Community support and the resilience of youth in stressed environments

by

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Declaration

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

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SIBONGILE SITHOLE

March 2019

Dedication

I dedicate this dissertation to my mother Betty Sithole, in heaven. I know you would have been proud to see my journey through but God took you early.

Acknowledgements

To have achieved this milestone in my life, I would like to express my sincere gratitude to the following people:

- My Heavenly Father, who provided me the strength, knowledge and perseverance to complete this study;
- Prof Linda Theron, my research supervisor, for her invaluable advice, guidance and inspiring motivation during difficult times during the research;
- The RYSE team, for their support and continuous encouragement;
- Editor Prof Ann Smith;
- Last, but not least to my husband, Dzivhu and sons, Ronewa, Lufuno and Rudzani, for their love, patience and unending support.

Abstract

My study forms part of a bigger project, Resilient Youth in Stressed Environments (RYSE). The purpose of this study of limited scope was to explore the community supports that enable the resilience of adolescents living in the petrochemical-affected community of eMbalenhle in Secunda, South Africa. A number of resilience studies have been conducted both locally and abroad, but none of these has focused on the resilience of youth in petrochemical-affected communities.

Since resilience is a complex process that results from individuals' interaction with their social environments, my study was grounded in the Social Ecology of Resilience Theory (SERT). As an educational psychologist, I employed a phenomenological design with 30 participants (17 males and 13 females) aged 15 to 24 who were selected through purposive sampling from eMbalenhle community. Among these participants, 10 attended school, 2 were at the tertiary educational level and 4 were employed part-time. For this qualitative study I undertook an interpretivist approach to make sense of participants' interpretations of their experience of living in a petrochemical-affected community. The data was generated by the RYSE team. A variety of arts-based /visual participatory methods (draw-talk-and-write, body theatre, and clay modelling) were used for generating data.

I analysed the secondary data by means of inductive thematic content analysis where recurring themes were identified from the data. The main themes that emerged as community supports for adolescent resilience included support from Sasol (jobs, bursaries, learnerships, housing loans etc.), having positive relations with, and drawing support from, other community members and having access to health services and education. These themes indicate that although the petrochemical industry may affect the adolescents negatively it also constitutes their biggest support. The themes also indicate the importance of the social contexts in enabling adolescent wellbeing (as the theory behind SERT suggests should be the case). Therefore, when working with vulnerable adolescents from a petrochemical-affected community, any educational psychologist needs to partner with other role players from the community.

Key Terms:

adolescents; community supports; petrochemical-affected; resilience; risk

*Sasol a South African oil and Gas Company

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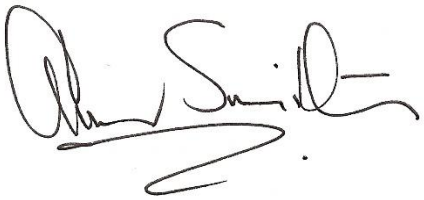

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List of abbreviations

ABBREVIATION	MEANING
ADHD	Attention Deficient Hyperactivity Disorder
CAP	Community Advisory Panel
e.g.	For example
Et al.	And others
FBO	Faith Based Organisation
HIV/AIDS	Human Immune Virus/ Acquired Immune Deficiency Syndrome
i.e.	That is
OK	Okay
NGO	Non-Governmental Organisation
RRR	Relationship-Resourced Resilience
RYSE	Resilient Youth in Stressed Environments
SA	South Africa
SERT	Social Ecological Resilience Theory
US	United States
WHO	World Health Organisation
SASOL	South Africa Synthetic Oil Liquid

