Personal resources that support adolescent resilience over time

by

Shandre Nazley Basson

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Prof. L. Theron

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Declaration

I, Shandre Nazley Basson (Student number: 18337882), declare that the mini-dissertation titled, Personal resources that support adolescent resilience over time, which I hereby submit for the degree, Magister Educationis in Educational Psychology at the University of Pretoria, is my work and has not previously been submitted by me for a degree at this or any other tertiary institution.

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Ms. S. N. Basson

October 2021

Ethical Clearance Certificate

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

- Compliance with approved research protocol,
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Ethics statement

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

Dedication

I dedicate this research to my supportive family and my fiancé, who believed in me and continuously motivated me to pursue my passion.

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Abstract

My study forms part of the Resilient Youth in Stressed Environments (RYSE) study. The RYSE study aims to understand the resilience of adolescents living in a township stressed by petrochemical pollution and associated risks. The purpose of my study was to explore the personal resources that a group of adolescents (15-24 years old) living in the township of eMbalenhle consider to be resilience-enabling over time. In other words, how consistent were the personal resilience-enabling resources reported by adolescents living in eMbalenhle at two points in time (2017 and 2019)? I used a qualitative approach and followed a phenomenological research design to achieve this purpose. Ten adolescents who lived in eMbalenhle participated in my study. The participants had participated in the 2017 data generation. The primary data were generated by the participants using the same arts-based methods as in 2017. The primary data were analysed using inductive thematic content analysis and the secondary (2017) data were analysed using deductive thematic content analysis. The personal resources that enabled the adolescent's resilience over time were keeping a positive mindset, looking after their bodies, looking to the future and being social. My study highlights the social-ecological nature of resilience and contributes insights into what personal resources support adolescent resilience over time.

Key terms: adolescents, resilience, personal resources, risk factors, township or 'location' and petrochemical pollution.

Language editor

MELINDI DE KOCK ALANT

LANGUAGE PRACTITIONER

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DECLARATION OF PROFESSIONAL EDIT

This research article was proofread and edited by Melindi Alant. The copyediting of this research article was done to correct spelling and grammar errors with the focus on style, clarity, coherence and final layout. This was done for better readability, and to ensure the research article is written in an appropriate academic style. All amendment were tracked with the Microsoft Word 'Track Changes' feature. Therefore, the author had the option to reject or accept each change individually.

melindi alant

Melindi Alant
alantmelindi@gmail.com

List of abbreviations

RYSE	Resilient Youth in Stressed Environments
HIV	Human Immunodeficiency Virus
AIDS	Acquired Immunodeficiency Syndrome
SERT	Social Ecology of Resilience Theory
PTSD	Post-Traumatic Stress Disorder
GBTSA	Girls and Boys Town South Africa
ITCA	Inductive Thematic Content Analysis
DTCA	Deductive Thematic Content Analysis
CAP	Community Advisory Panel
FET	Further Education and Training
STEM	Science, Technology, Engineering and Mathematics

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CHAPTER 1
INTRODUCTION

1.1 INTRODUCTION AND RATIONALE OF THE STUDY

My research study, which is of limited scope, forms part of the Resilient Youth in Stressed Environments (RYSE) study. The RYSE team has based their research studies in communities in Canada and South Africa that are both affected by the petrochemical industry. RYSE investigated the risk factors that hinder adolescent wellbeing as well as resilience factors that contribute to adolescents adjusting well in a township stressed by petrochemical pollution and structural disadvantage (RYSE Project, n.d.). The South African RYSE research team explored how systems, which include the individual, family, and community, facilitate youth resilience despite the risks associated with living in the township of eMbalenhle. This Mpumalanga-based township is stressed by petrochemical pollution and structural disadvantages. My study focuses on one of the above-mentioned systems, which is the system of the individual and related resources (i.e., personal resources).

I was particularly interested in the personal resources that support adolescents living in eMbalenhle. Having formed part of the RYSE team in my honours student year in 2018, I chose the personal resources aspect for two reasons. Firstly, the 2018 study focused on relational factors that support adolescent resilience. Even so, throughout that study personal resources strongly emerged which aroused a curiosity in me to better understand the personal resources that facilitate adolescent resilience despite the challenges of living in eMbalenhle. Secondly, the reason for this study relates to me personally. The personal resource aspect interests me because it is based on the adolescent's personal capacity to motor through challenges and overcome adversity. It interests me to know what the personal resources are that these resilient adolescents utilise or rely on when they are faced with adversity. Like Kumpfer (1999) proposes, various components make up what can be considered as personal resources that enable adolescent resilience. These components include cognitive competencies (e.g., academic achievement and intelligence), behavioural and social skills (e.g., street smarts, problem-solving and communication skills), spirituality and motivational characteristics (e.g., dreams and goals, and hopefulness and optimism), physical wellbeing (e.g., health maintenance, good

health, physical talents, and physical attractiveness), and emotional stability and emotional management (e.g., happiness, humour, and recognition of feelings). In my personal experience, I too have relied on intrinsic resources to overcome challenges. For instance, I believe that I am in control of the choices and decisions I make that guide and direct my behaviour when I am faced with a problem. Sometimes, those are the only resources that are readily available to me and other young people in my community. To my understanding of adolescents living in my community and in my experience of working with other eMbalenhle adolescents, when adolescents live in a stressed environment, they can easily succumb to substance abuse and overall bad life choices influenced by peer pressure, crime, unemployment, recreational drug use and so forth. However, some adolescents are not influenced by these circumstances and are strong enough to rise above these situations. This is what intrigued me to explore what exactly the personal resources are that these adolescents possess that foster resilience.

Resilience, as defined by Masten (2018), “is the positive adaptation of an individual, despite the presence of significant challenges” (p. 16). According to Ungar (2011; 2012; 2018), resilience is context-specific and complex. This means that adolescents who are resilient at one stage of development or at one point in time may not be resilient at another stage or point in time. Thus, reporting on the resilience of adolescents over time is fundamental to understanding their resilience. There are many studies on the resilience of South African youth (Van Breda & Theron, 2018), including the personal resources that support adolescent resilience. However, none of these studies was about adolescents living in a township like eMbalenhle (i.e., one that is challenged by the pollution that results from nearby petrochemical plants and by chronic structural disadvantage).

There have been several RYSE-related post-graduate studies (Malakou, 2019; Matlali, 2019; Sithole, 2019; Van Aswegen, 2019) about the resilience of adolescents from the township of eMbalenhle, but none of them explored the personal resilience-enablers that support adolescents to be all right over time. As mentioned, the complexity of resilience demands attention to how it changes over time (Ungar, 2011; 2018; 2019). Furthermore, only four of the existing South African studies (i.e., Bachman DeSilva et al., 2012; Collishaw et al., 2016; Theron & Van

Rensburg, 2018; Van Breda & Dickens, 2017) report on adolescent resilience-enablers over time. None of them focused on adolescents living in a context like eMbalenhle (i.e., a community that is dependent on the volatile petrochemical industry; Ungar et al., 2021). I aim to fill this gap.

1.2 PROBLEM STATEMENT

Like young people in my community and eMbalenhle, many young black South Africans face a myriad of challenges, especially those who live in rural settlements and townships (Nadat & Jacobs, 2021). According to Felner and De Vries (2013), a high-risk community can be defined as a community where exposure to risk and challenges can lead to unfavourable outcomes for adolescents and for the community as a whole. Many of the South African studies on resilience focus on various adversities that adolescents in high-risk communities' face. These adversities include structural disadvantages (Mosavel et al., 2015; Scorgie et al., 2017), crime (Sui et al., 2020; Sui et al., 2021), HIV/AIDS (Kaunda-Khangamwa et al., 2020; Mthiyane et al., 2021; UNICEF, 2021), pollution (Shezi & Wright, 2018; Theron et al., 2021), and climate change (Chersich et al., 2019; Rother, 2020; Wright et al., 2019). These studies also show the complexity of challenges that adolescents are faced with. Positive adaptation despite adverse circumstances speaks to resilience (Masten, 2014).

Research studies in South Africa to date have focused on various factors that promote adolescent resilience (e.g., Bvuma & Marnewick, 2020; Mampane, 2014; Theron, 2020). Although these studies provide valid information on youth resilience, they mostly do not provide insight into the overtime personal resources that support adolescent resilience in a context like eMbalenhle. The few South African studies that report adolescent resilience over time (i.e., Bachman DeSilva et al., 2012; Collishaw et al., 2016; Theron & Van Rensburg, 2018; Van Breda & Dickens, 2017) excluded adolescents who were challenged by ecological stressors (e.g., pollution) and social stressors (e.g., ongoing structural disadvantage). This is a problem because resilience is a process that changes over time and it is context-sensitive (Masten, 2014). Put differently, resilience is a complex process (Ungar, 2018). Therefore, reporting on the personal resources that foster resilience over time for

specific groups of youth – such as those living in eMbalenhle – is fundamental in meaningfully supporting adolescents to overcome challenges. Fundamentally, what may be deemed suitable resilience enabling resources for one person at one point in time, may differ for another based on their context and the resources available to them at a different point in time (Ungar, 2018).

It is important to understand if and how resilience-enablers change over time as this knowledge may assist professionals, like educational psychologists, to better understand resilience processes to optimally assist adolescents to achieve good life outcomes (Masten, 2018). Additionally, for educational psychologists to provide appropriate and relevant interventions for adolescents they work with, having a rich understanding of personal resources that support resilience in a given context and overtime is vital. When these resilience processes are not reported over time, it can affect the accuracy of information educational psychologists base their interventions on and also influence the success of interventions because the information may be outdated and no longer relevant or appropriate to what adolescents may be experiencing (Van Breda & Theron, 2018).

1.3 PURPOSE OF THE STUDY

In response to the aforementioned problem, the purpose of my study was to explore the personal resources that a sample of adolescents (15–24-year-olds) living in the township of eMbalenhle consider to be resilience-enabling and how consistently these resources were reported over time.

1.4 RESEARCH QUESTIONS

My study is informed by the following research questions: Which personal resources do adolescents (15–24-year-olds) living in eMbalenhle, a township stressed by petrochemical pollution and structural disadvantage, report as resilience-enabling, and how consistent are these reports over time?

1.4.1. SUB-QUESTION

How similar are the personal resilience-enabling resources reported by adolescents living in eMbalenhle at two points in time (2017 and 2019)?

1.5 THEORETICAL FRAMEWORK: SOCIAL ECOLOGY OF RESILIENCE THEORY

I utilised the Social Ecology of Resilience Theory or SERT (Ungar, 2011) as the guiding framework for my research study. SERT is a theory that provides an understanding of resilience through an ecological and systemic perspective (Ungar, 2019). SERT aligns with the understandings that development is nested within multiple, interacting systems (Bronfenbrenner & Morris, 2006). South African studies of resilience (e.g., Mampane, 2014; Mampane & Bouwer, 2011; Hage & Pillay, 2017; Van Breda, 2018) confirm the relevance of SERT in their reports of resilience being rooted in individual, family, community and institutional systems. SERT was, therefore, suitable for my research study as it has a history of being used in South African studies of resilience, and as it adopts a systemic and holistic approach to resilience which takes into consideration that the individual plays a role in the resilience process. This approach aligned well with the question of my study that pertains to the personal resources that adolescents report as resilience-enabling.

SERT proposes four principles that guide how resilience is understood (Ungar, 2011). These principles include decentrality, complexity, atypicality and cultural relativity. Combining all four principles explains the variability within the field of study and may account for the resilience of some children and lack thereof in others (Ungar, 2018).

1.5.1 Decentrality

The principle of decentrality proposes that individuals and environments interact and that their interaction is a crucial source of resilience (Ungar, 2011). This implies that the individual and environment are equally important in supporting resilience. With regards to my study, which only focuses on the personal resources of adolescents, decentrality implies that my study cannot provide a full explanation of the resilience of adolescents living in a stressed environment. I acknowledge this. A more complete explanation will be found when the findings from my study are merged with those of other members of the RYSE team who are focusing on other social-ecological resources from other systems, such as family and community.

1.5.2 Complexity

The principle of complexity relates to resilience being a contextually sensitive process, but also a non-linear one. Individuals who are resilient at one stage of development or at one point in time may not be resilient at another stage or point in time (Ungar, 2018). Therefore, because resilience is complex, there is a need to study it over time, for example by using a longitudinal study design (Masten, 2014; 2018). An example of what supports resilience changes over time can be found in the longitudinal study by Van Breda and Dickens (2017) of 52 care-leavers from Girls and Boys Town. At the start of the study (Time 1), the care-leavers reported six personal resources (i.e., high self-expectations, "bouncebackability", self-efficacy, optimism, self-esteem and resourcefulness) that supported their resilience. However, one year later (Time 2) only one of the personal resources was prominently reported by the care-leavers and that was optimism. This study shows the complexity of resilience over time as discussed by Ungar (2018).

1.5.3 Atypicality

The principle of atypicality entails that what may seem fit or may be deemed appropriate for one community in terms of resilience, may not be suitable for another (Ungar, 2011). For example, street-connected youth destroying public telephones to get money for food and mocking each other is not socially fitting but in studies with street-connected youth as reported by Malindi (2014a) and Malindi and Theron (2010), such behaviour fostered adolescent resilience. In other words, it is dangerous to assume what would typically support resilience.

1.5.4 Cultural relativity

The principle of cultural relativity implies that resilience is influenced or shaped by culture (Ungar, 2011). Culture is defined as "shared knowledge or shared expectations — a shared understanding of the world" (Panter-Brick, 2015, p. 234). For instance, in more developed, competitive Western societies, the emphasis is not on appreciating education, but is, rather, on academic achievement (Masten, 2014) whereas in African cultures educational opportunity is appreciated as education provides hope for a better future (Asante, 2019).

1.6 CONCEPT CLARIFICATION

For this study, the concepts of adolescent and/or adolescence, resilience, personal resources, risk factors, townships or “locations”, petrochemical pollution are central and are therefore explained below.

1.6.1 Adolescent and/or adolescence

The adolescence stage of development is a phase commonly understood as the years between the onset of puberty and the establishment of adult social roles (Steinberg, 2014). Similarly, Kinghorn et al. (2018) define adolescence as a stage between childhood and adulthood. The most frequently used chronological definition of adolescence incorporates ages of 10-19 years but may include a span of 15-24 years (WHO, 2018) or 10-24 years as proposed by Sawyer et al. (2018). For my study, I refer to the participants as adolescents, aged 15-24 years, because this is the age group of the adolescents of the RYSE study. Leaning on the definition of Kinghorn et al. (2018), adolescence is essentially a stage of development where adolescents become less dependent on their parents, caregivers, or guardians and shift into a stage of independence, autonomy and responsibility. This transition also involves adolescents establishing their own identity and developing a self-concept (Pfeifer & Berkman, 2018). They also continue to grow physically, cognitively, and emotionally, changing from a child and growing into adulthood (Shung-King et al, 2019).

1.6.2 Resilience

Resilience as defined by Masten (2014, p. 10) is “the capacity of a dynamic system [like an adolescent] to adapt successfully to disturbances that threaten system function, viability, or development”. Among the resources that enable resilience are personal resources which is the primary focus of my study. Thus, my interest was in the personal resources that support an adolescent’s capacity to “adapt successfully” to the threats associated with the social and ecologically stressed environment of eMbalenhle.

1.6.3 Personal resources

Personal resources refer to the resources inherent to the adolescent (e.g., a characteristic, skill, or personal strength). These are the resources that describe people's inner capacities such as self-efficacy, optimism, and hope (McCann, 2012), and that are typically important to young people's resilience (Panter-Brick et al., 2018). In my study, I use Kumpfer's (1999) framework to structure what is understood by personal resources (i.e., cognitive competencies, physical wellbeing, emotional stability and emotional management, spirituality and motivational characteristics, and behavioural and social skills).

1.6.4 Risk factors

Risk factors refer to the factors that prevent adolescents from thriving (Dickerson et al., 2019). According to Ungar (2014), resilience can only be recognised in the face of adversities. In other words, there need to be risk factors for an individual to be resilient. Masten et al. (2021) reported that risk factors augment unfavourable outcomes. In my research study, risk factors allude to any factors associated with the stressed environment of eMbahlenhe.

1.6.5 Township or "locations"

Township or "locations" are terms used by local South African people to describe the housing settlements situated on the brink of developed cities and towns (Mampane, 2014). eMbalenhle is an example of a township. Townships are typically considered to be risk laden (WHO, 2018). Examples of township-associated risk factors include poverty, unsafe water, poor sanitation and hygiene, pollution and substance abuse (WHO, 2018), all of which pose a threat to the adolescent's wellbeing.

1.6.6 Petrochemical pollution

The petrochemical industry creates a pool of toxic gases and chemicals which independently are hazardous not only to the health of individuals living in and around these areas but also to the environment (Cox et al., 2017). eMbalenhle is a township that is close to the Sasol petrochemical plant that emits many environmental

pollutants and is associated with negative effects to the residents of eMbalenhle (Mathebula, 2017). According to Thabethe et al. (2014), pollution can be harmful to residents' health and wellbeing. I detail these risks in Chapter 2.

1.7 ASSUMPTIONS

My assumptions stated below are based on the experience I had in 2018 as an Honours student doing a small research project with eMbalenhle adolescents, on my experience volunteering at a rehabilitation programme, and on resilience literature reporting on personal resources that promote resilience in adolescents.

I assumed that adolescents would express that resilience comes from having positive thoughts. In my experience with the adolescents from a rehabilitation programme I volunteered at, adolescents reported that focusing on positive thoughts helped them be resilient. This assumption is supported by Chang et al. (2019) who reported that thinking positively can improve an individual's way of seeing their life, thoughts and feelings. Similarly, Chui and Chan (2020) propose that positive thinking can be seen as a cognitive resource that buffers against psychological disorders.

I also assumed that adolescents would communicate that their sense of humour (i.e., telling jokes or making people laugh) helped them through difficult times. Upon meeting a small group of adolescents from the eMbalenhle community in 2018, I noticed that their sense of humour played a role in their resilience. They laughed easily and said it helped them cope with hard times. Kumpfer (1999) proposes that humour can be used as a coping mechanism by resilient children. Likewise, international studies by Cameron et al. (2010) and Douglas et al. (2016) concur that humour in different forms (e.g., teasing, mocking, sarcasm and irony) foster and support adolescent resilience. These studies reported that humour helped adolescents cope and deal with socially sensitive topics and discriminative commentary from their peers. African studies also report on humour as a resilience enabler for youth. A study by Asante (2019) proved that youth living on the street use humour (e.g., telling jokes) as a resource. Similarly, Malindi and Theron (2010) reported that humour became a distraction for adolescents, as it shifted their focus from their adversities or stressors.

My last assumption was that adolescents' outlook on life, such as hope for a better future, would be the driving force behind their resilience. I know this has helped me and the young people I have worked with. South African literature also reports that looking for a better future is a resilience enabler for youth. A study by Bireda and Pillay (2017) reported that future aspirations proved to be foundational for adolescents stressed by HIV-related factors. Similarly, Machenjedze et al. (2019) concur that future aspirations of orphaned adolescents enabled their resilience.

1.8 METHODOLOGY

The methodology is detailed in Chapter 3. What follows below is a summary of the methodology applied in this study.

1.8.1 Epistemological paradigm

I chose an interpretivist paradigm. The interpretivist paradigm allows participants to create and express their subjective meaning of the phenomena being studied (Nel, 2019). Selecting the interpretivist paradigm allowed me to understand the participants' understanding of the personal resources that matter for the resilience of adolescents living in the township of eMbalenhle (Kelly et al., 2018). The advantages and disadvantages of interpretivism are detailed in Chapter 3 (Section 3.4.1).

1.8.2 Methodological paradigm

A qualitative research paradigm guided my research study. Qualitative research requires a non-experimental way of conducting research. In other words, a phenomenon needs to be studied in its natural environment (Asper & Corte, 2019). The reason for choosing the aforementioned paradigm, as well as the advantages and disadvantages, are discussed in Chapter 3 (Section 3.4.2).

1.8.3. Research design

The research design utilised to guide my research study is phenomenological. This research design draws attention to the similarities of a particular groups' lived experiences or insights of a phenomenon (Creswell, 2013). The reason for choosing this design, as well as the advantages and disadvantages, are discussed in Chapter 3 (Section 3.5.1).

1.8.4 Participants

The participants of this study shared a geographical context (eMbalenhle; see Chapter 3, Section 3.5.2). I used purposive sampling. Purposive sampling is defined as a method of purposefully selecting participants that meet the criteria of the study (Nieuwenhuis, 2016). The reasons for me choosing purposive sampling, as well as the advantages and disadvantages of purposive sampling, are discussed in Chapter 3 (Section 3.5.3). In total, 10 participants (with an average age of 20 years) constituted the sample for my qualitative study of limited scope. I tabulate participant details in Chapter 3 (Section 3.5.3).

