, friends, people that I know, also from church mates. Sometimes I
 648 usually go to my church to release the stress I am facing during that time
 649 and sometimes I simply look at the fashion shows and everything and the
 650 news simply, I simply update me about what is going on in South Africa
 651 and I also playing, playing with my father and doing my school work
 652 especially maths, I do love maths. And I simply know that water is a basic
 653 need of life and without water there is nothing that you can do. In terms of
 654 food, I simply like to eat, eh, I simply like fast food, fruit, all the types of
 655 food that we have. Especially when we got food at home. My family suffer
 656 from drought, because there is no food, there is no water and they simply
 657 need money to buy the fast food and the water also. So there is not enough
 658 money to buy the food. For example, if we experience a drought all
 659 through the year, there would simply be no money, because there will be
 660 other expenses like we need money at the house and we simply know
 661 there's no money enough for that. It is not good to have water, because
 662 sometimes I do like water and I simply know that in order for me to be
 663 healthy and to do all these things and have energy, I need water and
 664 without water there is nothing that I can do and I just think also that I need
 665 water, so I simply lose the immune system, because of water and I like
 666 talking to people, because people makes me feel good and I forget about
 667 the things that I am thinking of. I am done.
 668 F: Thanks, well I saw the, the stomach...
 669 P4: Yeah...
 670 F: with the apple, and I think it is water?
 671 P4: Yeah
 672 F: explain that?
 673 P4: I simply draw water. Without water there is nothing that you can do and in
 674 terms of the food that I have drawn over there, it's simply, simply add to

Gender: female

Fam/Fri/Com: support & Cult - Spirituality
 Cult: Spirituality - release stress

Media: "update me" - new knowledge
 Fam: Father & Ed: Maths (cape)

Phys Know: "water is a basic need of life"
 Feel: "nothing that you can do"

Health: Food: Fast food, fruit, all types

Lack?: "when we got food at home"

Fam: suffer (feel): no food, no water

Econ food: by fast food - not enough money

Phys: Drought: No money

money needed for other expenses
 ↳ not enough

Feel: I do like water

Know Health: Healthy, need water = energy

Feel: "without water, there is nothing I can do"

Health: need water - "lose the immune system"

Cope Com: "Talk to people", "people make me feel good"
 ↳ forget

Feel: "without water there is nothing you can do"