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1 CHAPTER 1: INTRODUCTION

1.1 INTRODUCTION AND RATIONALE OF THE STUDY

Communities that are dependent on and/or affected by petrochemical industries are open to an array of environmental, social, physical, and mental health risks (Behera, 2015). Likely health risks include not only physical health problems (involving the lungs, heart, skin, and kidneys, and related to hypertension, cancer, diabetes, and unfavourable generative aftermaths) but also neurological diseases, along with mental and emotional disorders (Behera, 2015; Brender, Maantay, & Chakraborty, 2011; Nriagu, Udofia, Ekong, & Ebuk, 2016; Perry, 2012). Environmental risks include the undesirable effects on the natural environment like air, noise, water, and soil pollution, and climate change that result from the poisonous gases and solid waste discharged by the petrochemical industries (Okedeyi, Dube, Awofolu, & Nindi, 2014; Nriagu et al., 2016). Social risks may include drought, changed population structures, lack of security and safety, and the lack of accommodation and social services resulting from the in-migration of people from other cities or countries in search of employment (Jefferis, 2009; Perry, 2012). Despite all these challenges, many people who live in petrochemical-affected communities continue to thrive. The adjustment of people to continued stress implies resilience (Masten, 2014).

In recent years resilience has become a topic of interest globally and has been studied extensively in a variety of contexts (schools, organisations, families, and communities) (Ebersöhn, 2008; Malindi, 2014; Masten, 2011; Theron, 2016a; Ungar, 2008. However, there is very little understanding about what enables adolescents' resilience to the challenges associated with the petrochemical industry. For this reason, the RYSE study was proposed and funded. This study aims to examine the bio-psychosocial resilience of South African young people (15-24 years of age) over time and the relationship between this resilience and that of the disruptive ecological systems. Some of these disruptions, related to oil and gas production and extreme weather conditions that are associated with

climatic changes (see www.ryseproject.org), lead to positive outcomes and others to negative ones.

The RYSE study focuses on both intrinsic and extrinsic factors that enable resilience. Intrinsic factors include components within an individual such as, for example, problem solving skills, disposition, self-efficacy, and agency (Malindi & Theron, 2010; Mampane, 2014; van Breda, 2017). Extrinsic factors include those outside of the individual. These may be located in the close community like family, school, and the peer system, or in the larger community (e.g., the economy, policy and culture) (Hall & Theron, 2016; Shaik & Kauppi, 2010; Ungar, 2011). My study, a sub-study of the RYSE project, focuses in particular on community support systems reported by South African adolescents living in Secunda, Mpumalanga, in eMbalenhle township specifically, that is adjacent to a large petrochemical plant (Sasol) that produces liquid fuels, a range of chemicals, and electricity.

As mentioned previously, a vast amount of literature related to adolescent resilience in various other contexts exists and not much relates to petrochemical-affected communities. There is also much evidence that resilience is a process that is context relative (Masten, 2015; Ungar, 2011). Therefore, with this study I sought to acquire an in-depth understanding of resilience in a petrochemical-affected context. Although, results of this study may not be generalised to all other risk contexts, it has helped me gain a better understanding of the concept of resilience, to reflect on my personal life journey and also to grow as an educational psychologist in training. This knowledge has become a valuable tool in my helping adolescents to access services and other community resources that enable their resilience and also help mitigate factors that put them at risk.

1.2 PROBLEM STATEMENT

Young people are the backbone of all societies; they constitute the future, but they often suffer the consequences of decisions that were made by earlier generations as the National Youth Development Agency (2015) has made clear. Because adolescents are still developing physically, emotionally, and psychologically as well as cognitively it is vital

that all societies look into their developmental problems to help them grow up well. Families and communities need to work together with other stakeholders to address needs, provide support and guidance to the young people (Bryan & Henry, 2012). Masten (2014) observes that because children all over the world are continually exposed to a variety of adversities including political violence, disasters, and pandemics, there is a need to foster their wellbeing and resilience.