1.8.5 Data generation

I utilised arts-based methods (ABM). ABM encompass a range of research methods used to generate, interpret, or analyse data (Greenwood, 2019). In this study, the ABM utilised include body mapping and draw, write and talk. The reasons for choosing ABM as a primary data generation method, as well as the advantages and disadvantages of this approach, are discussed in Chapter 3 (Section 3.5.4.1). I also accessed secondary data that was generated in a previous year of the RYSE study (i.e., 2017). How this data was generated is explained in Chapter 3 (Section 3.5.4.2).

1.8.6 Data analysis and interpretation

I used thematic content analysis to make sense of the primary data. Thematic content analysis provides a step-by-step guide for data to be reviewed (Braun & Clark, 2006). It allows for patterns and themes to emerge from the data generated (Braun & Clark, 2006). The reasons for me choosing thematic content analysis, as well as the advantages and disadvantages of this analytic approach, are discussed in Chapter 3 (Section 3.5.4.1).

Secondary data was analysed using deductive thematic content analysis. Deductive content analysis uses a predetermined set of codes to make sense of a dataset (Pandey, 2019). The reasons for choosing thematic content analysis, as well as the advantages and disadvantages of this approach, are discussed in Chapter 3 (Section 3.5.4.2).

1.9 QUALITY CRITERIA

Lincoln and Guba (1994) noted five criteria to follow when establishing trustworthiness. These criteria include credibility, dependability, transferability, confirmability, and authenticity. In Chapter 3 (Section 3.6), these criteria are discussed in detail and are thus not provided in this chapter.

1.10 ETHICAL CONSIDERATIONS

My study forms part of the RYSE Project which received ethical clearance [UP 17/05/01]. Aligned ethical clearance was granted for my study [UP 17/05/01 Theron 19-002] by the Ethics Committee of the Faculty of Education, University of Pretoria. A copy of the ethics clearance certificate can be found in Addendum F When I interacted with the participants, I was careful to work ethically as explained in Chapter 3 (Section 3.7).

1.11 CONCLUSION

In this chapter, I introduced my research study and explained the theoretical framework that guided my study. I also briefly introduced the methodology (it is detailed in Chapter 3). Chapter 2 serves as a literature review of the personal resources that enable resilience in adolescents. In Chapter 4 I discussed the findings and themes that emerged and in Chapter 5, I conclude my study.

CHAPTER 2
LITERATURE REVIEW

2.1 INTRODUCTION

Resilience can be defined as a process of positive adaptation that takes place in the presence of risks and draws on protective factors (Masten, 2011; Ungar, 2011). For that reason, Chapter 2 is divided into two sections. The first section entails a brief discussion relating to the risk factors that threaten the positive development of adolescents living in eMbalenhle, a township stressed by petrochemical pollution and structural disadvantage. This section reviews township-related risks (i.e., structural disadvantage and poverty) and petrochemical risk factors (i.e., health and psychosocial risks). The second section comprises of personal resilience enablers that support an adolescent's resilience internationally and in Southern Africa. Although this review focuses on personal enablers (given the focus of my study), I acknowledge that non-personal resources also support adolescent resilience (see Table 1 for examples).

Table 1:

Demonstrating other (i.e., relational and communal) resilience enabling resources.

Relational resilience enablers	**Selected examples of studies**
Family, immediate (e.g., parents, siblings) and extended (e.g., grandparents)	Brooks et al., 2006; Dass-Brailsford, 2005; García-Crespo et al., 2021; Jones & Yadete, 2021; Mophosho et al., 2009; Phasha, 2010; Petersen et al., 2010; Sharer et al., 2016; Singh & Naicker, 2019; Theron, 2016; Theron & Theron, 2013; Toska et al., 2017; Van Rensburg et al., 2018.

Friends and peers	Choe et al., 2012; Crous et al., 2021; Goliath & Pretorius, 2016; Hills et al., 2016; Humm, et al., 2018; Lau & Van Niekerk, 2011; Lethale & Pillay, 2014; Malindi, 2014b; Malindi & Machenjedze, 2012; Malindi & Theron, 2010; Soji et al., 2015; Theron et al., 2011; Vogel, 2001; Walters, 2020.
Other capable adults (e.g., teachers, clergy, health professionals)	Brittian et al., 2013; García-Crespo et al., 2021; Lau & Van Niekerk, 2011; Malindi, 2014b; Theron & Theron, 2014; Theron et al., 2014; Van Rensburg et al., 2013.
Structural resilience enablers	**Selected examples of studies**
Financial and instrumental support (e.g., food security, youth employment, access to transport)	Bhana et al., 2016; Collishaw et al., 2016; Crous et al., 2021; Ebersöhn et al., 2017; Mosavel et al., 2015; Odendaal & Moletsane, 2011; Theron & Theron, 2014; Van Breda & Dickens, 2017.
Educational system (e.g., functioning schools, learning skills, effective teaching strategies, resources)	Botha & Van den Berg, 2016; Collishaw et al., 2016; Crous et al., 2021; García-Crespo et al., 2021; Hall & Theron, 2016; Malindi & Machenjedze, 2012; Mampane & Bouwer, 2011.
Community facilities, service and safety regulations (e.g., facilities for recreational activities, social service organisation, safe spaces to play and walk)	Ebersöhn et al., 2015; Hall & Theron, 2016; Hills et al., 2016; Hlatshwayo & Vally, 2014; Malindi, 2014b; Van Breda & Dickens, 2017; Malindi & Machenjedze, 2012; Mampane & Bouwer, 2011; Mosavel et al., 2015; Scorgie et al., 2017.

2.2 TOWNSHIP RISK FACTORS INHIBITING THE POSITIVE DEVELOPMENT OF ADOLESCENTS

Township risks refer to factors that are typically found in townships that proliferate the chances of negative outcomes and pose a threat to an adolescent's wellbeing. Examples include structural disadvantage, unemployment, poverty, crime and violence (WHO, 2018), all of which generally stem from social, political and economic challenges (Mampane, 2014; Msila, 2009; Ndimande, 2016). In South Africa, these challenges mostly relate to the unequal policies implemented during the apartheid era when people of colour were discriminated against and forced to endure political, social and economic disparities (Hoffman & Huang, 2014).

How a community's resources are distributed and how organisations and institutions are organised can enable or constrain adolescent resilience (Johnson & Kane, 2018; Van Breda & Theron, 2018). Interestingly, in the majority of studies included in Van Breda and Theron's (2018) review of South African child and youth resilience studies (e.g., Ebersöhn et al., 2017; Mampane, 2014; Scorgie et al., 2017), adolescents were challenged by inequitable distribution of resources and related structural disadvantage. The inequities that characterise underprivileged communities, like townships, often prompt illegal activities and/or poor mental health. For instance, a study conducted by Scorgie et al. (2017) showed that some people living in Hillbrow (an area in Johannesburg CBD with a population of an estimated 100 000 people per square kilometre) resort to selling drugs to create means of income. The selling of drugs in the open has created a negative impact on the already structurally disadvantaged community. The same study also showed that substance abuse initiated fighting in public spaces and was seemingly a common occurrence. As in other resource-constrained communities (e.g., Hillbrow), substance abuse, crime, and violence are common in townships too (Gardner et al., 2015; Lamb & Warton, 2017). Using substances and/or being exposed to violent crimes is associated with major depression and post-traumatic stress disorder (PTSD) (Goga, 2014; Stein et al., 2008). High crime rates may also increase fear and anxiety, which may harm mental health in the long term (Eagle, 2015). Violence exposure is also associated with learners' decreased ability to focus on school, and the fear of violence can also affect their school attendance (Leoschut, 2006).

Unemployment is common in disadvantaged communities like townships (Du Toit et al., 2018). It is certainly common in eMbalenhle (see 3.5.2). When parents are unemployed, adolescents sometimes have to find a job to feed their families (Hiller et al., 2017). The unemployment rate for South African youth in the first quarter of 2019 (when I did my study) increased, with a rate of 55,2% in the 15-24-year age group (Stats SA, 2019). Although the youth of today often have higher educational levels than their parents, this does not guarantee better employment opportunities (Finn et al., 2016; Stats SA, 2016). A crucial underlying factor that contributes to youth unemployment is the inadequate services of basic education, technical and vocational education and training divisions and relatedly a lack of skills (particularly those needed by the Fourth Industrial Revolution) (Graham et al., 2018). Youth from township communities are often more vulnerable to unemployment given the structural disadvantages they face (Hoffman & Huang, 2014). For example, many township youths cannot afford the expenses required to gain or maintain a job (e.g., travel or administrative costs) (Graham et al., 2018). In comparison, adolescents living outside of townships often have the advantage of employment opportunities in and around the areas where they live (Hoffman & Huang, 2014). When township youth do find work in their township community, it is typically in the informal economy (e.g., street vendors) with the related challenges of being underpaid, having poor working conditions, and not having social security or health insurance (Graham et al., 2018; Hoffman & Huang, 2014).

Breadwinners from township families often work long hours. This is usually associated with leaving home in the early morning and arriving home late in the evening/night, high levels of family tension and disrupted relationships, and even neglect of children (Prinsloo, 2005). Long hours also negatively impact the time that parents and children spend constructively together and can mean that young people do not have opportunity to be supported by/learn from their parents. Living in poverty-stricken conditions is even more stressful when there is a lack of social support (Donald et al., 2010).

Growing up in conditions of poverty can easily have a negative impact on young people's quality of life and social adjustment (Mampane, 2014). Many young people from poor township families report hopelessness and frustration (Theron & Theron, 2014; Ward et al., 2015). Amongst other negative outcomes, these feelings may

lead to young people disengaging from school and prompt negative behaviours at school (e.g., displaying violent behaviour in school) (Donald et al., 2010). When adolescent learners are disengaged, disrespected or hopeless, they are at high risk of being recruited into criminal gang activities (De Wet, 2007). According to the cognitive behavioural theory (Semrud-Clikeman & Teeter Ellison, 2009), the principles of modelling and social learning are at work when learners socialise with others who resort to violence and aggression. Adolescent learners who join gangs are particularly vulnerable because the practice of most gangs in townships includes violence. This could alienate them from their communities and could prolong the cycle of violence (De Wet, 2007). This is evident in the township of eMbalenhle. Residents of eMbalenhle fear for their lives as outbreaks of gangsterism terrorise their daily living (Mathebula, 2018b). Mathebula writes, “Gangsterism is a serious threat in the area and the number of young people who identify themselves as gangsters, is increasing” (Mathebula, 2019a, para. 4). It is important to acknowledge that solutions to this problem will not be found in blaming young people (Ngqela & Lewis, 2012).

2.3 RISKS ASSOCIATED WITH THE PETROCHEMICAL INDUSTRY

People who are structurally disadvantaged and/or marginalised are more likely to reside in communities, like eMbalenhle, that are highly exposed to industrial pollution (Mudu et al., 2014). The petrochemical industry is a major source of pollution in eMbalenhle (Mathebula, 2017), as eMbalenhle is adjacent to a large Sasol plant. A study by Cox et al. (2017) suggests that risk factors associated with the petrochemical industry include physical, psychosocial, and economic effects which affect individuals, families and communities negatively. Concerning the physical effects, exposure to petrochemical emissions affects children’s respiratory systems negatively (D’Amato et al., 2010). This includes contraction of asthma and bronchitis (Bateson & Schwartz, 2008; Gale et al., 2012; Tzivian, 2011), tuberculosis (Smith et al., 2013) and pneumonia (Murray et al., 2017). Mathebula (2017) reported that eMbalenhle locals were “up in arms” as the emissions ejected into the air by Sasol (including gas sulphur dioxide) caused respiratory (e.g., asthma) and other health problems.

In addition, exposure to petrochemical pollutants is associated with cancer (Lin et al., 2017) and cognitive developmental delays (Smith et al., 2013). The lack of adequate purification systems results in water pollution which can be fatal to human life (Ramanathan & Feng, 2008). In the case of eMbalenhle, the local community was displeased with their municipality due to the deteriorating service delivery (Mathebula, 2018a). Locals have reported that sewerage overflows have led to the contraction of diarrhoea and more serious illness (Mathebula, 2018a).

Environmental pollution does not only have physical health costs (Cox et al., 2017). Pollution associated with petrochemical plants can also lead to stress responses which have a negative impact on psychosocial wellbeing (Kondo et al., 2014). For example, exposure to petrochemical gases could lead to youth engaging in disruptive behaviours such as becoming antisocial, acting out, showing aggression and involvement in criminal activities (Cox et al, 2017; Grönqvist et al., 2014).

According to Goldenberg et al. (2010), communities reliant on the petrochemical industry are regularly exposed to a boom-bust economy due to the fluctuating oil price and related economic challenges. When there are economic slumps, this has a negative effect on workers as some are retrenched, resulting in a loss of income which affects the families in which children, adolescents, and youth live (Misan & Rudnik, 2015; Windle & Rolfe, 2013). The slumps can also relate to less demand for petrochemical products. For example, the novel Covid-19 pandemic has impacted the demand for petrochemical products (Oosthuizen, 2020). Many residents of eMbalenhle depend on the local Sasol petrochemical plant for employment, but with the Covid-19 pandemic Sasol had to cut costs and retrenched many workers (Oosthuizen, 2020).

2.4. Conclusion of risk section

For resilience to develop, there needs to be some form of adversity (Ungar, 2018). The aforementioned sections summarised the multiple adversities facing youth in township communities and in communities that are affected by challenges associated with the petrochemical industry. eMbalenhle youth face the risks of both township life and the petrochemical industry (Ncube, 2020; Pretorius, 2018). The next section outlines the personal resilience enabling factors that could support youth to adjust well to adversities faced.

2.5 PERSONAL RESILIENCE ENABLERS

Personal resilience enablers can be defined as resources that are innate to adolescents, such as characteristics or strengths that foster resilient behaviours (Kumpfer, 1999; McCann, 2012). Examples include faith, problem-solving skills, self-efficacy, hope, the belief that life has meaning, motivation to succeed, and self-regulation skills (Masten, 2018). To review personal resilience enablers, I drew on the clusters of personal resources that Kumpfer (1999) proposed. To me, these clusters provided a thorough understanding of the individual resources that enable resilience. According to Kumpfer (1999), there are five clusters of personal resilience enablers: cognitive competencies, spirituality and motivational characteristics, physical wellbeing, emotional stability, and behavioural and social skills. To explain more about each of these clusters, I drew on international studies (e.g., Douglas et al., 2016; Dunne et al., 2019; Flouri et al., 2014; Frömel et al., 2020; Masten, 2014; Wright et al., 2018) and Southern African studies (e.g., Asante, 2019; Brittian et al., 2013; George & Moolman, 2017; Gxubane, 2019; Hills et al., 2016 Lau & Van Niekerk, 2011; Malindi, 2014a; Mmusi & Van Breda, 2017; Van Breda & Dickens, 2017).

2.5.1 Cognitive competencies

Cognitive competencies refer to an individual's intellectual ability to achieve goals and dreams (Kumpfer, 1999). These competencies include factors such as intelligence, academic achievement, creativity, ability to delay gratification, self-esteem (relating to how they think about themselves), planning ability, reading skills and moral reasoning skills. In the next paragraphs, I explain some of these.

Jaffee et al. (2005) conducted a twin study with maltreated boys in England and Wales. The study reported that resilience was more likely among boys with above-average intelligence. A possible reason for the link between intelligence and resilience is how intelligence fosters problem-solving (Masten, 2014). In addition, Jahromi and Stifter (2008) stated that having the cognitive ability to process information supports children's capacity to control their impulses and regulate their feelings which are seen as a form of higher-order thinking. An example of this is in the study by Flouri et al. (2014) with children (early to middle childhood) in a persistent poverty-stricken context in the United Kingdom. The study reported that

verbal cognitive ability allowed children to not internalise problems. In the same way, Brown et al. (2013) found that cognitive abilities and low internalisation of problems were associated with the resilience of 1 603 boys living in poverty in six American states (i.e., California, Georgia, Illinois, Kentucky, New York, and Ohio).

Intelligence is also associated with academic success. According to McLeod et al. (2012), academic success can be viewed as a crucial aspect for optimal development in adolescents because it often supports psychological adjustment and long-term achievement, both of which support adolescent resilience. Similarly, Scales et al. (2006) reported that academic success is a primary contributor of resilience in a US sample of 370 students living in Urban African American and Hispanic low-income households. Many other studies have reported that student grade averages (in other words, achieving good grades) contribute to resilience (e.g., Chase et al., 2014; Shernof et al., 2014; Smokowski et al., 2016). Academic success and self-esteem are often related. For example, a study conducted by Cassidy (2015) with 435 British undergraduate students, reported that students' belief in their abilities provided support for resilience. Students who believed in their abilities to complete academic tasks that were challenging, were more resilient.

African studies have reported similar protective effects for academic success. For example, Kumi-Yeboah and Smith (2017) conducted a study with 60 Ghanaian immigrants. Participants in this study reported that "getting good grades" was important to their resilience. One of the participants stated, "I had challenging moments in school when I first moved to the [United States] … My goal is to enrol in advanced placement courses next semester so that I can get to a good college. I am determined to succeed in school no matter the challenges I face. Three years back, I struggled in school and now being on the Honours list. I think I have gained some success in school" (p. 441).

A previous RYSE-related study with adolescents in eMbalenhle also reported the resilience-supporting value of cognitive competencies. Matlali (2019) reported that the cognitive ability to study further was seen as a resilience enabler. For example, one participant stated, "I am able to study further than high school and that helps me to be okay with myself" (p. 61).

2.5.2 Spiritual and motivational characteristics

Kumpfer (1999) refers to spiritual and motivational characteristics as belief systems that motivate individuals and develop a sense of direction. These belief systems are grounded in cognitive competencies (particularly how adolescents think about life and their future) and include, for example, purpose in life, an internal locus of control, hopefulness and optimism, and determination and perseverance. Good and Willoughby (2008) and Pandya (2017) reported that during adolescence there is a search for new meanings in life. Thus, psychologists and theologians regard this phase as the "spiritual awakening" stage. Other studies view spirituality as a way of making meaning of and overcoming adversity. For instance, Wright et al. (2018) conducted a 4-point longitudinal study in the United States, based on coping, stress and adjustment with 355 youth and their maternal caregivers. In this study, spirituality was defined as "influential experiences that buffer the adverse effects of stressors" (p. 1).

Spiritual values often encourage positive thinking. Thinking positively can enhance an individual's way of viewing their life, general thoughts and feelings (Chang et al., 2019), including how one views challenges and deals with stressors (Naseem & Khalid, 2010). In a study with 700 undergraduate Chinese students (aged 17-28 years old) in Hong Kong, Chui and Chan (2020) found that positive thinking buffered against negative school adjustment and stress experienced by the students. Similarly, in a study with 589 medical students experiencing stress in the USA, Steiner-Hofbauer and Holzinge (2020) reported that positive thinking reduced the stress levels of students and was also associated with lower levels of depression. Another example is a study with eight adolescents residing in government care facilities affiliated with the Welfare Organisation of Iran who reported that adolescents attributed their resilience to being optimistic, hopeful for their future, encouraging and believing in themselves (Nourian et al., 2016). One participant said, "…well we have quite some problems here too and we get annoyed, but we wait them out. I know my future is bright. There are a lot of kids outside on the streets. We have it much better here …" (p. 6). Another participant said, "At that point I was talking to myself, saying that it's enough and that I should do something. I encouraged myself, I told myself not to do that, that carelessness was enough, because I couldn't take it anymore" (p. 6).

Similarly, African studies report on spirituality and optimism as a salient theme in individual resilience. For example, Salifu Yendork and Somhlaba (2017) researched spirituality among 20 orphaned Ghanaian children. Participants reported that their spirituality supported their resilience. 30% of the participants (i.e., six of the twenty) reported that they can overcome adversities because their spirituality makes them hopeful and optimistic. One participant said, “I believe I can come out of every challenge successfully because I know I serve God, and with God everything is possible” (p. 35). Similarly, another participant expressed, “Yes, I believe I can [withstand] challenges … [I believe] if I pray to God, God will give me that strength to get over it” (p. 36).

Being optimistic and/or spiritual is also reported as a resilience-enabler for South African adolescents exposed to adversity (Brittian et al., 2013; Collishaw et al., 2016; Ebersöhn et al., 2017; Malindi, 2014b; Van Breda & Dickens, 2017). For instance, Mohangi et al*. (*2011) conducted a study with nine children who were living in institutions on the outskirts of a South African town. Being optimistic played a positive role in the wellbeing of these children and supported their resilience. Likewise, Collishaw et al. (2016) reported a study with 1 025 children and adolescents in Cape Town who had lost their parents due to AIDS and found that optimism for the future supported the resilience of these children. In addition to optimism, South African adolescents report that determination is an important resilience resource. Dass-Brailsford (2005), for example, reported that undergraduate students in KwaZulu-Natal who come from township schools stated that their resilience derived from persevering and being goal-driven. Similarly, Mampane (2014) reported that among 291 township high school students, resilience was attributed to the student’s commitment to goal-orientation.