Locally, many South African young people are still marginalised and in misery due to a myriad of risks that include poverty, HIV-infection, violence, and a lack of proper housing and education, along with abuse and neglect (Pharoah, Richter, Killian, Foster & Germann, 2004). South Africa being a young democracy is still in a transitional period with endevours to reduce inequality and poverty (Ebersöhn, 2014). In sharing the South African vision to eradicate poverty and influence social change, it is important for me to elevate and support adolescents so that they can reach their potential as outlined by the National Youth Development Agency (2015). Therefore, understanding the resilience of adolescents in disadvantaged communities is a starting point. The majority-world ecologies struggle to facilitate resilience in ways that are relevant to both context and cullture (Theron, 2015) so knowledge from these earlier majority-world studies about what supports adolescent resilience might not be meaningful for African adolescents living in South African communities. In addition, even though there is a growing number of South African studies of resilience (Theron & Theron, 2010; van Rensburg, Theron, & Rothmann, 2015), none of these took place in petrochemical-affected communities, so even previous local knowledge might not be meaningful for adolescents living in such communities given that resilience is a contextually sensitive process (Masten, 2014). It is my belief, therefore, that knowledge about what enables the resilience of adolescents in the petrochemical-affected community of eMbalenhle will help facilitate the understanding and implementation of locally relevant ways of enabling adolescents to reach their potential. It will also address the gap in understanding what enables adolescent resilience to the challenges associated with the petrochemical industry.

1.3 PURPOSE OF THE STUDY

The purpose of this research study of limited scope is to explore which community supports enable the resilience of adolescents living in a community affected by the petrochemical industry, with specific focus on the South African context of eMbalenhle Township in Secunda, in the province of Mpumalanga.

1.4 RESEARCH QUESTIONS

1.4.1 Primary Research Question

To which community supports do adolescents living in a community affected by the petrochemical industry (i.e, eMbalenhle, Secunda) attribute adolescent resilience?

1.5 THEORETICAL FRAMEWORK: SOCIAL ECOLOGY OF RESILIENCE THEORY (SERT) (Ungar, 2011)

I used Ungar's (2011) Social Ecology of Resilience Theory (SERT) as the theoretical framework for my study. According to Ungar, SERT is a model for understanding the multidimensional and collaborative effects of personal and environmental factors that govern behaviour and foster health. Like Bronfenbrenner's ecological model that explores individual experiences holistically (biologically, physiologically, socially, and culturally) and that is based on the understanding that what happens in one system affects and is affected by other systems (Swart & Pettipher, 2007), SERT (Ungar, 2011) is based on Ungar's (2008, p.45) definition that "resilience encompasses both the capacity of individuals to navigate their way to the psychological, social, cultural, and physical resources that sustain their wellbeing and their capability, individually and collectively, to negotiate these resources in culturally meaningful ways". The processes of navigation and negotiation are an indication of an individual's will and determination to access and utilise the resources available to him/her (Ungar, 2011). At the same time, SERT recognises that the social ecology (e.g., families and/or communities) must make resources available to individuals to help them find support when they are navigating difficult situations. The SERT approach has been used successfully in a number of South African resilience studies (Ebersöhn, 2008; Jefferis & Theron, 2017; Mampane, 2014;

Pillay, 2012; Makoelle & Malindi, 2015; Theron & Theron, 2014) and this influenced my choice of this particular framework.

SERT (Ungar, 2011) has four principles—decentrality, complexity, atypicality, and cultural relativity.

According to Ungar (2011), resilience studies have shifted focus over the decades from viewing resilience as an individual responsibility to viewing it as a result of interactions of both the individual resources as well as the social and physical ecologies. The principle of decentrality emphasises the interactional relations between an individual and the environment and the person's tendency to use resources for purposes of positive development. Hence Masten (2014) reiterates that resilience is a joint process that results from a young person's interaction with his/her environment. SERT's recognition of the social ecology's responsibility to co-facilitate adolescent resilience fits with my focus on community supports.

The principle of complexity, however, encourages caution against generalising resilience for any two individuals. Resilience is seen as being influenced by variables such as the socio-historical period, developmental stage, gender, race, culture, or class of an individual, hence unique to everyone (Ungar, 2011, 2012; Hafejee & Theron, 2017). Masten (2008) explains that resilience results from a unique and complex relationship between and among an individual's personal (i.e., intellectual abilities, self-regulation, and agency), interpersonal abilities, and environmental factors. This principle emphasizes the importance of my study since we cannot assume that the results from the resilience studies in non-petrochemical contexts will apply to eMbalenhle.

The principle of atypicality warns against judgement when the resilience strategies used go against socially accepted behaviour and norms. It encourages acknowledgement of the difficult situation with which an individual is faced and tries to understand the atypical pattern from the individual's perspective in that particular toxic environment. An example of an atypical community-based resilience strategy reported in South African literature is that of prosocial teachers who support the adolescents both emotionally and financially

(Theron 2015). The financial support is atypical because it goes beyond what teaches are trained to do.

The principle of cultural relativity illustrates that resilience processes are not universal but are, rather, culturally subjective. In other words, cultural values and cultural traditions influence what enables resilience (Ungar, 2011). Cultural traditions including practising religion, showing respect for the elderly, and the practice of *ubuntu* have been found to foster resilience in Sesotho-speaking adolescents (Casale, 2011; Theron, 2015). Ubuntu is an African philosophy that is closely related to positive community relationships and has been known to support resilience. It emphasises good and harmonious relationships with fellow humans (Mulaudzi, 2014).

In my opinion, SERT (Ungar, 2011) is relevant for my study because of its concern with the interactions of human beings with their environments. I worked with data generated by adolescents in eMbalenhhle, Secunda, a petrochemical-affected township as mentioned above, in a bid to understand how this particular community supports the resilience of its adolescents. However, I am aware that my study taps only one dimension of the ecological system of the community. I am part of the RYSE team and other team members focus on other systems (e.g., individual and family) so, when we put all our findings together we hope to get holistic ones. Such holistic knowledge is necessary for the designing of interventions that promote wellbeing among populations who experience environments that inhibit their resilience-promoting processes (Ungar, 2011).

1.6 CONCEPT CLARIFICATION

For the purpose of this study, the concepts of resilience, adolescents, community supports, petrochemical industry; and, petrochemical-affected community are central.

1.6.1 Resilience

The concept of resilience has been defined as “the capacity of a dynamic system to adapt successfully to disturbances that threaten its functioning, viability, as well as its development” (Masten, 2014, p. 6). This adaptation results from the processes in which individuals engage to participate with their psychological, social, cultural, and physical resources to sustain their wellbeing (Ungar, 2011). The social ecology must provide these

to co-facilitate adolescent resilience. Resilience studies have shown that resilience is a concept very much dependent on context (Shaik & Kauppi, 2010). In concurrence, Van Breda (2018) defines resilience as a process that occurs within multiple social levels that humans or systems engage in to obtain better that expected outcomes in the face of adversity. Other South African resilience researchers use a similarly holistic definition (e.g., Ebersöhn, 2012, 2013; Ebersöhn & Ferreira, 2011; Malindi, 2012; Phasha, 2010; Pillay, 2012).

1.6.2 Adolescents/Adolescence

Scholars are hardly in agreement on what age constitutes adolescence or adolescents. Berk (2013) defines adolescents as young people between the ages of 11 to 18 who are developing towards adulthood. Sawyer, Azzopardi, Wickremarathne, and Patton (2018) define adolescence as the period of biological growth and social role transition . They have noted changes in children's growth patterns. For example, twenty-first-century children are reaching puberty earlier than children did in the past but there is also a delay in transitioning to adulthood because of their initial focus on their careers before assuming adult roles. Hence Sawyer et al. (2018) saw the need to adjust the adolescent age to a more inclusive 10 to 24 years. For the purposes of my research study I used the latter definition.

1.6.3 Community supports

Community supports include those services/ opportunities / processes available at community level for the benefit of the general public such as schools, police services, faith-based organisations, non-governmental organisations, health services, and recreational facilities. Community supports act as buffers and also help community residents to manage crisis and/or disasters within the community (Ebersöhn, 2008; Hall & Theron, 2016; Ungar, 2015).

1.6.4 Petrochemical industry

A petrochemical industry is an industry that is involved in oil and gas processing to produce a wide variety of chemicals for a variety of uses. Generally, the petrochemical industries use coal as an energy source resulting in excessive pollution (Cox, Irwin, Scannel, Ungar, & Bennett, 2017; Nriagu et al., 2016).