Previous RYSE-related studies with adolescents in eMbalenhle also reported the resilience-supporting value of optimism, hope, and determination. Pretorius (2018) reported that keeping a positive mindset enabled the resilience of the eMbalenhle adolescents she worked with. A participant stated, “I never say I can’t! I owe it to myself that I will do better than I did last time. By not saying I can’t and to accept failure, I don’t like accepting failure … I want to do better and better” (p. 51). Ncube (2020) also found that eMbalenhle adolescents who keep a positive mindset are resilient. For example, one participant stated, “I get to wake up and do something

about my life. That is the main thing, it makes my hope stronger. The fact that I get to wake up, I have a chance to change my surroundings, influence myself positively, think positively …" (p. 62). Matlali (2019) reported that determination enabled the adolescents' resilience. For example, one participant said, "I wanna achieve things and so I don't really care what happens around my environment. I think about what I want in the future. That's what makes me ok. That's what drives me every day to do what I am doing" (p. 54). Similarly, another participant stated, "I shouldn't give up on my dream because I see the environment [eMbalenhle] like this [as negative]. I should always push forward because I want to change myself" (p. 54).

A particularly prominent motivational force for African young people is educational aspiration. Children who come from poor families often see education as an investment for a better future and a way of securing a decent lifestyle when they are older (Crivello & Boyden, 2014; Eriksen & Mulugeta, 2015). In Ethiopia, for example, Eriksen and Mulugeta (2015) conducted a study with 45 working children. The study reported that the children expressed they work hard in school because education provides an opportunity for a better future. One of the participants said, "I want to finish school and become a doctor or maybe a teacher" (p. 179).

Similar protective effects of educational aspirations are reported in South African studies of resilience. A study conducted by Mosavel et al. (2013) with 112 South African adolescents who were exposed to daily adversity, reported that academic aspirations fostered their resilience. Likewise, Hage and Pillay (2017) reported that educational aspirations played an important role in the resilience of boys who lived in child- and youth-headed households in Soweto. One participant said, "I love school because it gives me the education and education is a key of life (…) I encourage all those who don't have parents don't drop out of school learning is exciting" (p. 311). The longitudinal study by Theron and Van Rensburg (2018) with 140 South African township-dwelling adolescents reported that these adolescents attributed their resilience to education-related aspirations, as they saw education as a "key to success" (p. 172). For instance, one participant stated, "I got help from many things in my life, like getting advice from my family telling me I should study so that I won't regret like they did, and it also means that education is the key to success. I believe that education is the key because all the people who didn't finish their studies, they're struggling a lot in my community" (p. 172).

Finally, two South African studies identified spirituality/motivation or positive ways-of-being as important to young people's resilience over time (Collishaw et al., 2016; Van Breda & Dickens, 2017). For instance, Van Breda and Dickens (2017) reported optimism over time for the 52 care-leaving participants in their longitudinal study. They found that hopefulness and positive ways-of-being and -thinking contributed to care-leavers being future-oriented and motivated.

2.5.3 Physical wellbeing

Physical wellbeing is important to youth resilience and draws on various personal resources, including the adolescent's physical talent development, their effort to keep physically fit, look physically attractive, and maintain a healthy lifestyle (Kumpfer, 1999). According to Frömel et al. (2020), physical activities can improve/sustain mental health and cognitive functioning. Similarly, Piercy et al. (2018) reported that there are many health benefits associated with physical activity (for instance, being physically active improves the function of the heart, lungs, muscular fitness, cognitive function, and reduces the risk of depression). Likewise, a review conducted by Silverman and Deuster (2014) reported that physical fitness (i.e., exercise or spontaneous physical activities) fosters resilience by promoting positive psychological and physiological benefits, reducing stress, preventing chronic illnesses and buffering against behavioural and metabolic consequences of adversities. For example, a study conducted by Swann et al. (2017) with 55 adolescent boys between the ages of 12-17 at risk for mental health problems, reported that involvement in physical activities such as sports reduces the development of mental health problems and helps manage stress. For example, one participant said, "Whenever I'm feeling stress, I'll go [to a basketball court] and shoot, just because it's a happy place for me" (p. 59). Other participants in this same study also expressed that sport served as a motivational factor and so facilitated resilience. For instance, one participant (participant 4) said, "The focus … (is) about getting better as a player, as a person, as a friend, as a man; growing in toughness …" (p. 60).

On the other hand, other research studies have reported an association between being physically active and young people's acceptance of their physical appearance. An example is the study conducted by Brunet et al. (2017) with

adolescents and adults aged 15-39 years who were diagnosed with cancer. They found that participants who were physically active during treatment were more accepting of changes in their physical appearance and experienced a sense of greater control.

In some South African research studies, physical wellbeing has also been associated with resilience. For instance, the study by Hills et al. (2016) with ten homeless adolescents in Durban found that physical wellbeing mattered for adolescent resilience. Physical wellbeing was attributed to having physical strength and participating in sports. The adolescents reported that having physical strength was needed to survive on the streets. Furthermore, participating in sports (i.e., surfing) added meaning to their lives and in doing so, helped them to be resilient to the challenges of street life (Hills et al., 2016). Interestingly, physical wellbeing relates to lifestyle choices that promote physical health; these choices are influenced by young people's value systems (Francis & Morojele, 2019; Mashegoane & Makhubela, 2016; Mbotho et al., 2013). For example, a study conducted by Makhubela and Mashegoane (2017) with 333 black students from Limpopo found spiritual values were associated with decreased health risk behaviours, including the use of substances (tobacco, marijuana, and alcohol).

A previous RYSE-related study with adolescents in eMbalenhle also reported the resilience-enabling benefit of physical activity. In the study by Matlali (2019), dancing was seen as a physical activity that promoted adolescent resilience despite the challenges of living in a township that was polluted by the petrochemical industry. One participant expressed that, "[Dancing] … is part of the exercise to prevent the illnesses that we'll be experiencing here [in eMbalenhle] for this pollution that we are getting here … it feels okay to me because I'm exercising, and I don't think any illnesses will be able to get me because I'm physical [fit] in that respect. I take dancing as an exercise meant [to] keeping my body healthy and on [in] shape. (p. 61)"

Finally, there is some evidence that physical wellbeing matters for South African child and adolescent resilience over time. Collishaw et al. (2016) conducted a longitudinal study with 1 025 children and adolescents of which 944 were orphaned as their parents had died from AIDS. Using a single item about their health that

required the participants to answer “yes” or “no”, the study showed that children who rated themselves as being physically healthy also showed sustained resilience over time.

2.5.4 Emotional stability and management of emotions

The capacity for emotional stability and management of emotions promotes resilience in adolescents. This capacity typically draws on positive emotions, including happiness and humour, as well as on the ability to identify and manage (i.e., regulate) negative emotion (e.g., anger management) (Kumpfer, 1999). Fredrickson (2009) proposed that emotional stability fosters openness to new experiences. Emotionally stable individuals are also able to display love and affection, encouragement and kindness to others.

Various research studies have provided empirical examples of the resilience-supporting value of humour to managing challenges well. A study conducted by Douglas et al. (2016) with 23 adolescents in New York affected by peer-based discrimination reported that they regarded discriminative commentary from their peers as a joke. This helped them cope and look past racial discrimination. Likewise, a study by Cameron et al. (2010) reported on two adolescents (a 14-year-old boy and a 15-year-old girl) who remained resilient despite adversity. The study observed the types and purposes of humour in these adolescents’ social contexts and reported that humour (which included mocking, teasing, sarcasm and irony) facilitated coping well with socially sensitive topics or situations. It also facilitated connections with family and friends that supported management of challenging experiences. Likewise, an African study conducted by Asante (2019) in Ghana with 16 homeless children and adolescents reported that humour enabled the participants’ resilience. The participants indicated that making and sharing jokes temporarily helped them relieve stress and not focus on their problems. One of the participants said, “It is my friends who come around me and they tell me not to worry. They come around to crack jokes, sometimes some of the funny things we see in the video, they try to act in that way. Then we all begin to laugh. That is what I do to come from my sadness” (p. 5). Asante (2019) also reported that teasing may be seen as negative behaviour — however, in street culture, it promotes wellbeing as street youth use teasing to make jokes and as a source for survival.

Similarly, South African studies have reported on humour being a resilience-enabler that provides hope, forms a distraction for stressors and helps with adaptation. For instance, Pienaar et al. (2011) conducted a study with 43 orphaned children in Lebone Land, South Africa. They reported that humour provided these orphaned children with a sense of hope. Other studies (i.e., Richards & Kruger, 2017; Malindi & Theron, 2010) have reported that humour creates a distraction for adolescents from stressors that they are faced with and/or shifts anger or worry that the adolescent may be experiencing. Another South African study by Gxubane (2019) with 20 youth sex offenders reported that humour helped them to adjust to group therapy sessions they had to attend at the rehabilitation centre they were at. One of the participants said, “The more we laugh a bit is the more we become comfortable in a group” (p. 11).

Some studies report that regulating emotion, including findings ways to be happy, is important for resilience. Nott and Vuchinich (2016) conducted a study with 18 adolescents living in a shelter. They found that these adolescents accepted responsibility for their personal happiness. For instance, one of the participants said, “Seriously [it] just depends on each person because everybody needs something different to make them happy” (p. 873). Another participant stated, “Happiness stems from a personal belief that you need to be happy like it stems from the idea that to be happy you have to do certain things and when you do those things, that’s what makes you happy or when you are in a certain place or that sort of thing” (p. 873). Banyard et al. (2017) reported similar results from their larger study with 2 565 adolescents and adults exposed to elevated levels of adversity in the United States. Using computerised surveys, they found that participants who were able to manage and regulate their emotions well had better health outcomes in comparison to the participants with poor emotional regulation (e.g., those who were unhappy). Furthermore, Ojala (2013) reported that emotionally focused youth become actively involved in dealing with their problems and they display optimism. South African studies have also reported that emotional stability and positive emotions fostered adolescent resilience (Van Breda & Theron, 2018). Likewise, a previous RYSE-related study with adolescents in eMbalenhle reported the resilience-enabling benefit of positive emotions. Matlali (2019) reported that being happy, also for others, fostered resilience of the adolescents in her study.

Although cross-sectional studies in South Africa, like the ones mentioned above, have reported on the importance of emotional stability and the capacity to manage emotion for young people's resilience, I could not identify this personal protective factor in any of the studies of South African child and youth resilience over time (i.e., Bachman DeSilva et al., 2012; Collishaw et al., 2016; Theron & Van Rensburg, 2018; Van Breda & Dickens, 2017).

2.5.5 Behavioural and social skills

Behavioural and social skills matter for resilience too. They build on cognitive competencies; however, these skills require action and are not purely based on thoughts. According to Refaeli et al. (2013), social skills are intangible skills that enable individuals to, for example, resist peer pressure or maintain interpersonal relationships with others. Factors associated with these skills include problem-solving skills, communication skills, networking skills, and street-smart skills (Frogner, et al., 2021; Holosko, 2015; Kumpfer, 1999; Walker & Rinaldi, 2020).

Some international studies attribute children and youth resilience to problem-solving skills. For example, Mohammadinia et al. (2018) conducted a study with 23 experts (e.g., professionals from health and policymaking) who had experience in working with an unidentified number of Iranian children (aged between 12-18 years) exposed to disasters and other challenging incidents. These experts reported that the children they had worked with typically utilised problem-solving skills to overcome adversity. One said, "Children will recognise problems very soon, which means they will solve the issues very soon for themselves and return to a state of happiness …" (p. 4). Similarly, Gallagher and Miller (2018) conducted a literature review based on aspects that encourage resilience to suicidal thoughts in at-risk youth. The study identified problem-solving skills as one of the factors that could increase resilience in youth at risk for suicide. Likewise, when Dunne et al. (2019) conducted a study with African American adolescents who were vulnerable to risky sexual behaviours they found that problem-solving skills reduced sensation seeking and substance abuse that typically gave rise to risky sexual practices.

Other studies attribute adolescent resilience to altruistic prosocial behaviour as a specific form of social skill that supports resilience. For example, an American study was conducted by Rious and Cummingham (2017) with 207 African American

adolescents exposed to community violence. The study reported that participants who engaged in altruistic behaviours (e.g., engaging in behaviours to help others without expecting a reward) were less likely to display or express antisocial or risky behaviours. Similarly, Einat and Micheali (2018) conducted a study with 25 adolescents in Israel and reported that prosocial and altruistic behaviours reduced their engagement in risky behaviours. The participants of this study joined a nationwide project called “Sahi” that encouraged vulnerable adolescents to participate in altruistic activities, such as anonymous giving. Participants reported that engaging in these behaviours made them feel good and that this positive emotion encouraged resilience. For example, one participant stated, “I do get my reward: I know that this family [who received the food] is going to eat well thanks to me. After distributing [the food] I feel … pure …” (p. 80).

Some African studies attribute youth resilience to social skills, including altruism. An African study by Haroz et al. (2013) with 102 (15-year-old) Ugandan teenage boys and girls that were exposed to war and displacement which caused psychological distress (i.e., depression and anxiety), reported that participants who engaged in prosocial behaviour reported fewer anxiety and depression symptoms. Across African countries, being kind to peers and knowing how to relate to them was reported as important for the resilience of youth who were street connected (Asante, 2019; Mizen & Ofusi-Kusi, 2010). For instance, street-working children in Ghana reported that forming friendships with others on the streets is based on sympathetic understandings of challenges and the willingness to help one another in meaningful ways (e.g., sharing food or purchasing medication for sick friends) (Mizen & Ofusi-Kusi, 2010).

In the same way, South African studies of youth resilience acknowledge the importance of behavioural and social skills (e.g., Dass-Brailsford, 2005; Mampane, 2014). A case in point is the study by Van Breda and Hlungwani (2018) with nine young black women (between 21-27 years old) who had lived in residential care, intending to report on how successfully these young women were handling challenges after leaving the care facilities. The study reported that young women with the social skill to make friends report a sense of belonging because they felt like they were a part of a family. For instance, one participant stated, “I make friends that I know I can trust … So, I make friends that I can build sort of a family with” (p.

13). Similarly, in a study with ten boys from a residential care programme called Girls and Boys Town South Africa (GBTSA), it emerged that care-leavers use social skills flexibly to cope with the challenges of leaving care and becoming independent (Mmusi & Van Breda, 2017). For example, one participant stated, “It is often a combination of skills that I apply at once depending on a situation … accepting criticism is one of them, because the way you approach someone or the way you present yourself in the situation, will determine how it will come back to you… to be honest, I will be lying to you if I say I apply the skills the way I was taught. To me, it’s all about being creative” (p. 20). Matlali’s (2019) earlier RYSE-related study with adolescents in eMbalenhle also reported the resilience-supporting value of social skills. For example, one of her participants expressed, “Socialising makes it OK to live in such [an] environment” (p. 62).

Finally, Theron and Van Rensburg (2018) reported on the resilience-enabling value of social skills for South African adolescents over time. Their work with 140 adolescents living in Vaal Triangle townships and attending no-fee paying schools showed that these adolescents associated social skills with relief from hardship. For instance, adolescents in this study explained that interactions with their peers helped them forget about their challenges. One participant stated, “Playing with my friends helped me a lot because this is the time you will become happy, forgetting the things that make you sad.” Similarly, another reported, “[To] hang out with my friends helped because I get to forget about my problems and just be happy” (p. 174). However, none of the other longitudinal studies of child and youth resilience (i.e., Bachman DeSilva et al., 2012; Collishaw et al., 2016; Van Breda & Dickens, 2017) has reported behavioural and social skills as important to South African youth resilience over time.

2.5.6 Resilience section: conclusion

In conclusion to the resilience section, I reported on some international, African and South African studies about the personal protective factors that enable the resilience of youth. With the exception of previous RYSE-affiliated post-graduate studies with adolescents from eMbalenhle (Matlali, 2019; Ncube, 2020; Pretorius, 2018), the studies I reviewed were not specific to adolescents living in a township stressed by structural disadvantage and petrochemical pollution. Furthermore, there was limited

evidence that Kumpfer's (1999) clusters were reported by the handful of South African studies of child and youth resilience over time (i.e., there are only four: Bachman DeSilva et al., 2012; Collishaw et al., 2016; Theron & Van Rensburg, 2018; Van Breda & Dickens, 2017). Again, even though these studies made some mention of the personal protective factors that supported child or adolescent resilience over time, none of them were specific to adolescents living in a township that is close to a petrochemical plant.

2.6 CONCLUSION

In this chapter, I reviewed some international, regional (African), and local (South African) studies that pertain to the risks experienced by youth living in a community challenged by structural disadvantage and the petrochemical industry. Furthermore, I reviewed the personal protective factors that enable the resilience of youth internationally, nationally, and locally (South African). This review provided mostly cross-sectional or time-limited insights into the personal protective factors that support adolescents to adjust well to various hardships. This review also showed that, excepting for previous RYSE-affiliated studies, there is very little understanding of what fosters the resilience of adolescents who are exposed to the hardships of a township and petrochemical industry challenges (like economic challenges and pollution). To date, only Matlali (2019) has reported on the personal protective factors that enable resilience among adolescents living in eMbalenhle (a South African township stressed by structural disadvantage and petrochemical pollution). Her study was a cross-sectional one.

Cox et al. (2017) proposed that as the petrochemical industry expands, further research is necessary to provide a better understanding of the effect it has on children and youth living in communities in close proximity to petrochemical plants, and of their resilience. Moreover, given that resilience is a complex process (Ungar, 2011) — that is shaped by time and situational dynamics (Masten et al., 2021) — it is imperative to know what contributes to adolescent resilience over time in specific contexts (e.g., the context of a township that is structurally disadvantaged and impacted by the petrochemical industry). My study addresses this gap. In Chapter 3, I report on the methodology that I utilised to address the existing gap.

CHAPTER 3
METHODOLOGY

3.1 INTRODUCTION

Chapter 3 provides a thorough discussion on the methodology utilised for my research study. I elaborate on the research design I chose and why it was suitable for my study. I discuss the data generation process and why I have selected the art-based techniques to generate data. Furthermore, I explain the selection process of my participants and how the data was analysed. I conclude with a discussion of the ethical procedures that applied to my research study.

3.2 SITUATING MY STUDY OF LIMITED SCOPE IN THE RYSE STUDY

As specified in Chapter 1, my study of limited scope forms part of the broader RYSE study. Although I did not play a role in designing RYSE, as a student researcher I had the opportunity to select a preferred research focus for my study [i.e., what personal resources enable adolescent resilience] so long as it fit the broader aim of the overall RYSE study. I had to provide a reason for my choice. In collaboration with the RYSE team and a fellow RYSE co-researcher, I also identified qualitative methods suitable for answering my research questions. Throughout our meetings and discussions, my primary focus was on reflecting on how these methods would assist me in generating data that answered my research questions.

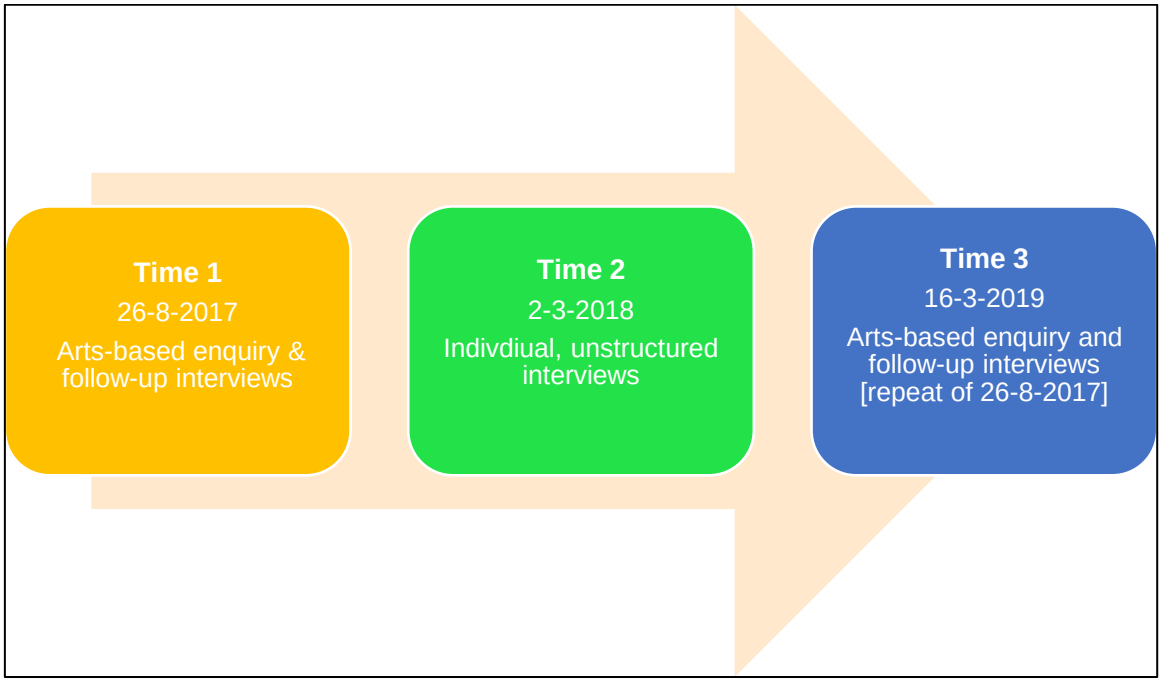
I was not involved in the recruitment process of participants. A pre-selected community advisory panel (CAP) were responsible for recruiting the youth participants for the RYSE study. The CAP also indicated a specific date when we (myself and a co-researcher) could generate data. On the 15th of March 2019, my fellow co-researcher and I participated in a training session with the RYSE project manager, to familiarise ourselves with the methods we had selected to generate data. On the 16th of March 2019, the co-researcher and I worked with the pre-selected participants (split into two groups). We were each assigned to a group of participants in which we implemented the same art-based activities with resilience-focused questions. After the data generation process, we were each responsible for transcribing our respective group's data and curating photographs taken.