1.6.5 Petrochemical-affected community

Petrochemical-affected communities suffer a wide range of adversities related to the petrochemical industry. These industries emit poisonous chemicals that cause negative health outcomes to people and cause air, water, land, and noise pollution; and alter population and weather patterns (Behera, 2015; Cox et al., 2017; Brender et al., 2011; Nriagu et al., 2016; Perry, 2012).

1.7 ASSUMPTIONS

In this study, I assumed that

1. the participants who live in eMbalenhle, Secunda are aware of the challenges related to living in a community affected by a petrochemical industry;
2. the community has support systems and processes that help the adolescents to be resilient; and

3. adolescents know about the community resources and are able to access the resources to enable their resilience.

1.8 METHODOLOGY

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

1.8.1 Ontological and epistemological paradigm

According to Nieuwenhuis (2013, p 47) ontology concerns “beliefs about the nature of reality.” The researcher’s ontological assumptions determine how the researcher sees his/her world of research and the way he /she conducts the study. Saunders, Lewis, and Thornhill (2016), explain that epistemology concerns norms regarding knowledge including what is regarded as acceptable, valid, and genuine knowledge and how this knowledge is communicated to other people. For this study, I used the interpretive paradigm to frame my ontological and epistemological assumptions. Interpretivism purposes to gain understanding of the world as viewed by others and recognises the existence of different world interpretations by different people (Creswell, 2014). Chilisa and Kawulich (2012) note that interpretivists believe that whatever is considered reality is personal so there is no one single truth about anything, and no right or wrong values or

norms. This is because knowledge is constructed when people interact in their social contexts. The reasons for my choosing the interpretive epistemological paradigm, as well as the advantages and disadvantages of this approach are discussed in Chapter 3 (Section 3.4.1).

1.8.2 Methodological paradigm

I chose the qualitative research paradigm for this study because it enabled me to get a rich understanding of what enables adolescent resilience in communities affected by the petrochemical industry. This exploratory approach enables a researcher to observe, learn, and gain an understanding of how people define their lives as groups as well as individually from studying them in their natural context (Nieuwenhuis, 2007). The reasoning behind this choice and its advantages and disadvantages are discussed in Chapter 3 (Section 3.4.2).

1.8.3 Research design

I used a phenomenological design for this study. A phenomenological study seeks to determine the value and meaning of an experience of a specific phenomenon for people through their comprehensive descriptions of their particular experience of it (Nieuwenhuis & Smit, 2012). The reasons for my choosing the phenomenological design as my research design, as well as its advantages and disadvantages are discussed in Chapter 3 (Section 3.5.1).

1.8.4 Sampling

The sampling procedure used was purposeful sampling. Purposeful sampling is a sampling method usually used in qualitative research to help identify and choose participants with rich experience of the subject under investigation (Creswell & Clark, 2011). The reasons for my choosing the purposive as the sampling method, as well as its advantages and disadvantages are discussed in Chapter 3 (Section 3.5.2). In total, 30 participants (average age 15-24) constituted the sample for my qualitative study of limited scope.

1.8.5 Data generation and documentation

Visual participatory data collection methods were used for this study, specifically, draw, talk and write, body theatre, and clay modelling. These are all arts-based data generation

methods through which participants express their personal understanding of the phenomenon in question rather than just verbalising their experiences in an oral interview (Yonas, Burke, & Miller, 2013). My reasons behind my choice of the visual participatory method for data collection as well as the advantages and disadvantages of this method are discussed at length in Chapter 3 (Section 3.5.3).

1.8.6 Data analysis and interpretation

I conducted secondary data analysis. In other words I conducted inductive thematic content analysis of the RYSE data set generated by the RYSE team in 2017. Inductive content analysis is a systematic and reiterative process of interpreting and analysing data by grouping it together into themes (Nieuwenhuis, 2015). The reasons for my choosing the inductive thematic content analysis, as well as the advantages and disadvantages for this analytic approach are discussed in Chapter 3 (Section 3.5.4).

1.9 QUALITY CRITERIA

Lincoln and Guba (1985) noted that to establish trustworthiness in research, a variety of quality criteria must be adhered to. These criteria include credibility, dependability, transferability, conformability, and authenticity. In Chapter 3 (section 3.6) these criteria are discussed in detail.

1.10 ETHICAL CONSIDERATIONS

My study formed part of the RYSE project that received ethical clearance from the Ethics Committee, Faculty of Education (Reference number UP 17/05/01). I also received approval from the ethics committee (UP 17/05/01 Theron-002) for my part as a co-researcher. I did not join my colleagues for data collection since I was expecting my third child and the date of data collection was very close to my expected delivery date. However, I trusted them to work ethically with the participants as explained in Chapter 3 (Section 3.7).

1.11 CONCLUSION

Quite a few resilience studies have been conducted both locally and globally. However, no study has been conducted that pays attention to the resilience of South African adolescents living in a community based on a petrochemical community. In conducting this study my aim is to contribute new knowledge to help fill this gap as well as to open up new avenues for research.

2 CHAPTER 2: LITERATURE REVIEW

2.1 INTRODUCTION

It has been noted that petrochemical industries pose challenges to human beings physically, socially, mentally, and economically and have a bad impact on people's health and wellbeing (Mactaggart, McDermott, Tynan, & Gericke, 2016). Children and adolescents seem to be the groups most affected by the impacts of petrochemical industrial activities and general energy use because of factors related to their developmental stages and behaviour (Cox et al., 2017). My intention in conducting this literature review was therefore to find out what/ who in the community enables the adolescents living in a petrochemical-affected community to do well despite all the challenges encountered in their living environment. I begin by discussing risks related to living in communities dependent on oil and gas production and then move on to discuss a variety of community systems and processes that enable the resilience of adolescents living in adverse conditions.

2.2 RISKS ASSOCIATED WITH THE PETROCHEMICAL INDUSTRY

The problems related to living in a petrochemical based community do not occur independent of one another. A problem in one sphere may lead to another problem in a different one, so that what may seem like a physical risk may also cause problems socially, economically, and/or mentally. I discuss the risks separately, bearing in mind that there will be links between and among them.

2.2.1 Physical risks

Physical risks are those negative consequences posed to the natural environment and directly affect humans physically. Cox et al. (2017), according to their international study, found that petrochemical industries are associated with environmental soil, and air pollution; the fumes, smoke, dust, and liquid waste from the industries are dissipated into the atmosphere and the ground, contaminating both. They also reported on the contamination of water with poisonous chemicals, oil, and/or gas and on the harsh environmental conditions resulting from the excessive noise caused by the heavy machinery used in the industry. These conditions have been reported to have caused

sickness and death in people living in communities adjacent to petrochemical industries like eMbalenhle.

In Africa, oil and gas production constitutes an important part of national economies and this continent is not spared the vulnerabilities associated with petrochemical industries (Akani & Luiselli, 2009). According to Behera (2015), there seems to be no difference in the impact of petrochemical industries worldwide. For instance, the Niger Delta region in Nigeria is one of the biggest producers of oil and gas and tells the tale of the negative impacts of the petrochemical industry on humans and ecosystems. According to Ugor (2014), before the petrochemical industries were established in Warri (in the Niger Delta) people in the community could harvest fish for commercial purposes but lately all the fish have died since the establishment of the oil plants. This has been attributed to poisonous gases, solid waste, and waste water from the industry which have had detrimental effects (air and water pollution) on the natural environment, and on humans and animals. Ingestion of the poisonous waste exposes living organisms to health hazards, disease, and death (Uzoekwe & Oghasanine, 2011).

Lin, Beidari, and Lewis (2015) view South Africa as the most developed and industrialised country in Africa; as such it is also not spared the vulnerabilities related to petrochemical industries experienced worldwide. As Quinn et al. (2009) have pointed out, industrial emissions in South Africa have also been known to threaten human and environmental health. They reported that the retention of industrial pollutants in the soil compromise its quality. According to Beidari, Lin, and Lewis (2017) these chemicals are hardly bio-degradable, so they persist for a long time in the environment thus increasing their chances of circulating back into the food chain and subjecting both people and animals to the risk of poisoning.