Thereafter, we sent our data to the project manager/supervisor to be checked. Once checked for accuracy, we shared the data with one another.

Our March 2019 data generation was the third time that RYSE participants generated qualitative data. Diagram 1 summarises the three sets of RYSE qualitative data (i.e., Time 1 in 2017, Time 2 in 2018, and Time 3 in 2019). The same participants generated Time 1 and Time 3 data. In this chapter, I referred to the data generated in 2017 as secondary data. Secondary data refers to data that already exists and has been generated or analysed by previous researchers (Johnston, 2014, 2017). I used Time 1 (2017) or secondary data in addition to the 2019 data that a co-researcher and I generated as my study explored the over-time consistency of the personal resources reported by RYSE participants. I did not utilise the 2018 data (Time 2) because the data was generated from a different group of participants.

Diagram 1

The qualitative activities of the RYSE study



3.3 PURPOSE OF THE STUDY

The purpose of my study was to explore the personal resources that a sample of adolescents (15–24-year-olds) living in the township of eMbalenhle consider to be

resilience-enabling and how consistently these resources were reported over time. In other words, my study had an exploratory purpose. An exploratory purpose is defined as research directed at searching for understanding of an under-explored phenomenon or new insights about a phenomenon (Kumar, 2011; Swaraj, 2019; Swedberg, 2018). There are very few qualitative longitudinal studies (i.e., Collishaw et al., 2016; Bachman DeSilva et al., 2012; Theron & Van Rensburg, 2018; Van Breda & Dickens, 2017) of South African adolescent resilience. Furthermore, there is limited literature that reports on the personal resources that matter for adolescent resilience over time. Therefore, an exploratory purpose was suitable for my study because I aimed to find what personal resources enabled adolescent resilience in eMbalenhle over time. Exploratory research is applied when there are no or limited research studies relating to a specific phenomenon (Swaraj, 2019).

According to Swaraj (2019), exploratory research is characterised by its flexibility which can be considered advantageous. Other advantages of exploratory research include its cost-effectiveness and the foundation it lays for future research (Davies *et al*., 2011). It also helps researchers determine whether a phenomenon is worth exploring and spending more time and resources on in subsequent studies/stages of a study (Jackson, n.d.). However, a limitation of exploratory research is that it can result in biased results (Swaraj, 2019). Furthermore, Swedberg (2018) reported that exploratory research can lead researchers in the right direction, but the results provided can be inconclusive. To avoid bias in my study, I implemented the quality principles detailed in Section 3.6. Furthermore, the limitation of inconclusive findings did not hinder my study because the purpose of my study was not to provide a definitive understanding. Instead, my findings would be added to the RYSE findings and followed up in the 2021 knowledge mobilisation plans of the study.

3.4 PARADIGMATIC PERSPECTIVE

3.4.1 Epistemological paradigm

I have selected an interpretivist approach as the metatheoretical (i.e., epistemological) paradigm of my research study. I understand interpretivism as a paradigm that values individuals' subjective insights and capacity to create their meaning about the social environment and their experiences as they engage with society (Kelly et al., 2018; Nieuwenhuis, 2016). I chose this paradigm because it

allowed me to understand the participants' understanding of the personal resources that matter for the resilience of adolescents living in the township of eMbalenhle. Thanh and Thanh (2015) stated that interpretivism emphasises the comprehension of human experiences and depends on the participant's perspectives of the phenomenon being explored. Utilising interpretivism fit with the opportunity to interact with participants in their natural environment (eMbalenhle) and to learn from them about the personal resources that are important to adolescent resilience.

A benefit of the interpretivist paradigm is that it welcomes participants' subjective experiences and in doing so, is open to diversity and complexity (Creswell, 2007; Hammersley, 2013; Pham, 2018). Participants were free to share their experiences of living in a township affected by petrochemical pollution and widespread poverty and the personal resources that they believed were helpful to overcome those challenges. Less advantageous, though, is that an interpretivist approach could be susceptible to researcher bias (Pham, 2018). To overcome this disadvantage, I stated what my assumptions were in Chapter 1 (Section 1.7). When I introduced myself to my 2019 participants, I disclosed that I had worked with other eMbalenhle youth as part of my Honours research study. I wanted to reassure my participants that their age range was different from the group I had worked with in my project and that I was not interested in comparing how similar or different they were from them. Instead, I was interested in learning from them and was looking forward to their insights. The debriefing session I attended with the RYSE team also limited the potential for personal bias based on my Honours project.

3.4.2 Methodological paradigm

A qualitative methodological paradigm informed my research study. According to Levitt et al. (2018), qualitative research comprises data in the form of natural language (i.e., words) and other expressions (e.g., artistic presentations or visual data). Furthermore, qualitative research is facilitated by a researcher-participant interaction — often in their natural environment (Nieuwenhuis, 2016). In other words, qualitative research does not seek to manipulate the data provided but rather to report the data in its truest form (Creswell, 2014). Denzin and Lincoln (2011) expressed that qualitative research embodies various methods that elicit

understanding, provide descriptions, and translate and interpret information generated from participants.

I chose this methodological paradigm because it was suitable and applicable to my metatheoretical paradigm (i.e., interpretivism) (Creswell & Poth, 2018). The qualitative approach allowed participants to express their perceptions and provided me, as the student researcher, an opportunity to develop insight into their viewpoints. Using qualitative research was an advantage for my research study because it produced an in-depth, personalised narrative and visual data which gave me a contextualised and deep understanding of the phenomenon under study (i.e., adolescent resilience and the personal resources that matter for adolescent resilience, also over time). Research on resilience needs richer, youth-directed explanations of resilience (Liebenberg & Theron, 2015). I valued the opportunity to engage with the participants in their community because it allowed me to gain first-hand insight into the risks adolescents living there faced and the resources that helped them overcome those risks. It also allowed me to observe their non-verbal communication as they were talking. According to Merriam and Tisdell (2016), a qualitative researcher can be seen as an instrument of data generation and analysis as they can manage non-verbal cues by asking clarifying questions, or further exploring answers that were not anticipated from the participants.

The limitation of this methodological paradigm was that it was time-consuming, partly because there were several participants to listen to (Creswell, 2014). Transcribing the data was also time-consuming. To overcome the time-consuming limitation, I followed a specific timeline to warrant that the process was time efficient.

3.5 METHODOLOGY

3.5.1 Research design

For my qualitative research study, I have chosen a phenomenological research design. Phenomenology aims to understand how individuals perceive their lived world, including participants' experience of everyday situations and relations (Neubauer et al., 2019; Teherani et al., 2015; Van Manen, 2007). Phenomenology aims to explain what was experienced and how it was experienced (Vagle, 2018).

I chose phenomenology for my research study because it allowed me to explore how my adolescent participants experience their lifeworlds (Pringle et al., 2011), with special emphasis on their understanding of the personal resources that support adolescent resilience. Furthermore, phenomenology is used to explore and detail the meaning associated with participants' experiences and understandings of the research phenomenon (Nieuwenhuis, 2016). Phenomenology suited my study well because it focused on exploring what participants know about the personal resources that foster adolescent resilience in eMbalenhle, and on extrapolating similarities and differences in those insights. I believe that there is nobody better to learn from than the person who has experienced a phenomenon and so I was confident that the participants would advance understandings of the personal resources that matter for adolescent resilience.

As predicted by Maxwell (2013) and Rudestam and Newton (2015), an advantage of phenomenology was that it provided rich insight into the personal resources that enable adolescent resilience in the challenging environment of eMbalenhle. A phenomenological design allowed me to hear and understand the participants' meaning making about the challenges they faced and the personal resources that they believed were important to managing these challenges. This was an advantage as it drew attention to participants' authentic experiences and related perspectives.

Phenomenological studies typically consist of small samples as proposed by Groenewald (2004) who suggested two to ten participants and Creswell (2014) who suggested five to twenty participants. Findings that result from research with small samples have limited generalisability. To overcome the challenge of limited generalisability, I did not need a strategy because I wanted to get insight into an under-researched phenomenon (i.e., I wanted to provide an initial, rich understanding as is typical of exploratory studies; Swedberg, 2018). Exploratory findings might not be generalisable, but they are potentially transferable to similar participants in similar contexts (Sutton & Austin, 2015). Throughout this chapter, I have made readers aware of the specific context of my study. I have also provided a detailed description of the participants (see Section 3.5.3 and Table 2). Therefore, the reader can make an informed decision on the transferability of my study's findings.

3.5.2 Context of the study

All of the participants live in the township of eMbalenhle, situated in the Govan Mbeki district in the province of Mpumalanga in South Africa. The Govan Mbeki Local Municipality has a total population of 294 538 (80,5% are black, 16% are white and 3,5% make up the remaining population groups) (Stats SA, 2011). eMbalenhle has a total population of 118 889 occupants (99% are black and 50% speak isiZulu; 65,9% are of working age between 15-64 years) (Stats SA, 2011). A large number of households in this township do not have an income; this hardship is linked to the high unemployment rate of 26%, with local youth unemployment even higher at 34,4% (StatsSA, 2011). Adolescents living in eMbalenhle also face many other stressors such as toxic emissions pumped into the air by the local oil, coal and gas producing stations (Thabethe et al., 2014). The community of eMbalenhle is near coal mines and coal-burning power stations (Thabethe *et al*, 2014). Other South African RYSE studies (Matlali, 2019; Ncube, 2020; Pretorius, 2018) have also reported the challenges the community face with regards to the nearby petrochemical production and structural disadvantage. This was noticeable when we arrived in the area (as depicted in Figure 1).

The community often resorts to protest as residents' voiced concerns about inadequate service delivery (see Figure 2) are often ignored (Misselhorn & Mathebula, 2019). Mathebula (2018c) reported that residents used protests as a way to communicate their frustrations; however, these protests have often resulted in violence and destruction. For example, on the 25th of June 2018 protestors looted shops and burned down the mall in eMbalenhle. The protestors also destroyed an ATM. Some of the protestors were arrested and faced charges of public violence and theft. eMbalenhle residents are also terrorised by gangs (Mathebula, 2019b), with many having reported concerns and fears over the prevalence of gangsterism in the area. Furthermore, the township is exposed to violent crimes and gender-based violence. For example, Mathebula (2020) reported a story on a 26-year-old who was allegedly raped by her boyfriend's friend while having a knife pinned to her neck.

Figure 1

Depicting the petrochemical plant releasing emissions into the air (photo taken by Shandre Basson)

Figure 2

Residents attending a meeting to voice concerns (photo taken by Shandre Basson)

3.5.3 Participants

Qualitative research generally makes use of purposive sampling (Nieuwenhuis, 2016). Using specific inclusion or eligibility criteria, participants are purposefully chosen so that they can contribute rich insights into the phenomenon that the research is focused on (Nieuwenhuis, 2016; Ritchie & Lewis, 2003). To be included in the qualitative RYSE work, Time 1, the inclusion criteria were the following: Participants had to be between the ages of 15-24, live in the Secunda or eMbalenhle area (in Mpumalanga), be affected negatively or positively by the petrochemical industry, and be willing to speak, write and read in English to complete research activities. To be eligible for the Time 3 qualitative work, participants had to have participated in Time 1.

The recruitment was facilitated by the Community Advisory Panel (CAP) that formed part of the RYSE team. According to Creswell and Poth (2018), a CAP should consist of people who live in or are from the community and have experienced the phenomena of the particular study. Likewise, Ungar et al. (2021) stated that the RYSE CAP, “not only advised the project on the appropriateness of the research methods in each context but aided in locating young people that fit the study’s inclusion criteria, ranging from those doing better than expected to those struggling to cope in an unpredictable environment.” The RYSE study CAP comprised of six young people from the community of eMbalenhle, aged 18 to 24 years old. The CAP played an essential part in the recruitment process because they understand and know their community members (Ungar et al., 2021). At Time 1, the CAP used a flyer to advertise the criteria that participants had to fit (see Addendum A for the flyer utilised by the CAP). The RYSE team vetted interested participants’ eligibility and facilitated consent procedures. At Time 3, the CAP contacted the Time 1 participants and invited them to take part in the Time 3 round of qualitative work.

The recruitment for Time 1 yielded a total sample size of 30 participants. However, participant attrition in longitudinal studies is often unavoidable (Dareng et al., 2018). Even though the project manager and team of RYSE were in regular contact with participants to minimise participant attrition, only ten Time 1 participants were available for follow-up at Time 3. The remaining participants could not be contacted (e.g., they had relocated; their cell phone numbers had been discontinued).

Omona (2013) reported if sample sizes are too small, it would be difficult to achieve saturation but also a sample size that is too large would make it challenging to analyse qualitative data. A sample size of at least three to ten participants has been recommended in qualitative studies to reach data saturation (Clarke & Braun, 2013; Creswell & Creswell, 2018; Fugard & Potts, 2014). Data saturation is said to be reached when no new information can be added to answering a research question (Fusch & Ness, 2015). After completing the data analysis, I believed that the themes were saturated. Therefore, I considered my sample size of ten to be sufficient for my exploratory study.

In summary: For my study, five of the ten participants were girls, and five participants were boys. The ages of the participants varied between 17-23 years with the average age at twenty (see Table 2). Half (i.e., five out of ten) of the participants' mother-tongue is isiZulu and the other half included isiXhosa, Sepedi (Northern Sotho), Venda (Tshivenda) and/or English. Out of the ten participants, eight were finished with school and pursuing tertiary education/training or were employed, while the other two were still in school.

Table 2

A summary of the participants' demographics

Participants	Names	Age	Gender	Home language	School-attending	Tertiary education/ employment
1.	Gugu Precious (real name)	19	Female	isiZulu	No	Tertiary education — TUT
2.	Lwande (real name)	23	Female	isiXhosa	No	Tertiary education — Gert Sibande FET College and self-employed

3.	Thulani (real name)	22	Male	isiZulu	No	Tertiary education — O. S. S
4.	Nhlanhla (real name)	20	Male	isiZulu	Yes — KLS	N/A
5.	Thuso (real name)	20	Male	isiXhosa	No	Tertiary education — Thisbhe Grove
6.	Happy (real name)	19	Female	Venda	No	Tertiary education — UNISA
7.	Sparky (pseudonym)	17	Male	isiZulu	Yes — Thomas Mhlabathi Secondary School	N/A
8.	Minky (pseudonym)	20	Female	isiZulu	No	Tertiary education — UNISA
9.	Tshego (real name)	20	Female	Sepedi	No	Employed — Waiter
10.	Zulu (real name)	23	Male	isiZulu	No	Employed — Safety Officer

As predicted (Sharma, 2017), purposive sampling was advantageous to my research study as it provided relevant data that fit my research questions. However, because the criterion for 2019 inclusion was 2017 participation, purposeful sampling was potentially disadvantageous for my study as follow-up studies can be challenged by participants not being available for follow-up (e.g., participants may have relocated or may no longer be interested in participating) (Gustavson et al., 2012; Tenny et al., 2020). Although I experienced this disadvantage, it did not derail my study as the ten participants provided saturated data.

3.5.4 Data generation

3.5.4.1 Primary data generation

Primary data refers to the data that I co-generated in eMbalenhle during the 2019 interaction with the ten participants who were available to follow-up (Ajayi, 2017). The data generating technique I used was arts-based methods (ABMs). ABMs are creative qualitative activities that include body mapping, storytelling, draw, write and talk (Coemans & Hannes, 2017; Ebersöhn et al., 2012; Knowles & Cole, 2008). To advance insight into the consistency of the resources reported by participants, I chose to replicate the ABMs from the Time 1 qualitative data activities, namely body mapping and draw, write, and talk (as described in the subsequent sections 3.5.4.1.1 and 3.5.4.1.2). ABMs allow participants to express their experiences and insights in a meaningful manner through creatively making things themselves and then reflecting (in writing or verbally) on what they have created (Gastaldo et al., 2012). These creative techniques give adolescents the option to express themselves visually, enhancing understanding if participants are unable to communicate effectively when communication is verbal. Liebenberg and Theron (2015) encourage qualitative researchers to use ABM techniques when they are researching resilience.

Generating the data in real-time and being able to control the focus of the data by using prompts directed at understanding the resources of resilience and follow-up discussions with participants, was advantageous for my research study. It also gave me a chance to observe the participants' engagement with the activities (see Figure 3). However, generating primary data was time-consuming as we had to travel to

and from eMbalenhle (about two hours going and two hours returning to the University of Pretoria, Groenkloof Campus). It also required a lot of effort in terms of facilitating the activities, recordings (all discussions related to the ABMs were audiorecorded), and later transcribing the recordings (even though I only transcribed my group's discussions, it was time-consuming).

Figure 3

Participants engaged in the draw, write and talk activity (the participants have given written permission for their photographs to be used in this study)

Figure 4

The participants engaged in the body mapping activity (they have given written permission for their photographs to be used in this study)

3.5.4.1.1 Body mapping

Body mapping is a research method in which data can be generated and used to tell a visual story, which reflects the participant's personal experiences and the meaning attached to a particular phenomenon (Gastaldo et al., 2012). This technique comprises of three elements: a life-size body map, a brief narrative and a description of each visual element on the map (Ebersöhn, 2015; Ebersöhn, et al., 2016; Gastaldo, et al., 2012). Body mapping was a useful method as it allowed for non-verbal or visual expression which reduces the reliance on verbal or linguistic abilities of the participants (Dew et al., 2018). According to Guillemin and Drew (2010), the use of visual methods is a powerful tool that can extract individual experiences which allow researchers to view a phenomenon from a different perspective. Body mapping also draws the participant's attention to their bodies, mind and social context which encourages self-awareness and allows reflection on personal experiences (Gastaldo et al., 2012; Skop, 2016). The detail participants added to the body map helped them explain their lived experiences, and also evoked understanding of their resilience processes.

Body mapping was the first activity participants engaged with after an icebreaker that allowed us to get to know one another better. The following prompts were used to initiate the body mapping activity:

> "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 living in eMbalenhle and how it affects your well-being. It will be like a life-size photograph that you make of yourself. After this we will each decorate and write on our own body maps. Then we take turns to tell the story of our own body maps to the facilitator who will take photographs of the body maps, take notes while you tell your story, and audio record yourself 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. The story of your body map is about how living in eMbalenhle affects your well-being and especially how it affects your well-being (i) in your body, (ii) in your mind and (iii) in your heart."

At the start of the activity, participants were asked to help one another in the process of outlining their bodies on the life-size poster sheet. By choice, the young men

helped one another trace their bodies on the poster and the young women assisted one another with their outlines (see Figure 4). Once all the participants completed the outline of the body map, they were asked to provide details, in the form of words or drawings of the challenges they face living in eMbalenhle. I asked participants if they wanted to explain their body maps in a group setting or individually. All participants opted for the individual explanation. I used a voice recorder to record the discussion I had with each participant (see Figure 5).

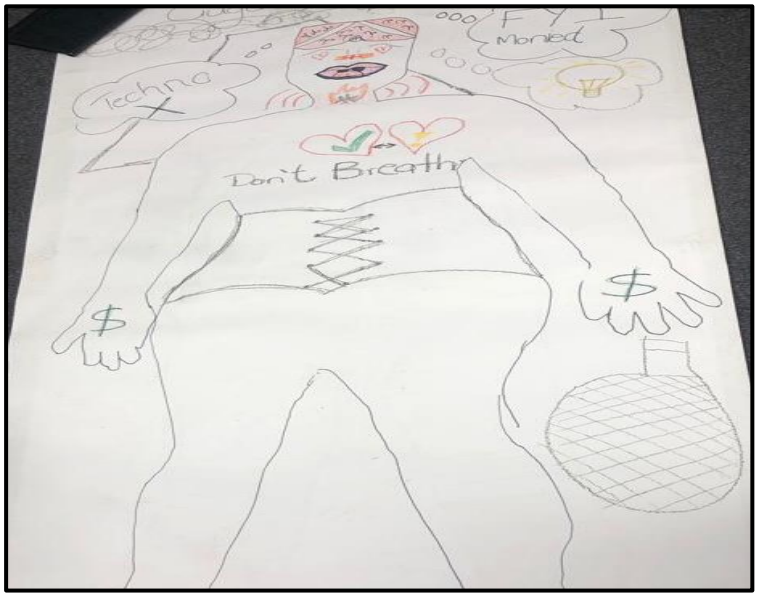
Body mapping was advantageous for my research study because it allowed for effective communication and engagement. The maps supported participants to tell their story of life in eMbalenhle (see Figure 6). During this activity, I was able to note what personal resources enabled the adolescent's resilience. For example, several participants labelled part of the head in their body map as their mind and expressed that having a positive outlook on life or a positive mindset helped them to be okay when their wellbeing was affected by living in eMbalenhle. Some of the participants expressed that they could not draw — they referred to "not being artists". Although they did all make a body map, their comments could point to a limitation in this ABM in that it prompted participant concerns about how well they could draw and whether their drawings were good enough (Gastaldo *et al*., 2012). To overcome this limitation, I reminded the adolescents that they were free to draw in any manner. It was not about how well they drew, but instead about them expressing their perspectives of how their whole body, head and heart experienced living in eMbalenhle and how it affects their wellbeing.

Figure 5

The use of a voice recorder to record participants' explanation of their body maps (photo taken by Shandre Basson)

Figure 6

A participant's complete body map (photo taken by Shandre Basson):



3.5.4.1.2 Draw, write and talk

Draw, write and talk involves participants firstly creating a drawing, secondly providing an explanation of their drawing in written form and lastly discussing their drawing and its meaning (Angell et al., 2015). This ABM is a particularly useful way of eliciting participant insights into complex or abstract phenomena (Angell, et al., 2015; Mitchell et al., 2011). In my study, it allowed the adolescents to share their insight on what supports adolescent resilience (a complex phenomenon) by representing this in a drawing and then explaining the drawing in writing, and thereafter verbally to the group.

For this activity, we shifted to the table setting where participants were given a sheet of paper with coloured pencils. The following prompt was used at the start of the activity:

> "What or who makes it possible for young people to be OK when life is hard? Take a minute and think how you would answer this question. Now make a drawing that shows your answer and write a couple of sentences to explain your drawing."

The prompt used in this activity was general (i.e., not specific to personal resources). I did so to avoid biasing responses from the participants. Once everyone had completed the activity, I used the following prompt, “Now that you have completed the activity, please share your drawing and written explanation with the group.” I left it open to any participant to volunteer to speak first. Once the first participant spoke, the conversation flowed as the participants could relate to one another’s drawings and explanations. This helped a lot because participants could build on what other participants had stated and add other rich insights based on their personal experience. Although the group would often agree with each other’s explanations, they were not shy to provide different opinions. It was also evident that the written part of this ABM had helped the participants to gather their thoughts and provide in-depth experiences. Some participants referred to what they had written more than the picture they had drawn.

The draw, write and talk technique was also useful as it alleviated potential language barriers, which occurred with one of the participants. The drawings allowed participants to express what they may not have been able to express verbally or as Dunn and Mellor (2017) stated, “some knowing’s cannot be conveyed through language” (p. 294). Still, a limitation is that the drawing without a participant-directed explanation is of little value (Mitchell et al., 2011). Trying to keep track of the rich discussion was also tricky because of the noisy venue (local community hall). Because of this, I asked the participants to place the recorder as close to their mouth as possible when speaking.

3.5.4.2 Secondary data

The secondary data that I used in my study was generated in the same way as the primary data (see Section 3.5.4.1). The secondary data set comprised of ten body maps, ten drawings and explanations, and related transcriptions that were generated by the same ten participants that I worked with in 2019. This data (and the maps, drawings, explanations, and transcriptions relating to the other twenty 2017 participants) was co-generated and used by four master’s students who were affiliated to the RYSE study in 2017. They analysed the 2017 data to answer the research questions that directed their mini-dissertations (Matlali, 2019; Pretorius,

2018; Sithole, 2019; Van Aswegen, 2019). I was granted access to the secondary data by the RYSE project manager.

3.5.5 Data analysis

Together, the primary and secondary data consisted of 20 scanned body maps, 20 scanned drawings with written explanations of these drawings, and transcripts of the related discussions.

3.5.5.1 Primary data analysis

I used inductive thematic content analysis (ITCA) to analyse the primary data. ITCA requires the identification of patterns or themes that emerge in the data (Braun & Clarke, 2006). Using thematic analysis provided a flexible way of analysing the data because it allowed me to make meaning in a structured manner by highlighting similar and different personal resources that participants reported (Nowell, *et al*., 2017). Braun and Clarke (2006; 2013) outlined six steps that make up the process of ITCA:

Step 1: Become familiar with the data

This step requires the researcher to immerse themselves in the data to become well acquainted with it. In other words, one needs to engage thoroughly with the data and get to know the data (Braun & Clarke, 2006; 2013). I achieved this by reading me and my co-researcher's transcriptions and studying the scans of the visual data. I did this many times to ensure that I was well immersed in the data. This also helped me note potential similarities in the transcriptions and visual data.

Step 2: Generate initial codes

After familiarising myself with the data, the next step was to generate appropriate codes (Feza, 2015). This means I had to develop codes relevant to the data which related to my research questions. Furthermore, I had to do so in a systematic manner across the entire data set. I created these codes by using short phrases to paraphrase the data reported or depicted visually by the participants when that data answered my research questions. Every time I found data that could potentially answer my research questions, I highlighted the data in different colours and

labelled the data using short phrases, therefore developing open codes that were paraphrased in a way that would answer my research questions. I have provided an audit trail that demonstrates some of these codes (see Addendum B). As explained by Braun and Clarke (2013) and Saldana (2016), the benefit of this coding was in its modifying of a large set of data into smaller and more manageable pieces.

Step 3: Identify and arrange similar codes (from Step 2) into potential themes

After becoming familiar with the data and generating initial or open codes, the third step involved searching for potential themes. Braun and Clarke (2006) state that a theme "captures something important about the data in relation to the research questions and represents some level of patterned response or meaning within the data set." To identify the themes required, I **scrutinised** the codes (my paraphrases) for similarities or overlaps. Braun and Clarke (2013) explain that good themes need compatible initial codes that work together. I grouped similar initial codes into potential (or candidate) themes and gave them a tentative name that summarised their shared meaning (see Addendum B). Also, to ensure consistency, I created inclusion and exclusion criteria for coded data that could be included in the potential themes (see Addendum B).

Step 4: Review the themes (from Step 3)

This step involved checking if potential themes corresponded with coded data. As part of this checking, I had to make sure that there was enough evidence to support the themes I was proposing (Braun & Clarke, 2013). During this step, it was also important to ensure that the themes were coherent and answered the research questions (Castleberry & Nolen, 2019). To support my review of the themes, I presented the candidate themes to my research supervisor and co-researcher. We had a discussion on which themes were suitable (i.e., whether they answered my research questions and/or fit the data) as well as which were not. That discussion changed some of the themes I initially formulated. For example, I presented a theme called "I am socially inclined", but after the discussion, I reformulated the theme as "I am social" as the data suggested more than just an inclination. I had also proposed a broad theme 'I am motivated', but our discussion helped me to see that this motivation was all future-focused and that a more precise theme was required.

Step 5: Name and define themes

This step required naming and defining all the themes reviewed in Step 4. I identified the core of each theme and defined the themes accordingly. I utilised my inclusion and exclusion criteria (see Addendum B) to inform this process as well as literature (e.g., Kumpfer's competencies) as examples for naming and defining the themes. Evidence of the themes I reported is detailed in Chapter 4. The themes are also illustrated through a visual diagram (see Figure 7 in Chapter 4).

Step 6: Producing the report

This is the final step of ITCA. This involved writing up the themes with examples from participants' narratives and/or visual artefacts as evidence to support the themes. This step has been detailed in Chapter 4 where I provide direct quotes from the participants to support and show evidence of the data reported for each theme (Nowell et al., 2017).

3.5.4.2 Secondary data analysis

I utilised deductive coding to make meaning of the secondary (2017) data. Deductive coding, also known as top-down coding, refers to the use of pre-existing codes or research theories that are established before one interacts with a data set to code (make sense of) the data (Crosley & Jansen, 2020; Gabriel, 2013; Stuckey, 2015; Yi, 2018). In other words, deductive codes do not come from the data that is being analysed as is the case in inductive analyses (Creswell, 2014). I used the themes that I identified in the primary (2019) data set as the pre-existing codes. This allowed me to explore the consistency of the personal resources that enabled resilience over time (i.e., in the 2017 and 2019 data sets).

I revisited (i.e., re-familiarised myself with) the four themes that I identified from the primary data using ITCA. I then searched for data excerpts in the secondary data set that matched my themes. To do so, I immersed myself in the secondary data by reading through the T1 (2017) transcripts and looking carefully at the visual data. When I found excerpts/visual content that matched the themes found in the primary (i.e., 2019) data, I labelled that portion of the secondary data with the name of the applicable theme (see Addendum C for an example).

Once this process is complete, Nieuwenhuis (2016) recommends that researchers should always go back and check the uncoded data to ensure that they have not missed information. In following this recommendation, I perused the uncoded secondary data that had not been coded during the deductive coding process to determine if the uncoded data represented personal resources that were different from/additional to those identified in my ITCA of the primary (2019) data. The uncoded secondary data did not prompt new personal resource themes because the uncoded data was about relational and structural resilience enablers. The RYSE team reviewed my deductive analysis and confirmed it.

An advantage of utilising deductive coding to analyse the secondary data was that it provided a basis to explore how well these *a priori* codes fit an earlier RYSE data set (Robert et al., 2019). In so doing, it helped me to explore the consistency of the personal resilience resources reported by a group of eMbalenhle adolescents. This allowed me to see how different or similar the personal resources in Time 1 (2017) were from those personal resources reported in Time 3 (2019). It also strengthened my understanding of the themes identified in the primary data by intensifying the clarity of the themes as I applied them as codes (Nieuwenhuis, 2016). In addition, deductive coding was less time-consuming as the codes were available for use and did not need to be developed from the data. Still, using deductive codes also has disadvantages, like the possibility of researcher bias because the researcher uses predefined codes and might be blinded by them to what else is in the data (Medelyan, 2019). To avoid that bias, I double-checked the uncoded data (as explained earlier in this section).

3.6 QUALITY CRITERIA

Lincoln and Guba (1994) suggest five facets associated with quality studies that a qualitative researcher should consider to heighten the trustworthiness of a study. These five facets include credibility, transferability, dependability, confirmability, and authenticity.

3.6.1. Credibility

Credibility is one of the salient criteria needed to establish trustworthiness in research (Maree, 2016). Credibility requires the researcher to demonstrate that the

research findings are true and accurate (Connelly, 2016). To do so, I used evidence-based research methods and a research design that complemented the purpose of my research study (see Section 3.5). Furthermore, I attended a training session with the project manager who taught us how to use the identified ABMs, probe competently, and how to clarify if we did not understand a particular response. Voice recorders were used to document the participant responses and later, these recordings were transcribed and reported verbatim. I also engaged in multiple debriefing sessions with the RYSE project manager, my research supervisor and co-researcher to filter out any research bias (i.e., we met on 3 May 2019, 16 May 2019, 30 May 2019, and 20 June 2019). Lastly, I presented my findings to the RYSE team who interrogated the credibility of each theme.

3.6.2. Transferability

According to Trochim (2020), transferability refers to how transferable (applicable) research findings are to another context or setting. One way of supporting transferability is by providing a detailed description of the study's participants and context (Korstjens & Moser, 2018; Trochim, 2020). I provided a thorough description of the participant's demographics in Section 3.5.3., which includes the participant's age, sex, and their study or employment status. I described eMbalenhle is some detail in Section 3.5.2. These sections should allow other researchers or practitioners to make an informed decision on whether the findings are transferable to their context of the adolescents they work with (Nowell et al., 2017).

3.6.3. Dependability

Dependability refers to the consistency of what is measured over time or in changing conditions (Trochim, 2020). Dependability entails keeping records of the research process (i.e., research design and methods used, how data was generated, analysed, and reported) (Korstjen & Moser, 2018). I detailed the data generation process in Section 3.5.4 and the data analysis process in Section 3.5.5. To further support dependability, I followed the recommendation of Lincoln and Guba (1985) of keeping an audit trail (see Addendum B). I also created a reflexive journal where I documented the logistics of my research study and personal reflections (see Addendum D). I also believe that replicating the ABMs used in 2017 in my work with the same participants in 2019 supported dependability.

3.6.4. Confirmability

Confirmability is used to verify that the findings link to the data, rather than the researcher's assumptions (Korstjens & Moser, 2018). To ensure confirmability, I utilised multiple methods to generate data (i.e., body mapping, draw, write and talk, discussions) and triangulated the data. Furthermore, I used direct quotations of participants' responses to illustrate a confirmable connection between the findings and the data. Lastly, I spelled out my assumptions (see 1.7) and revisited these in debriefing sessions with the RYSE team. Being transparent about one's assumptions and revisiting them heightens a study's confirmability (Creswell, 2014).

3.6.5. Authenticity

Authentic qualitative research is genuine, truthful and fairly represents the essence of the study (Johnson & Rasulova, 2017). To that end, purposive sampling (see 3.5.3) was useful because participants who had knowledge that was relevant to my study generated the data. Further, I attended multiple supervision sessions with my research supervisor and co-researcher to scrutinise that my findings represented the participants' insights. These meetings nudged me to evaluate whether I interpreted the participants' responses accurately and reported them fairly. Lastly, in Chapter 4 I did my best to represent all participants' voices (including quoting what they said or adding a copy of their drawing/body map) in order to provide an authentic account of their insights.

3.7 ETHICAL CONSIDERATIONS

Before any research is conducted, researchers need to have ethical clearance from the relevant ethics committees (Arifin, 2018). My study received ethical clearance [UP 17/05/01 Theron 19-002] from the Ethics Committee of the Faculty of Education at the University of Pretoria. As part of that clearance, I committed to conducting research that would be respectful of the participants, and beneficent to them and adolescents in communities like theirs.

The RYSE project team facilitated the initial consent process with the participants (i.e., once the research process was explained, a consent form was completed by each participant and their guardian/caregiver if participants were not yet 18; see Addendum E). I confirmed this consent when I met the participants. I appreciated

that the participants consented to the usage of photographs of them and their art-based media in the research study, thus allowing me to utilise some of the images in my mini-dissertation without blurring out their faces.

Confidentiality and anonymity could not be completely attained as the research was conducted in groups; however, this was communicated to the participants beforehand. To protect each participant's full identity, I invited them to use pseudonyms. Some participants did, while others were conformable using their real names (see Table 2). Participants were reminded that they could withdraw from the study as I explained that they were welcome to leave at any stage or decline to participate in any part of an activity. I clarified this before conducting the ABM activities. None of the participants declined or left.

Throughout the process, I treated the participants with respect and attentively listened to their experiences and opinions without any bias or favouritism. I frequently asked whether the participants were comfortable, or if they needed a short break. The RYSE project manager — an experienced counsellor — was on site for any emergency debriefing should participants become distressed by the information shared. None was needed though.

Debriefing participants about the intentions of a study form a vital part of an ethical research process (Allen, 2017). I made sure to inform the participants on why I was there and what I would do with the information they would share with me. Debriefing also serves as a reflexive tool that can be used to promote the integration of participants' experiences (Krogh et al., 2016). At the end of day, the RYSE project manager, my co-researcher and I engaged the participants in a reflection session where they could openly express how they felt about the activities, ask any questions or comment on whatever they felt they needed or wanted to. The participants did not have questions about the study. Instead, they thanked us for taking the time to engage and listen to their experiences.

The CAP advised that the participants be reimbursed modestly for their time. Reimbursing participants in research studies or clinical trials is seen as a form of compensation for the participants' time, effort and inconvenience or any expenses incurred while participating, such as travel costs (Milford et al., 2021). Nyangulu et

al. (2019) concur that reimbursing participants is important and is commonly and widely used in practice.

3.8 CONCLUSION

In Chapter 3, I reported the research methodology and process of my study. In Chapter 4 I reported the findings that emerged through the use of the methods detailed in Chapter 3. I believe the methodology was well chosen and effectively executed, given the rich findings that resulted.

CHAPTER 4

REPORTING RESULTS

4.1 INTRODUCTION

Chapter 3 discussed the research methodology that was utilised to co-generate data that informed the themes reported in this chapter. In answer to my research questions, “Which personal resources do adolescents (15-24 year olds) living in eMbalenhle, a township stressed by petrochemical pollution and structural disadvantage, report as resilience-enabling, and how consistent are these reports over time?” and sub-question, ” How similar are the personal resilience-enabling resources reported by adolescents living in eMbalenhle at two points in time (2017 and 2019)?”, four themes emerged (as summarised in Figure 7).

Figure 7

A visual summary of emergent themes in research data

The visual summary above (Figure 7) shows the interactive relationship between the four themes. The adolescents reported that thinking on the bright side, being physically healthy, having hope and being social enabled their resilience. The visual aspects of Figure 7 represent that the themes are all important (i.e., no single theme seemed to matter more for adolescent resilience than any of the others). The first theme, “I keep a positive mindset”, is represented by the pink heart in the region of

the mind. This demonstrates optimistic/positive thinking. The second theme, “I look after my body”, is represented by the adolescent sitting in a yoga-like position whilst also bearing a load in each hand. The third theme, “I look to the future”, is illustrated by the face-like image facing the written word “future”. The last theme, “I am social”, relates to adolescents being socially engaged. This is represented by the laptop which depicts social media, which can be seen as a form of communication.

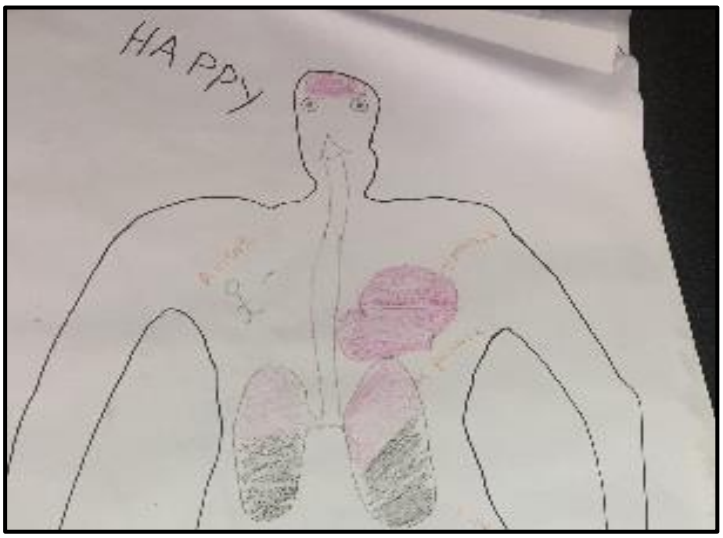
In the explanation of the themes to follow, I report the themes individually with evidence from the participants. Furthermore, these findings are linked to the literature reported in Chapter 2. The literature review reported in Chapter 2 was based on the personal enablers that Kumpfer (1999) believed supported adolescent resilience.

4.2 THEME 1: “I KEEP A POSITIVE MINDSET”

This theme refers to adolescents having an optimistic way of thinking about their present lives or themselves, which includes recognising and accepting what cannot be changed. Most of the participants (i.e., nine out of the ten adolescents) reported “I keep a positive mindset.” For example, Tshego explained that she always chooses to look on the bright side, “… I always look at the positive in each situation …” Similarly, Happy explained that she tries to keep a positive mindset in everything that she does. She went on to explain that she tries to live up to her name “Happy”. She said, “I try to be positive in everything I do (laughs). Yah, I try to follow my name … that’s why they gave me the nickname ‘Happy’.” This is illustrated in Figure 8.

Figure 8

Happy's cropped body map showing her thinking linking to her name



Like the other participants, Thulani also explicitly mentioned that his resilience related to the capacity to remain positive, even when life was hard. He said**,** "…you have to keep a positive mind, despite everything happening around you …" Furthermore, Minky expressed that the colour green in the drawing of her body map showed a "fresh mind" which she attributed to positive thinking. Minky explained, "I did mostly the drawing instead of like writing or explaining; so, starting from the top: there in my head I draw like some kind of a green thing. So that's to show, green is a positive colour so that's to show a fresh mind, a positive mind …" This is illustrated in Figure 9.

Figure 9

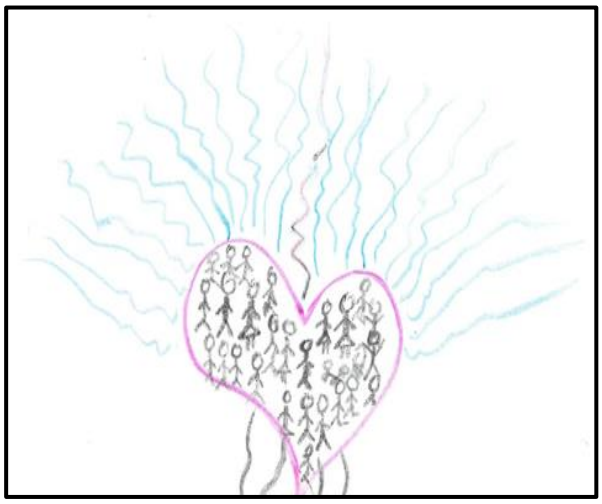
Minky's cropped body map drawing depicting her "fresh mind" with the colour green

4.2.1 "I keep a positive mindset" theme reported in the 2017 data (Time 1)

Three out of ten participants reported that they look on the bright side of life to enable their resilience. For instance, in Thuso's draw, write and talk he expressed that he is positive. He said, "… so above that is basically blue waves, which is basically positivity …" This is illustrated in Figure 10.

Figure 10

Thuso's cropped 2017 draw, write, and talk drawing illustrating the blue waves which depict positivity



Similarly, Zulu reported that thinking positively about himself enables his resilience. Zulu expressed, "I developed a sense of self-belief that though the petrochemical industries affect me, I can reach my potential." Likewise, Lwande reported that, regardless of her situation, she remains optimistic. She said, "… so personally, I am positive …"

4.2.2 Comparing Theme 1 to the literature findings in Chapter 2

The theme "I keep a positive mindset" was represented in the literature findings reported in Chapter 2. Kumpfer (1999) includes the capacity to think positively and be optimistic as part of the motivational competencies that support resilience, specifically optimism and hopefulness. Importantly, motivational competencies are also supported implicitly by how young people think (i.e., by cognitive competencies; Kumpfer, 1999). Thinking positively can enhance an individual's perception of life,

support better problem-solving skills, and protect wellbeing (Chang et al., 2019; Chui & Chan, 2020; Naseem & Khalid, 2010; Steiner-Hofbauer & Holzinge, 2020). Thinking optimistically in times of adversity is also reported as a resilience-enabler for South African adolescents (Brittian et al., 2013; Collishaw et al., 2016; Ebersöhn et al., 2017; Malindi, 2014b; Van Breda & Dickens, 2017). Three previous RYSE-associated studies (i.e., Matlali, 2019; Ncube, 2020; Pretorius, 2018) reported on keeping a positive mindset about their circumstances and themselves as a resilience enabler for adolescents living in the same environment as the adolescents in my study. For example, one participant stated, “I never say I can’t! I owe it to myself that I will do better than I did last time” (Pretorius, 2018, p. 51). Being determined was implicit in this positive thinking, as also explained by Kumpfer (1999). This was implicitly represented in my study too, as participants reported that they are purposeful about looking for positivity in adversity. However, motivational competencies include more than just thinking positively or being optimistic; they include enabling spiritual beliefs (Kumpfer, 1999; Salifu Yendork & Somhlaba, 2017). Traditional African values encourage spiritual ways of being, which include being positively oriented to the world (Asante, 2019; Theron, 2016). Still, it was not clear from participant responses to what extent their positive thinking was rooted in spirituality.

The theme “I keep a positive mindset” was reported by the adolescents at Time 1 (albeit by only three of them) and Time 2, which suggests consistency over time. Similarly, Van Breda and Dickens (2017) reported optimism over time for the 52 care-leaving participants in their longitudinal South African study. They noted that optimism over time has important implications for care-leavers because it contributes to positive future expectations. Likewise, Collishaw et al. (2016) reported findings that concur with Van Breda and Dickens (2017). In this study with 944 children and adolescents who lost their parents due to HIV/AIDS, it was reported that optimism for the future bolstered children and adolescents over time.

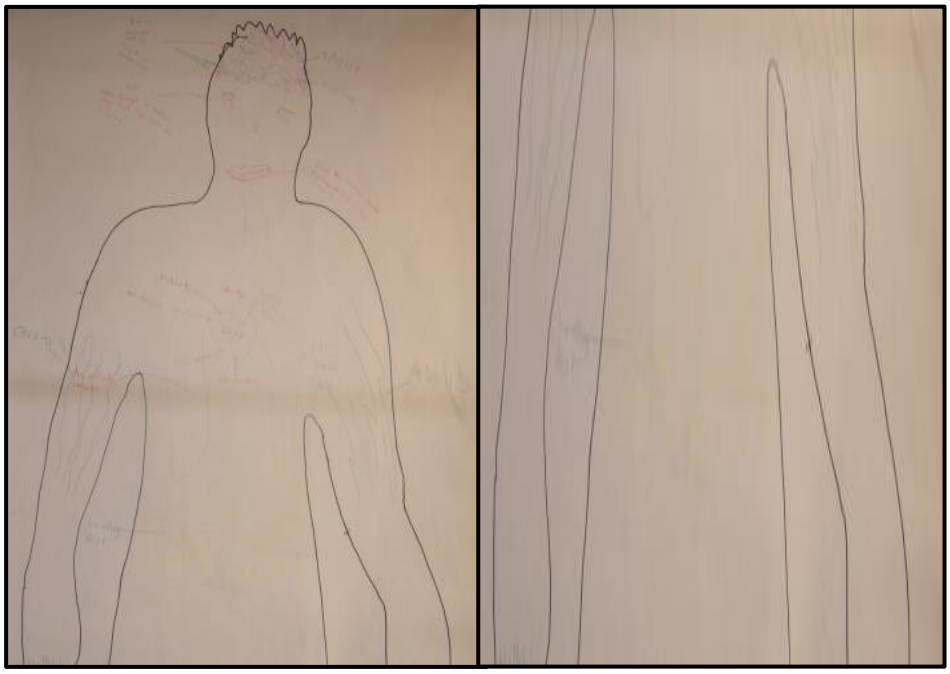
4.3 THEME 2: “I LOOK AFTER MY BODY”

This theme refers to the effort adolescents make to facilitate physical wellbeing through physical exercise, taking care to be physically attractive, and health maintenance skills. Just over half of the participants (i.e., six of the ten participants)

reported that they look after their bodies. In most instances, this included exercising, eating healthy foods and dressing well. When Nhlanhla drew his body map, he included something yellow (almost like a cabbage). When I asked him to explain what he had drawn (I did not refer to a cabbage), he responded, **"**okay [that's] about healthy diet … [laughter] … always eat healthy food, you know, diet very well, balance the equation." This is illustrated in his body map as seen in Figure 11.

Figure 11

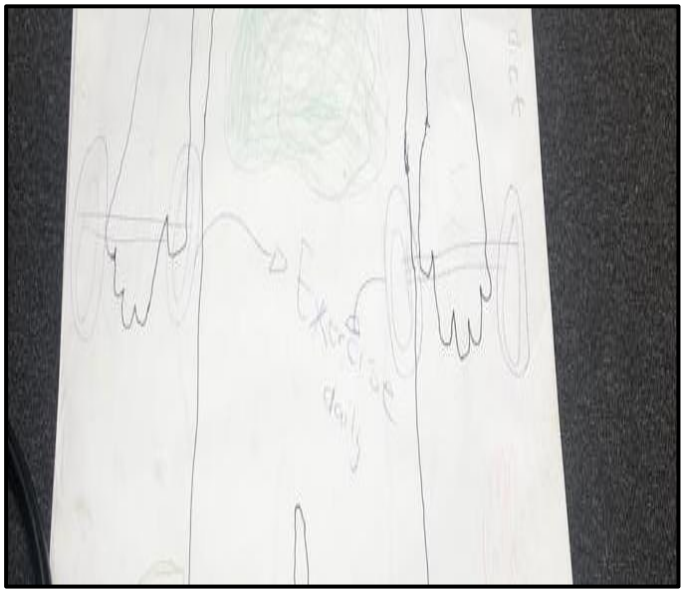
Nhlanhla's body map showing something yellow which demonstrates a healthy diet



With regards to exercise, a few participants reported jogging and/or going to a gym in their township. For example, Thulani drew weights in his hands in his body map which he referred to as exercise that kept him healthy. He said, "I exercise, [I'm] involved in sport a lot. So, it's also a way in which you can clean your system inside, a way of getting rid of all those toxins you don't need." This is depicted in Figure 12 by the weights in his hands. Zulu also expressed that exercising helps him to not become sick.

Figure 12

Thulani's cropped body map showing the weights in his hands, which symbolises exercising



Participants also took care of their physical appearance. Minky said, "It [jogging] helps me a lot because I don't want to have a big body. So, it helps me to have a nice shaped body and also to just relax. Maybe if I'm stressed and stuff, after my jogging, I just get relaxed." Likewise, Happy expressed that she tries to keep physically attractive by making herself look appealing. She said, "I love fashion; I love making myself look beautiful … sometimes it just keeps me sane …"

4.3.1 "I look after my body" theme reported in the 2017 data (Time 1)

In 2017, a few participants (i.e., three of the ten participants) reported they look after their bodies through exercise. Happiness said, "I jog, exercise". Thulani explained, "for my health I, we go to the gym … me and Simphiwe [friend], every day 6 o'clock we gym, you know, to have these sexy bodies." Similarly, Zulu said, "… So I decided that I wake up every day at 6 o'clock and go to the gym … I just wanted to be fit and I wanted to be healthy …"

4.3.2 Comparing Theme 2 to the literature findings in Chapter 2

As reported in Chapter 2, international studies (e.g., Brunet et al., 2017; Frömel et al., 2020; Kumpfer, 1999; Piercy et al., 2018; Silverman & Deuster, 2014) have

reported that being physically fit as well as taking care of their appearance fostered resilience in youth exposed to various challenges. Similarly, some South African studies (Collishaw et al., 2016; Hill et al., 2016; van Breda & Theron, 2018) attributed adolescent resilience to being healthy and having physical strength. Like the participants in my study, the street-connected participants from Durban in the study by Hills et al. (2016) appreciated opportunities to exercise and be active (e.g., surfing) and valued physical strength. Similarly, Matlali's (2019) earlier RYSE-related study with adolescents in eMbalenhle also reported the resilience-supporting value of jogging and dancing.

The theme "I look after my body" was reported by the adolescents at Time 1 (albeit by only 3 of them) and Time 2, which suggests consistency over time. This consistency corresponds with the findings of another longitudinal South African study by Collishaw et al. (2016) who conducted a study with 944 orphaned children and adolescents. They reported that being physically healthy sustained the resilience of children and adolescents over time.

4.4 THEME 3: "I LOOK TO THE FUTURE"

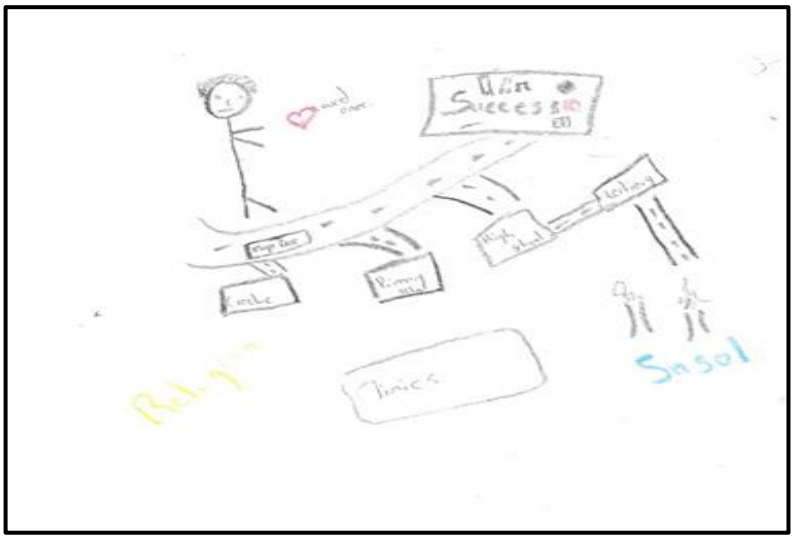
This theme refers to adolescents not being focused on the difficult present and losing hope but thinking about future plans and dreams, including job opportunities they hoped for. Just over half of the participants (i.e., six out of ten adolescents) stated that they aspire toward a better future. Finding work was central to this. As in other townships (see Chapter 2, Section 2.2), the participants commented that there were few opportunities for decent work in eMbalenhle and those accessible work opportunities were mostly Sasol-related. Also, Gugu Precious reported that their teachers and parents encouraged them to take science, technology, engineering and mathematics (STEM) subjects so that they could pursue Sasol-related careers. Some of the participants' future plans were Sasol-focused in that they expressed that they were willing to work at Sasol when they have completed their studies/relevant training (provided they could access bursaries or other funding to study/train). Furthermore, they believed that working at Sasol meant they were likely to receive lots of money and be better off in the future. For instance, Gugu Precious, "I was thinking of getting a bursary from Sasol … and then, the pockets are heavy,

obviously, because once you get educated you might get a job even at Sasol, right, so that's why the pockets are full of money."

However, in response to the limited number of jobs available at Sasol, some participants dreamt of a future that involves work elsewhere. For example, Tshego communicated that she had different ideas for her future that did not involve working at Sasol (see Figure 13). Like Tshego, Sparky developed an interest in a career field outside of being employed by Sasol. He dreams of being a scriptwriter, having discovered his talent for scriptwriting by writing plays and drama for his school. He said, "Well it [script writing] shows me that if I'm good at writing scripts; … I may just pursue a career in scriptwriting."

Figure 13

Tshego demonstrates her road to success without Sasol

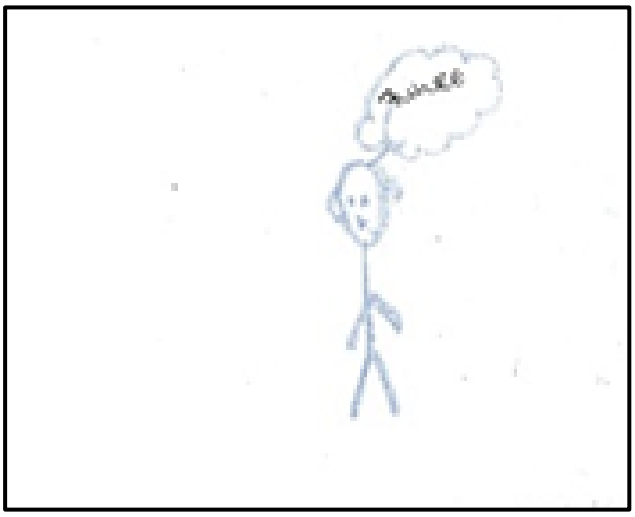


Not all the participants' future dreams were career related. Some spoke more generally about their desire for a brighter future and how that motivated them to be tenacious when their current life circumstances were challenging. For example, Thuso referred to being focused on setting small goals as a pathway to a future that was different from his difficult present. He said, "It's really pushing me to think beyond — to not think where I am right now; to kind of just think about where I could be in the next, you know, two, five, ten years …" Similarly, Figure 14 depicts Zulu's preoccupation with the future. He explained, "… my dreams and my imagination,

they go further than I can go physically and it challenges me, it inspires me and I like that a lot because it keeps me thinking about the future …"

Figure 14

Zulu's cropped drawing showing how he looks to the future



4.4.1 "I look to the future" theme reported in the 2017 data (Time 1)

In 2017, only one of the ten participants reported having career-related future aspirations. Gugu Precious expressed, "I want to have organisations here, I want to have businesses here, I want to take other people out of here." Interestingly, her future aspirations were not only potentially financially rewarding, but also enabling of others.

4.4.2 Comparing Theme 3 to the literature findings in Chapter 2

Like Theme 1 ("Keeping a positive mindset"), the theme "I look to the future" aligns with Kumpfer's (1999) theme of spiritual and motivational characteristics. Specifically, the future-orientation of Theme 3 aligns strongly with the dreams and goals aspect of Kumpfer's (1999) motivational cluster. It also aligns with Kumpfer's (1999) inclusion of a purposeful life in the cluster of motivational characteristics. Several international studies (e.g., Nourian et al. 2016; Pandya 2017; Good & Willoughby, 2008; Wright et al., 2018), as well as South African studies (e.g., Brittian et al., 2013; Collishaw et al., 2016; Ebersöhn et al., 2017; George & Moolman, 2017; Hills et al., 2016; Mohangi et al., 2011; Van Breda & Dickens, 2017; Van Breda &

Theron, 2018), concur that being future-oriented and purposeful fosters resilience in youth. For instance, Nourian et al. (2016) found that being hopeful for the future is a fundamental feature in the resilience of children impacted by HIV and related challenges. Likewise, previous RYSE-related studies with young people from eMbalenhle found future orientation and goal-directedness enabled the resilience of young people in this community (Matlali, 2019; Ncube, 2020).

A prominent source of motivation for African young people is educational aspiration (Crivello & Boyden, 2014; Eriksen & Mulugeta, 2015; Hage & Pillay, 2017; Mosavel et al., 2013) also over time (Theron & Van Rensburg, 2018). Except for isolated mention of Sasol-related bursaries and related study, such aspirations were typically not reported by the participants in my study. I assume the reason for this may be because most of the participants in my study had already completed school and some were employed. Other RYSE studies have reported how difficult it is for young people from eMbalenhle to access tertiary education opportunities (Ncube, 2020). Thus, educational aspiration was perhaps no longer salient to how they explained resilience or a dream they could not pursue.

The theme “I look to the future” was reported by the adolescents at Time 1 (albeit by only one of them) and Time 2, which indicates consistency over time. This consistency corresponds with the findings of other longitudinal South African studies such as Collishaw et al. (2016) and Van Breda and Dickens (2017). In the Collishaw *et al.* (2016) longitudinal study, they found that children and adolescents who are orphaned reported that being future-oriented enabled their resilience. Likewise, the Van Breda and Dickens (2017) study reported that positive future expectations mattered for the resilience of care-leavers.

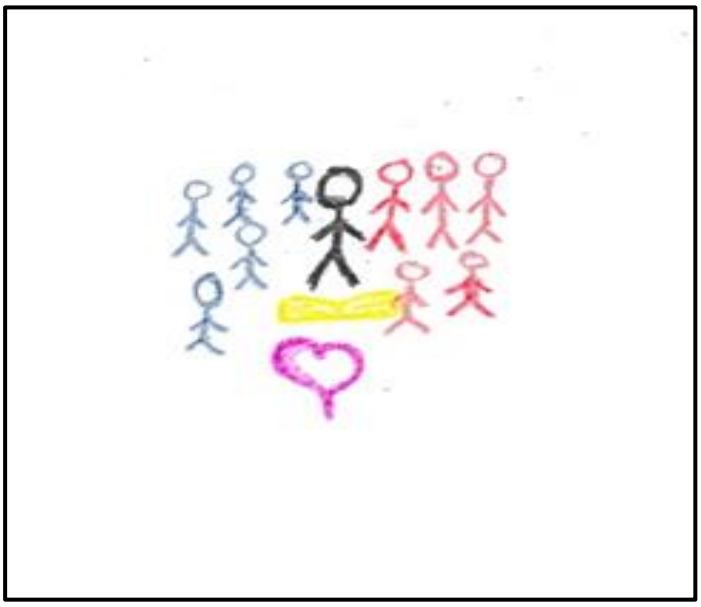
4.5 THEME 4: “I AM SOCIAL”

This theme refers to participants’ ability to connect or communicate easily with others and their enjoyment of interacting with people in or outside of their community. Half of the participants (i.e., five out of ten adolescents) reported that engaging socially with their peers and/or other people enabled their resilience. In most instances they referred to communication skills that supported their ability to be social.

Communicating with others relaxed participants. As depicted in Figure 15, Thuso expressed that having “catch-up” conversations with his friends help him to relax, particularly when life was tough. He said, “just sitting around and talking with them, finding out what they have been doing or what they have been up to, ever since the last time that we met or, yeah it basically helps me to unwind.”

Figure 15

Thuso’s cropped drawing shows how conversations with his friends help him relax



Communicating with others also helped participants to be familiar with/comfortable in their environment and process negative experiences. Gugu Precious said, “I know how to hold a conversation and I know how to talk to whoever; I guess it’s something [that helps me] to adjust to any environment.” She expanded that being social helps her to get to know different people and also helps her to feel at home in her community. Lwande reported, “… I remember [when] I failed grade 11, [with] all of my friends, instead of feeling sad that we failed, we were like yoh, we all failed and then laughed it off. So, I feel that being around people more, okay, it’s a good thing to be around people but then for me, it has never worked out for me ‘coz if I’m going through hardship and then I see someone else is going through the same things, I know [that it is] okay, like oh I’m not the only one …”

On the other hand, communicating with others also helped participants gain useful information. Thulani mentioned that he enjoys lending an ear to people. The advantage for him was in how being social gave him access to useful information (i.e., informational support). The conversation about this went as follows:

> Thulani: People tend to talk more when I listen so …
>
> Shandre: Oh, so how does that help you?
> Thulani: I get to know more things, lot of stuff, understand, I get to get different perspectives, and ja, I get to know how people think ...

Interestingly, some participants linked their capacity to be social and learn interesting and useful information to their multilingualism. For instance, Tshego distinctly said being able to speak multiple languages helps her to interact with diverse people. The conversation about this, which was facilitated by my co-researcher, went as follows:

> Co-researcher: So, they [others] can tell you all these bright things?
>
> Tshego: Ja, [Yes] I make friends everywhere I go, hence why I said being multilingual is a superpower for me. 'Cos it's easier for me to interact with different people hence I am able to have different ideas.
>
> Co-researcher: So, it's these people around you from different places that give these ideas, colourful …
>
> Tshego: [interrupting] Yes, that shows me that it's possible … maybe you'll come to me saying that you want to be a dancer. Then somebody will come to me and say that no, they want to work in the farming sector, you know. Those are … all of those are … different ideas that could lead me to living a successful life.

4.5.1 "I am social" theme reported in the 2017 data (Time 1)

In 2017, two out of ten participants reported being social enables their resilience. Zulu explained that talking with others is helpful because he realises that others face the same challenges: "I like interacting with my peers. I like interacting with the

people around me ... every day I get to speak to new people and see that I am not the only person in the situation". Similarly, Gugu Precious stated that being able to socialise with others is what makes it tolerable to live in the environment she lives in (i.e., a petrochemically polluted, resource-constrained environment), partly because she realised the challenges were shared and partly because being social helped with solutions to the challenges. She said: "So, socialising makes it OK to live in such [an] environment … we are talking about it [challenges], now we have spoken that they [challenges] are limiting us, but then there is someone who knows that, yes, it was limiting us but you can do this and this and this. You get it [the solution] from the next person."

4.5.2 Comparing Theme 4 to the literature findings in Chapter 2

The theme "I am social" relates to Kumpfer's (1999) social and behavioural skills which included problem-solving, communication competencies, and street-smarts. Several international studies (e.g., Dunne et al., 2019; Gallagher & Miller 2018; Mohammadinia et al., 2018) reported the resilience-supporting value of problem-solving skills. Some African studies (e.g., Asante, 2019; Mizen & Ofusi-Kusi, 2010) reported similar findings about social skills. What was interesting in my study was participants' reference to the helpfulness of knowing that others were similarly challenged and the value of being able to speak many languages to being social and learning information that could help them solve problems. Although these are probably obvious benefits of being social, I could not find resilience studies that report them.

The theme "I am social" was reported by the adolescents at Time 1 (albeit by only two of them) and Time 2, which suggests consistency over time. This consistency does correspond with the findings of another longitudinal South African study (i.e., Theron & Van Rensburg, 2018). In this longitudinal study with 140 township-dwelling adolescents, peer relationships — over time — were associated with relief from hardships. Some adolescents stated that being with friends helped them forget about their challenges.

4.6 CONCLUSION

In conclusion, the findings in my study show the adolescents living in the township of eMbalenhle draw on four personal resources to adjust to the various challenges posed to them by petrochemical pollution and structural disadvantage. These personal resources included keeping a positive mindset, looking after their bodies, looking to the future, and being social. These findings echoed the global literature on personal resilience enablers (e.g., Brunet et al., 2017; Chang et al., 2019; Chui & Chan, 2020; Dunne et al., 2019; Flouri et al., 2014; Frömel et al., 2020; Gallagher & Miller, 2018; Naseem & Khalid, 2010; Nourian et al., 2016; Pandya, 2017). They also fit with resilience studies from Sub-Saharan Africa (e.g., Asante, 2019; George & Moolman, 2017; Hage & Pillay, 2017; Hill et al., 2016; Matlali, 2019; Meda, 2017; Mizen & Ofusi-Kusi, 2010; Mosavel et al., 2013).

However, the context of my study — a community challenged by stressors related to township realities and the petrochemical industry — is understudied in these pre-existing studies. In other words, there is limited research on the resilience of adolescents living in such an environment, including personal resilience enablers. The only exceptions were the masters studies done by other RYSE-affiliated students (i.e., Matlali, 2019; Ncube, 2020; Pretorius, 2018). None of these studies considered personal resilience enablers over time, but I did note some overlaps between the themes I identified and these preceding studies' findings. Similarly, when comparing what the ten participants in my study reported in 2019 (Time 3) and 2017 (Time 1), I found consistencies. Other South African studies of resilience over-time have reported the consistent importance to adolescent resilience of young people keeping a positive mindset (Collishaw et al., 2016; Van Breda & Dickens, 2017); being physically well (Collishaw et al., 2016); being future-oriented (Collishaw et al., 2016; Van Breda & Dickens, 2017); and being social (Theron & Van Rensburg, 2018). Because my study confirmed these consistencies in a context that was different from these previous longitudinal studies, it makes a modest contribution to the literature on personal resources that enable the resilience of adolescents living in Sub-Saharan Africa over time.

Finally, all of the themes were reported by fewer participants at Time 1 compared to Time 3. This may relate to the adolescents' shift in thinking and focus as they mature

(Icenogle et al., 2019). Similarly, peer interactions and relationships become increasingly important in the adolescent stage of development and change how adolescents think about challenges, their future, and themselves (Orben et al., 2020). Also, young people in their twenties (like most of my participants; see Table 2) are more focused on their personal identity and strengths than younger adolescents (Arnett et al., 2014).

CHAPTER 5
CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

Chapter 5 serves as the conclusion to my study. In this chapter, I firstly revisit my research question and the extent to which my research findings answer that question. I then reflect on the research methodology I selected and the limitations of my study. I conclude the chapter by making possible recommendations for future research and for how educational psychologists in South Africa might use my findings.

5.2 QUESTIONS REVISITED AND FINDINGS DISCUSSED

Many studies report on individual resilience in the face of risk. In fact, some researchers have stated that personal resilience enablers have been the main focus of resilience studies for many years (Fleming & Ledogar, 2008; Fraser *et al.,* 1999; Van Breda, 2001; Van Breda, 2018). The research question that directed my study added to this well-researched focus by considering personal resilience enablers in a specific context of adversity over time. To that end, the questions that directed my study were the following, “Which personal resources do adolescents (15-24 year olds) living in eMbalenhle, a township stressed by petrochemical pollution and structural disadvantage, report as resilience-enabling, and how consistent are these reports over time?” and the sub-question, “How similar are the personal resilience-enabling resources reported by adolescents living in eMbalenhle at two points in time (2017 and 2019)?” In other words, my study was about the personal resources eMbalenhle adolescents reported in 2019 and how consistent they were with what they reported in 2017.

The findings of my study were generated by ten adolescents living in eMbalenhle, a township stressed by petrochemical pollution and structural disadvantage, at two points in time (2017 & 2019). These adolescents reported four personal resources, namely the capacity to look to the future, keep a positive mindset, be social, and look after their body that supported positive outcomes despite living in stressful circumstances. These findings concur with previous studies of resilience with adolescents in international contexts (Frömel et al., 2020; Kumpfer, 1999; Masten,

2018; Silverman & Deuster, 2014; Swann et al., 2017; Wright et al., 2018) and regional and national ones (e.g., Asante, 2019; Ebersöhn, 2017; Francis & Morojele, 2019; Gxubane, 2017; Mampane, 2014; Meda, 2017), including RYSE-related studies with adolescents in the stressed environment of eMbalenhle (Matlali, 2019; Ncube, 2020; Pretorius, 2018). These previous studies reported multiple personal resources that support adolescent resilience, such as intelligence, hopefulness, self-regulation, social skills, humour, physical activity, self-care, and many others that match Kumpfer's (1999) clusters of personal resilience enablers. In particular, my study's findings aligned explicitly with three of the five clusters of personal resources that Kumpfer (1999) proposed as particularly important to resilience: physical well-being (i.e., "I look after my body"); social and behavioural skills (i.e., "I am social"); and spiritual and motivational characteristics (i.e., "I look to the future" and "I keep a positive mindset"). As explained by Kumpfer (1999), cognitive competencies are implicit to social and behavioural skills as well as spiritual and motivational resources.

However, most pre-existing studies of personal resilience enablers provided little insight into the longevity of the reported personal resources, as they mostly reported cross-sectional results (i.e., personal resources that supported adolescent resilience at one point in time). My study shows that all four personal resources were reported in 2017 and 2019, thereby suggesting that they were consistent over time. Prior to my study, there were four published studies of South African child and adolescent resilience over time (i.e., Bachman DeSilva et al., 2012; Collishaw et al., 2016; Theron & Van Rensburg, 2018; Van Breda & Dickens, 2017). Although none of these studies reported all four themes that I did, each of my themes was represented in at least one of these prior studies' results: keeping a positive mindset (Collishaw et al., 2016; Van Breda & Dickens, 2017); being physically well (Collishaw et al., 2016); being future-oriented (Collishaw et al., 2016; Van Breda & Dickens, 2017); and being social (Theron & Van Rensburg, 2018).

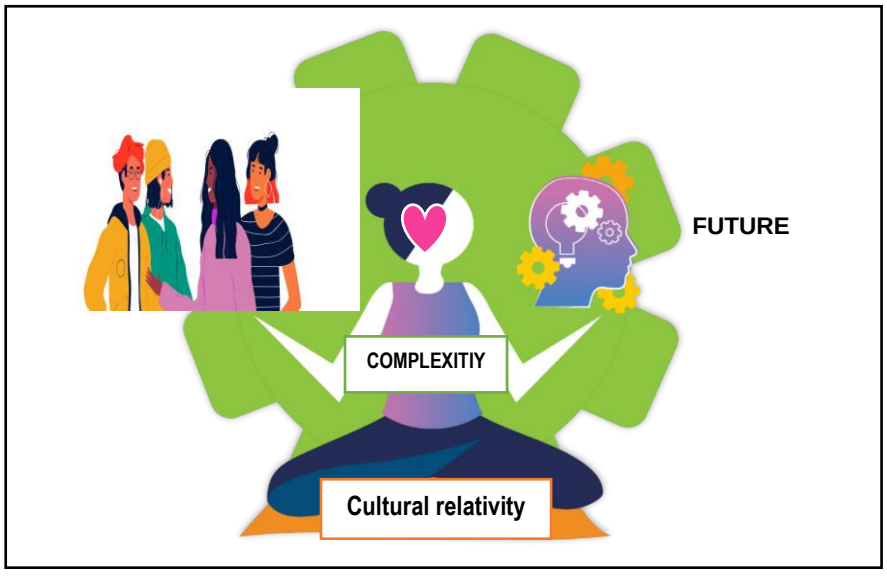
Interestingly, there was more evidence of the four personal resources in adolescents' reports of resilience enablers in 2019 compared with 2017 (i.e., although the resources were consistent over time, they were more frequently reported as time passed). This increase might relate to the adolescents being two

years older when I worked with them in 2019. Erikson (1968) explains that the adolescence stage moves towards adulthood, which means that as adolescents grow older, they become more independent and rely more on their own decision making to navigate their world (Arnett et al., 2014; Hochberg & Konner, 2020). At this stage of development, they also begin to think of the future and have aspirations they strive toward, be it educationally, physically, spiritually or mentally. These developmental changes could perhaps explain why the personal resources that I identified were reported more over time.

The Social Ecology of Resilience Theory (SERT) by Ungar (2011; 2015; 2018) guided my study because it provides a lens to how an individual's social ecology plays a prominent role in their resilience. It also informs the meaning I make of my findings (see Figure 16). In Figure 16 I illustrated the complexity principle of SERT as part of the arms that hold up the themes. I did this because the complexity principle was evident in all four themes of my study. The cultural relativity principle is represented by the orange yoga mat that the figure is seated on. The mat represents the cultural values that encourage being future-oriented and the value of social interactions. However, the two other principles of SERT, namely decentrality and atypicality, were not as well represented in my study.

Figure 16

A summary demonstration of the themes of my study and how it relates to the Social Ecology of Resilience Theory (SERT) framework which directed my study



The complexity principle stipulates that resilience factors can change over time or across contexts; what may be a resilience enabling factor at one point/in one context may differ or be more/less important at another (Ungar, 2018). This was evident in my study in the sense that more adolescents reported the themes in 2019 than in 2017. For instance, with the theme "I keep a positive mindset", nine of the ten participants reported this theme at Time 3, whereas only three participants reported it at Time 1. As theorised earlier, the increase could relate to adolescents' increasing move towards independence and self-reliance (Szwedo et al., 2017). As adolescents move towards independence and becoming more self-sufficient, they begin to change their thinking and value themselves and their personal resources and preferences as well as their social connections more (Arnett et al., 2014; Icenogle et al., 2019; Van den Toren et al., 2020). These changes may account for the increased incidence of the themes reported at Time 3: the adolescents may have become aware of their capacity to rely on and look after themselves and thus were more inclined to report the personal strengths I identified in 2019 than they were in 2017.

Cultural relativity refers to the influence or impact culture has on an individual's resilience. Panterbrick (2015) defined the term "culture" as a shared experience, expectation or perception of the world. African culture traditionally encourages values and traditions that respect social interaction and being interconnected with people in their communities (Columbus, 2014). The theme "I am social" draws on the concept of connectedness ("ubuntu"), which is an African philosophy that argues "our individual humanity is located in our relationship with others, and thus reflects the collectivist character of African cultures" (Van Breda, 2019, p. 4). Furthermore, the African tradition also values spiritual ways of being, which include being hopeful and future-oriented (Asante, 2019). Steyn et al. (2010) reported that post-apartheid changes in South Africa have encouraged black youth to feel "enabled" to improve their future and to have "a sense of connectedness to themselves and their future" (Steyn et al*.,* 2010, p.170). Therefore, African cultural values may have shaped the personal resources of being social, future-oriented and optimistic that adolescents reported. Still, as discussed earlier, being social and looking to the future is also often associated with the developmental stage of adolescence (Lindstrom et al.,

2014; Sica et al., 2015; WHO, 2020). It is therefore possible that their stage of development (i.e., adolescence) and the cultural values that African youth are encouraged to embrace could have influenced the personal strengths that my participants reported. This possibility reinforces the complexity principle I referred to earlier.

The decentrality principle is a reminder that resilience requires more than personal resources; it also requires resources that are found in relationships, communities, institutions, and the physical environment (Theron et al., 2021; Ungar, 2011). Given that the focus of my study was based on personal strengths and not resources in the familial or communal systems, the decentrality principle could not be pertinent to my study. By focusing only on the personal, I was able to develop a deeper understanding of the individual strengths that matter for the resilience of adolescents living in the stressed environment of eMbalenhle. Even though I focused on personal resources only, that does not mean that non-personal resources do not matter for adolescents' resilience. As mentioned in Chapter 1, my study forms part of the larger RYSE Project; once all the RYSE findings have been integrated the principle of decentrality will be represented. Also, even though I focused on personal strengths, I acknowledge that resources and supports outside of the individual were implicit in reports of personal strengths (e.g., being social implies that there are others that the individual could connect with; looking after their bodies implies facilities like gyms that could be accessed; etc.). In that way, even though the decentrality principle was not explicit in my findings, it was implicit.

Ungar (2011) defines "atypicality" as unconventional solutions that may work best in one community but may not be suitable for others. Atypicality was not represented in my study's findings because the adolescents did not report personal strengths that could be considered unconventional. The reason for this principle not being represented may relate to the adolescents having to provide answers in a group setting. Conducting interviews in a group setting is sometimes associated with responses that are more socially appropriate (Dilshad & Latif, 2013).

5.3 REFLEXIVITY

Reflexivity forms a fundamental part of qualitative research (Lazard & McAvoy, 2017). It is defined as a "continual process of engaging with and articulating the place of the researcher and the context of the research" (Korstjens & Morse, 2018). Engaging in reflexivity also involves understanding social and cultural influences and dynamics that have an impact on the context of the study (Haynes, 2012). According to Corlett and Mavin (2018), a qualitative researcher needs to be aware of their positionality which refers to the perspective of the researcher about the study participants concerning factors such as age, culture, gender, religion and sexual orientation (Coghlan & Brydon-Miller, 2014; Ratele, 2019). Furthermore, it is crucial to acknowledge the preconceived assumptions one brings before the research process begins and to be reflexive of one's role in the process of generating, analysing and interpreting the data.

I continually reflected on my positionality and how it would affect the process from start to finish, that is, from generating the data to analysing the data and finally reporting the findings. With that in mind, I reflected on the impact I had on the process because I had already been to the research site and had preconceived ideas of the township of eMbalenhle. I ensured that this did not cloud my mind to thinking what was reported in 2018 would be reported by this group of adolescents. Through supervision sessions, debriefing and conversations with my supervisor, the project manager and my co-researcher, they continued to remind me not to allow these assumptions to become false realities in my mind but to remain objective in the process.

I also reflected on my positionality of being a person of colour (i.e., a young, coloured woman) and how that would influence the process in terms of how the adolescents would relate to me, and also respond during the data generation process. Although I did not speak the adolescents' mother tongue, I could relate to the adolescents. Part of that relatability was facilitated by English being my second language; that created a relatable connection between us and made them open to engaging with me.

5.4 LIMITATIONS OF THIS STUDY

Reporting on limitations is an inherent part of any research study (Kinloch, 2020). Reflecting on my study allowed me to identify a number of limitations. These limitations include the following:

Firstly, the time limit of the data generation process may have been a limitation to the study. For logistical reasons, the data were generated in one afternoon which put pressure on us researchers (me and my co-researcher) to ensure that we asked rich questions and probed to get responses that fit the resilience focus of the RYSE study and our affiliated studies. Furthermore, my study explored the personal resources that adolescents from eMbalenhle reported in 2017 and 2019 (i.e., at only two points in time). However, longitudinal studies typically require three time points (Cosco et al., 2016; Ployhart & Van den Berg, 2010; Singer & Willett, 2007; Wang et al., 2017). Engaging with the adolescents over three or more time points would have provided deeper insight to the personal resources that matter over time (Calma et al., 2013; Derrington, 2019).

Secondly, as mentioned in Chapter 3 (section 3.5.3), attrition is common in longitudinal studies (Dareng et al., 2018). Therefore, experiencing attrition of over sixty percent of participants between Time 1 (2017) and Time 2 (2019), reduced the sample size I worked with and may have affected the consistency of the findings/themes reported in my study.

Thirdly, my co-researcher and I shared the data generation. She interacted with half the adolescents, and I interacted with the other half. This may have been a limitation to the study because I had no control over the data generation of that particular group. My co-researcher had mentioned that the group she facilitated provided less detailed responses when they noticed the group I facilitated completed their activities and were able to relax.

Fourthly, I did not inductively code the secondary data. Part of my reason for doing deductive analysis was to reduce the time it took to analyse the data so that my study could be completed within the prescribed time. Although deductive coding was useful to exploring the over time consistency of the themes I identified, inductive

coding might have allowed me to represent the secondary data more comprehensively (Nowell et al., 2017).

Fifthly, generating data in a group format can make individuals feel pressured to answer and "fit in" with the responses that other group members mention (Sim & Waterfield, 2019). Language barriers may also have been a limitation for the study because one of the participants struggled to articulate his answers in English. This may have limited his responses because he may have felt like he could not express himself fully as I could not speak his mother tongue to translate. Although the project manager who spoke his mother tongue was available to translate, he always tried to answer in English (possibly because the other group members were speaking in English, and he did not want to be the only one relying on a translator).

Lastly, once I had completed the data analysis and interpretation thereof, I did not return to the group of adolescents to further investigate the reasons for the increase in the numbers of adolescents reporting the personal resources that enabled their resilience at Time 3 (2019) versus Time 1 (2017). Although I theorised possible reasons for these changes, my interpretation would not be informed by the adolescents. Ideally, I should have asked the adolescents what they thought could have led to the increase.

5.5 RECOMMENDATIONS

5.5.1 Recommendations relating to future research

Longitudinal qualitative research studies about adolescent resilience are limited (Van Rensburg et al., 2015; Wöhrer et al., 2020). Thus, I would recommend continued research on the personal resources that enable an adolescent's resilience over time, particularly in an underexplored context like that of eMbalenhle. Although my study was only at two points in time, it provided some insights on the personal resources that the adolescents utilised over time. For that reason, providing reports of these personal resources at multiple time points (i.e., three or more time points) will allow researchers to better explore whether there have been changes or if the personal resources have remained the same and to use that detail to better account for adolescent resilience. It would also be advantageous for future researchers to invite adolescents to express their views on the themes that emerged at specific

time points and explore any differences that may have occurred between these themes. Allowing this would help researchers explore why some themes were reported more or less than others and what caused changes over time.

Another recommendation would be to allow for more time to be spent with the adolescents. For instance, instead of having one day to complete the data generation process, the process should be two or three days. This time frame may also allow for individual interviews to take place (Creswell, 2018). As mentioned, group settings can be effective but may also cause a sense of pressure for the adolescents to respond and conform with the group. Therefore, individual interviews (one-on-one) may allow the adolescents to express themselves more, and share even more experiences and stories (Read, 2018; Ryan et al., 2013). Language barriers are inevitable in research (Van Nes et al., 2010); therefore, I recommend that multilingual researchers or qualified interpreters should be used to translate when language barriers occur (Lee et al., 2014).

In future research, the setting of the research site needs to be considered carefully, especially when there are two or more groups (Creswell, 2013). Separating or creating distance (e.g., different venues) between groups may reduce distractions (e.g., seeing when a group of participants has completed the research activities and is relaxing) and increase groups' focus on the task at hand.

Although deductive coding is useful (Linneberg & Korsgaard, 2019), it would be interesting to see what would result from an inductive coding of the primary and secondary data sets. While I did check to see whether uncoded data in the secondary (2017) dataset pointed to personal resources that I had not identified in the 2019 data set, and while this was not the case, it is possible that inductive coding of both data sets would have yielded more nuanced findings. To that end, I recommend that future studies of resilience enablers over time code all time points' data inductively.

5.5.2 Recommendations for educational psychologists

Educational psychologists play an imperative role in supporting the resilience of adolescents (Grapin et al., 2016; Hass, 2013; Noltemeyer & Sansosti, 2012; Pillay, 2019). The recommendations provided next could therefore be potentially valuable

for educational psychologists so long as they remember the findings of my study were generated by a group of adolescents in a resource-constrained or stressed context (i.e., eMbalenhle). Because resilience is complex (Masten, 2014, Ungar, 2011), educational psychologists need to be mindful of the context of the adolescents they work with and how similar or different it is from my study before using the findings of my study to support the resilience of adolescents they work with.

Using the findings of my study, educational psychologists might want to make sure they support adolescents to develop or sustain the skills needed for being social, future-oriented, healthy and keeping a positive mindset. Furthermore, how they support adolescents to develop or sustain these skills needs to be responsive to the specific context of the adolescents they are working with. For example, if educational psychologists are working with adolescents living in a resource-constrained township like eMbalenhle, then they should be mindful of the challenges that come with living in a township that lacks resources and how that could influence personal strengths (Donald et al., 2010; Graham et al., 2018; Hoffman & Huang, 2014). For instance, being social could disable resilience in a township context where most peers had become disillusioned.

Longitudinal insights are crucial for understanding resilience enabling factors such as the personal resources that support the resilience of adolescents (Lindert & Tushcer, 2021). My study suggested that more adolescents reported personal resources as time passed. Therefore, I recommend that educational psychologists observe how the personal resources that support the resilience of the adolescents they work with, change over time. If specific personal resources are reported more frequently that could cue educational psychologists to focus on sustaining those resources. Furthermore, specific personal resources could matter less over time. Therefore, being sensitive to the complexity of resilience will allow educational psychologists to tailor their practice to benefit a specific adolescent at a given point in time (Ungar, 2019).

Arts-based methods have played a prominent role in my study. These methods have previously provided rich insights on the personal resources that help adolescents to adjust well to difficult times (Askins & Pains, 2011; Coemans & Hannes, 2017;

Cohenmiller, 2018; Dunn & Mellor, 2017; Ebersöhn 2012, Van der Vaart et al., 2018). I recommend that educational psychologists incorporate arts-based methods in their practices, especially when working with adolescents from resource-constrained communities because these methods require limited use of language. Therefore, it can be useful when engaging adolescents that are not able to express themselves verbally or when there are language barriers. Educational psychologists can use arts-based methods in the therapeutic process to identify personal strengths that can be used as personal protective resources that will buffer adolescents against risks (Chamberlain et al., 2018; Chow et al., 2019).

5.6 CONCLUSION

The findings of my study, which was of limited scope, contribute insight to what personal resources enable the resilience of adolescents living in the township of eMbalenhle over time. These personal resources included looking to the future, keeping a positive mindset, looking after their bodies, and being social. The quote, “nothing can dim the light that shines from within” (Goodreads, n.d.), by Maya Angelou, resonates with the findings of my study. Although faced with multiple challenges, the adolescents in my study had the courage to look beyond their circumstances and use their personal resources (their light within) to navigate challenging circumstances. More importantly, these resources did not “dim” over time. In fact, from 2017 to 2019, they seemed to shine more brightly given that more adolescents reported them in 2019 than in 2017). I hope that my study encourages professionals working with adolescents that are faced with adversities and also those that stem from their context (i.e., being affected by petrochemical pollution and structural disadvantage), to value the resources “within” their adolescent clients and to support them to keep those resources shining.

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Addendum A

Flyer for recruitment

Looking for volunteers

Are you:

- **15-24** years old,
- Living in **the Secunda/eMbalenhle area**, Mpumalanga,
- **affected (negatively or positively)** by the **petrochemical industry** and
- OK speaking, writing and reading **English**?

Do you want to spend time **helping researchers** learn about **what helps young people in communities affected by the petrochemical industry 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.

Addendum B

Audit Trail to Illustrate Inductive Data Analysis of Time 3 Data

Body-mapping

Extract 1

Gugu Precious: why, what makes it so unique, like, I know how to hold a conversation and I know how to talk to whoever, however, I guess it's something to adjust to any environment. Uhm I grew up in a family, they also talk a lot... you understand, so you never feel left out… coz I'm gonna talk to you one way or another so yeah…

Shandre: okay and your superpower Mr listener…

Thulani: Laughs… people tend to talk more when I listen so…

Shandre: ohh so how does that help you?

Thulani: I get to know more things, lot of stuff, understands, I get to get different perspectives, and ja, and I get to know how people think...

Extract 2

Krysten: And jogging you enjoy because…

Minky: That's when I get like a piece of mind, that's when I relax and also just going out because I'm usually inside the house so I enjoy it because that's when I'm out and I'm just not thinking about anything. Just focusing on myself because when you're jogging you're not talking to anyone you just put my headphones and just run so that's when I get to just be alone to just think.

Krysten: And how does that jogging affect your body?

Minky: It helps me a lot because I don't want to have a big body so it helps me to have a nice shaped body and also to just to just relax maybe if' I'm stressed and stuff after my jogging I just get relaxed.

Extract 3

Zulu: And then there's exercise, exercise it helps a lot with my health, even though there are fumes or there's pollution I still manage to be healthy, to live and not to be

sick because of exercise decreases my chances of being sick. So if you don't make time for your health you will be forced to make time for it so I try to make as much time as I can for my health.

Krysten: And how do you exercise? What do you do?

Zulu: I go to the gym and in my room before I sleep I do push ups and sit ups and I do some exercises before I go to work sometimes yes so…

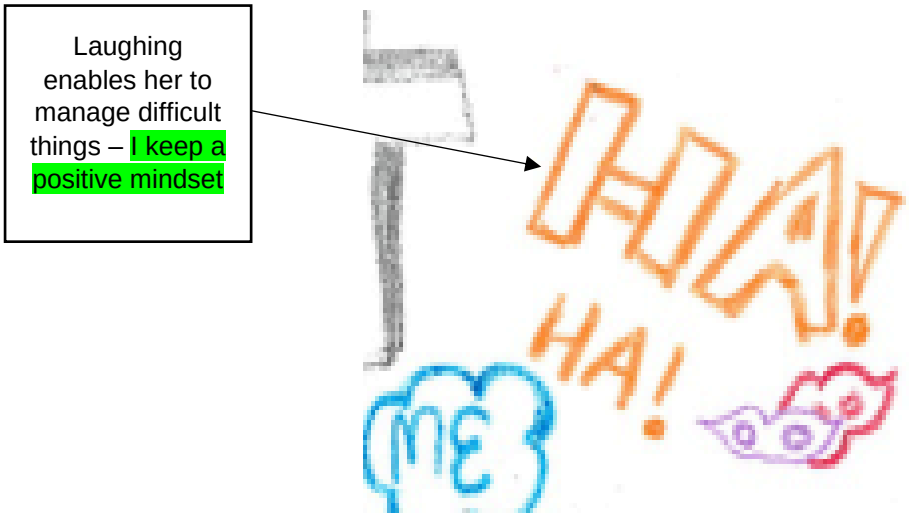
Extract 4

Thuso: That is me and I am especially fascinated by music. I love writing and love listening to it and it basically inspires me every day … what gets me going through the day is just thinking about my goals, my possibilities and what tomorrow might hold

Draw-Write-and-Talk

Figure X

Sample of inductive data analysis of visual data



Extract 1 (Parts of these interviews have been omitted for the purposes of this Addendum)

Gugu Precious: "uhm it's this one uh laughing so laughing helps like laughter is the best medicine so what it does is, whenever you make, okay here in eMba there's a lot of things that happen but we laugh about it now like okay we burnt the mall, we laugh about it now like it was hard during that time but then laughter helps you relate to it, it

helps everyone kinda join in and laugh about the difficulty and not take them so hard ja and in a way we come up with solutions you know through a good way through laughter if I can put it like that… lastly me I make things okay when you think that it's gonna be okay then it's gonna be okay you know, at some point it's your mind set so uhm if you think you're gonna make it then you gonna make it, there's nothing that can change your mind…"

Extract 2

Nhlanhla: ah it's like, okay, sometimes, okay now I'm a student so last year I repeated grade 11 so that has hurt me a lot but for me to overcome that I had to be patient wabo, study a lot wabo, just relax… laughter… and then things got better this year I'll be matriculating

Table 1

This is an example of how the extracts that appeared to answer my research question developed into open codes and axial codes.

Extracts that appeared to answer my research question	Open code	Axial code/candidate theme
I know how to hold a conversation and I know how to talk to whoever, I guess it's something [that helps me] to adjust to any environment.	Being able to talk with anybody helps her to adjust to any environment	I am social
people tend to talk more when I listen so… ohh so how does that help you? I get to know more things, lot of stuff, understands, I get to get different perspectives, and ja, and I get to know how people think...	Likes to listen to others and values the benefits of listening to others	I am social
uhm it's this one uh laughing so laughing helps like laughter is the best medicine so what it does is, whenever you make, okay here in eMba there's a lot of things that happen but we laugh about it now like okay we burnt	Humour/laughing enables her to manage difficult things	I keep a positive mindset

the mall, we laugh about it now like it was hard during that time but then laughter helps you relate to it, it helps everyone kinda join in and laugh about the difficulty and not take them so hard ja and in a way we come up with solutions you know through a good way through laughter if I can put it like that		
lastly, me I make things okay when you think that it's gonna be okay then it's gonna be okay you know, at some point, it's your mindset so uhm if you think you're gonna make it then you gonna make it, there's nothing that can change your mind	Thinking that everything will be OK helps her to be OK	I keep a positive mindset
ah it's like, okay, sometimes, okay now I'm a student so last year I repeated grade 11 so that has hurt me a lot but for me to overcome that I had to be patient wabo, study a lot wabo, just relax… laughter… and then things got better this year I'll be matriculating	Perseverance/being patient and working toward a future dream enables resilience	I look to the future
uhm what gets me going through the day is just thinking about my goals, my possibilities and what tomorrow might hold	Thinking about future goals support his resilience	I look to the future
That's when I get like a peace of mind, that's when I relax and also just going out because I'm usually inside the house so I enjoy it because that's when I'm out and I'm just not thinking about anything. Just focusing on myself because when you're jogging you're not talking to anyone you just put my headphones and just run so that's when I get to just be alone to just think. And how does that jogging affect your body? It helps me a lot because I don't want to have a big body so it helps me to	jogging helps her to manage her body shape and just to relax and gives her a chance to focus on herself	I look after body

have a nice shaped body and also to just to just relax maybe if' I'm stressed and stuff after my jogging I just get relaxed.		
there's exercise, exercise it helps a lot with my health, even though there are fumes or there's pollution I still manage to be healthy, to live and not to be sick because of exercise decreases my chances of being sick. So if you don't make time for your health you will be forced to make time for it so I try to make as much time as I can for my health.	"exercise"_ helps a lot with his health, decreases the chance of getting sick	I look after my body

Table 2

Inclusion and exclusion criteria

Candidate Theme	Inclusion Criteria	Exclusion Criteria
I keep a positive mindset	It includes any reference to data about adolescents being optimistic/hopeful about themselves or their present situation despite living in an unfavourable environment.	This does not include data about venting negative emotions and/or others modelling optimism.
I take care of my body	It includes any reference to healthy eating and physical exercise to keep in shape and healthy/well and/or grooming.	This excludes any reference to data where healthy eating/physical exercise is taken to extreme measures or becomes health-threatening (e.g., being rigid about a very restricted kilojoule count).
I look to the future	It includes any reference to the adolescents setting positive goals, being positively oriented to the future or having future aspirations.	This excludes any data that was about negative visions of the future or concerns about the future. It excludes data

		about thinking positively about the present or the past.
I am social	It includes any reference to adolescents speaking multiple languages which makes it easy for them to communicate with others, being social (e.g., talking with others) and/or enjoying interacting with others. They also have the capacity to listen to others.	This data does not include references to socialising with an educational purpose (e.g. teaching peers about safe sex). It excludes social interactions with peers who exert negative influences on adolescents.

Addendum C

Audit Trail to Illustrate Deductive Data Analysis of Time 1 Data

Body-mapping

Time 1

Extract 1

Lwande: "So, I personally I am positive by living here because we have many opportunities, er... given to us by Sasol and there's hope. You know we have a brighter future economically and as for the social part of it... Well, I am a positive person…"

Extract 2

Zulu: So, I decided that I wake up every day at 6 o'clock and go to the gym. I go to the gym twice a day in the morning and in afternoons, but it's a habit I started off lately. It's something new, so, it's something I'm doing for my body.

Draw-Write-and-Talk

Time 1

Extract 1

Thuso: "Okay um, what I have drawn … that is basically blue waves, which is basically positivity. So what this basically means for me is that although we are living near plants that actually affect us, it does not basically kill us, it does not basically stop us from thinking, it actually allows us to grow…"

Extract 2

Zulu: "…my dreams and my imagination, they go further than I can go physically and it challenges me, it inspires me and I like that a lot because it keeps me thinking about the future…"

Table 3

Demonstration of how extracts that appeared to address my research question linked with the themes I had developed.

Extracts that appear to address my research question	**Linked theme**
"So, I personally I am positive by living here because we have many opportunities, er... given to us by Sasol and there's hope. You know we have a brighter future economically and as for the social part of it... Well, I am a positive person…"	I keep a positive mindset
"…So, I decided that I wake up every day at 6 o'clock and go to the gym. I go to the gym twice a day in the morning and in afternoons, but it's a habit I started off lately. It's something new, so, it's something I'm doing for my body."	I look after my body
"…that is basically blue waves, which is basically positivity. So what this basically means for me is that although we are living near plants that actually affect us, it does not basically kill us, it does not basically stop us from thinking, it actually allows us to grow…"	I keep a positive mindset
"…my dreams and my imagination, they go further than I can go physically and it challenges me, it inspires me and I like that a lot because it keeps me thinking about the future…"	I look to the future

Addendum D

Excerpt of Researcher Diary: Data Generation

16 March 2019

Reflecting on my experience of working with a co-researcher:

I had a great experience working with Krysten (my co-researcher) because we leaned on each other for help when we were uncertain about the data generation process. I had visited the site before, so Krysten asked numerous questions on what to expect. Answering these questions as best I could, helped me to remain calm because I was nervous at the start of our journey to the site. Krysten also helped ease my nerves by providing encouraging words. She also helped me set up the venue by assisting in setting up the chairs and tables we used for the Draw-Write-and-Talk activity.

Reflection on my experience throughout the data generation process:

At the start of the drive to eMbalenhle I was a little nervous about the data generation process, I guess being nervous came from the first experience I had at the site in 2018 when very few participants showed for the day. This had made me nervous on that day because I was afraid the data would not have enough saturation to answer the research question at that time. However, after having a pep talk with myself in my mind and also expressing these concerns to my co-researcher and the project manager, I felt reassured about the process. When we arrived at the site, we waited a bit for the adolescents to arrive (yeah! All 10 came). Upon arrival, we were greeted with friendly faces, and this made me even more excited for the process. Because I was aware of the language differences, I suggested that we help one another when language difficulties arise. I also told the adolescents that English was my second language. Everyone in the group was comfortable with the suggestion and agreed that it was a good idea. After this agreement was established, I could see that everyone was more open to sharing and even added their experiences when others shared similar stories. During the activities, I noticed that most of the participants spoke about or drew how being positive or having positive thoughts encouraged them to be OK during difficult times. I enjoyed getting to know the group of adolescents and listening to their experiences on what they did to be OK in challenging situations and most of their stories were inspiring to say the least. Once the data generation was complete with

my group, I wondered what resources the 5 who were not in my group had mentioned and began thinking about what Krysten's group generated (I was worried they might not have spoken about personal resources). During our drive back from the site, Krysten and I were debriefing on our experience and she had assured me that the adolescents in her group had mentioned personal resources. This was reassuring to me and made me excited to complete the data analysis to explore what personal resources enable the group of adolescents.

Addendum E

Consent form

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Faculty of Education

PARTICIPANT INVITATION AND CONSENT FORM – Activity 2
(Young Adults)

We invite you to participate in a project called: *Patterns of Resilience among Youth in Communities that Depend on Oil and Gas Production and Those Coping with Climate Change*.

Who are we?

We are researchers from the University of Pretoria (South Africa), Dalhousie University (Canada), Royal Roads University (Canada) 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?

Broadly, we want to learn from you (and other people from the Secunda area) what makes it possible for people to be OK in life when they live in communities which are involved in the oil and gas (petrochemical) industry. We will do the same with people living in North American communities which are involved in and challenged by the petrochemical industry. We will use this information to better understand what makes it possible for people to be healthy and to feel good. We want to use this understanding to make it possible for more people who live in communities involved in the petrochemical industry to be healthy and feel good.

The Research Ethics Committee of the Faculty of Education, University of Pretoria has said it is OK for us to do this study (UP 17/05/01). 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 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, and
4. Have been affected (negatively or positively) by the petrochemical industry,
5. Were recommended as a participant for this project by someone working at Khulisa or by a member of the project's Community Advisory Panel.

What do you need to know?

Room 4-1.7, Level 4, Building
University of Pretoria, Private Bag X20
Hatfield 0028, South Africa
Tel +27 (0)12 420 1234
Fax +27 (0)12 420 5678
Email name.surname@up.ac.za
www.up.ac.za

- 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 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 participate in a research activity

Date and time	Place	Description
Date: Time:	Embalenhle Sasol Club	We will ask you (and the other young people in your group) to use an artistic activity (we will give you everything you need to do this) that will help answer the following questions: – How does the petrochemical industry affect your life? – Are young men and women affected differently and if so how? – What does it mean for a young person to be OK when the petrochemical industry affects their life in a negative way? – What/who makes it possible for young people to be OK when the petrochemical industry affects their life in a negative way? – Are there differences in what/who makes it possible for young men and women to be OK when the petrochemical industry affects their life in a negative way, and if so how?

We will ask your permission to audio record the above so that we can write down what you say. We will also use video cameras to record what you are saying and doing during the research. We will also take photos of you during the research; we will ask your permission to use your pictures in on social media and on our websites.

What do you get out of this?

We would like to offer you R100 as a token of our appreciation. At the end of this study, a copy of the findings will be made available to you if you would like to have them.

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.

Possible / Probable risks/discomforts	Strategies to minimise risk/discomfort
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 the activities on [date] in a group.	Because you will be part of a group, other 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 your group chooses to use a video-activity and this video is made public, your community and many other people will know that you participated in the study.	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.

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 the activity that you did and type what you and the other participants have 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 South African and Canadian researchers working in the project) will study the typed-up version of what you and others said. We will use the information you gave us to finalize a questionnaire that we will ask about 300 young people from the Secunda area to complete. We will also use it to write about what makes it harder and easier for young people to do well in life. We will probably quote what you said/wrote or show the drawings 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 also compare what you tell us with what we have learnt from young people living in Canadian communities which are involved in the petrochemical industry and use this comparison to better understand how young people think about health and about feeling good.

We will keep a copy of what you said 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, adolescents, climate change or communities dependent on petrochemical producing companies 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 will have access to the forms that 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 the research activities on _____

Do you have questions to ask?

- If you have questions you can email Linda Theron at Linda.theron@up.ac.za or phone her at 012 420 6211. You can also contact Mosna Khaile at 0767756180 or email her at Khaile.mosna@up.ac.za
- You can contact the chair of the Research Ethics Committee, Prof Liesel Ebersohn on (012 422 2337) 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 very much for considering our invitation!

Linda and Mosna

Declaration by participant

By signing below, I ..... [full name] agree to take part in a research study named: *Patterns of Resilience Among Youth in Communities that Depend on Oil and Gas Production and Those Coping with Climate Change.*

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 what I contribute (what I say/write/draw) 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 I may choose to leave the study at any time and that will not be a problem. I also understand that once the findings of the study are in the process of publication I cannot withdraw what I contributed to the study.
- I may be asked to leave the study before it has finished, if the researcher feels it is in my best interests.
- I agree that photos/videos of me engaging in research activities can be put up on social media and on research websites and be used in research-related publications/conference papers.

Signed at (*place*) ..... on (*date*) 2017

....

Signature of participant **Signature of witness**

You may contact me again	**Yes**	**No**
I would like a summary of findings	**Yes**	**No**

My contact details are:

Name & Surname: _____

Age: _____

Male / Female: _____

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*) 2017

.....
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*) 2017

.....
Signature of researcher

.....
Signature of witness

Addendum F

Ethical Clearance for My Study

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA
Faculty of Education

RESEARCH ETHICS COMMITTEE

CLEARANCE CERTIFICATE	CLEARANCE NUMBER: **UP 17/05/01 Theron 19-002**
DEGREE AND PROJECT	MEd Personal resources that support adolescent resilience over time
INVESTIGATOR	Ms Shandre Nazley Basson
DEPARTMENT	Educational Psychology
APPROVAL TO COMMENCE STUDY	9 May 2019
DATE OF CLEARANCE CERTIFICATE	22 September 2021

CHAIRPERSON OF ETHICS COMMITTEE: Prof Funke Omidire

CC Ms Thandi Mngomezulu
Prof Linda Theron

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

- Compliance with approved research protocol,
- No significant changes,
- Informed consent/assent,
- Adverse experience or undue risk,
- Registered title, and
- Data storage requirements.