Given their active lifestyles, their preference for outdoor activities, and the fact that their bodies are not yet fully developed, children and adolescents are at a much higher risk of asthma, and of respiratory and lung diseases (Cox et al., 2017). Consequently, children and youth have a much higher chance of being hospitalised compared to their counterparts residing further away from petrochemical industrial areas as Wichmann et al. (2009) have found. This same study reports that children and adolescents exposed

to chemical pollution were found to have lower lung function, and increased asthma and other respiratory problems. Similarly, in another study conducted in The Netherlands by Altug et al. (2013) environmental pollution was linked to the prevalence of rhinitis, eczema, and impaired lung function. In this same study it was noted that the children exposed to air pollution showed abnormally low levels of physical development compared to the children who were not exposed. Similarly, five studies conducted in Australia, China, Italy and America also report that living in proximity to the energy resource industries is related to the health problems of cardiopulmonary disease, lung infections, kidney disease, cardiovascular infections, hypertension, cancer, heart disease, karyolisis (destruction of the cell nucleus), and diabetes (Brender et al., 2011; Chai, He, Sha, Zhai, & Zhong, 2019; Currie, Zivin, Mullins & Neidell, 2014; Federico, Vitale, La Porta, & Saccone, 2019; Mactaggart et al., 2016). In addition, Brender et al. (2011) also reported that petro-chemical industries tend also to expose people to adverse reproductive outcomes including the birth of preterm babies, foetal deaths, spontaneous abortions, and children being born with a low birth weight.

Brender et al. (2011) have also reported that petrochemical industries release high amounts of poisonous gasses like carbon monoxide and these have been found to cause dizziness, headaches, and confusion to those exposed to them. On the same note Zierold and Sears (2015) found that pollution and heavy metal particles are not only associated with respiratory disorders but may also find their way into the blood stream and the brain, resulting in central nervous system disease.

A Cape Town (South Africa) study conducted by White et al. (2009) confirmed the above findings. This study also confirmed the association between high rates of asthma prevalence in children and the petrochemical industrial emissions. Similarly, Okedeyi et al. (2014) in another South African study report associations of petrochemical waste metals with the development of cancer, retarded growth in children, compromised immune systems, as well as the respiratory conditions noted above.

Industrial chemical spills pose a major risk to peoples' physical health and the natural ecosystems; oil spills put lives in danger of veld fires and they may also emit strong odours that affect people's health in causing them sinus, asthma, and headaches (Perry, 2012).

According to Perry (2012) an example of such an incident was experienced at the Deepwater Horizon well disaster in the Gulf of Mexico on the Macondo Prospect in April 2010, where an oil spill and explosion claimed the lives of both animals (marine) and human beings.

Africa is no stranger to such spills. For example, Akani and Luiselli (2009) report that before oil mining the Niger Delta was famous for its beauty, nature-friendliness, and a thriving ecosystem of diverse vegetation, amphibians, and reptiles. However, since the establishment of oil and gas mines the area has been characterised by continuous oil spills which have led to the destruction of the ecosystem. The oil is a health risk to the animals and plants with which it comes into contact as it causes them to die, and it is also related to regularly occurring veld fires that wipe out vegetation, animals, and their habitats. Nriagu et al. (2016) observed that the impact of oil spills is exacerbated by occasional floods that transport the oil to residential areas, farms, and dams thus contaminating homes, food, aquatic life, and drinking water. In the same study the authors report that oil spills have been linked to human health risks including watery eyes, sore throats, itchy skin, rashes on the face and neck, sneezing or coughing, nasal conjestion without a cold, nausea, and diarrhoea.

The petrochemical industry employs huge machines and trucks that are very noisy with the latter damaging roads, causing dust, an increase in traffic as well as the risk of traffic accidents (Perry, 2012). The noise may be frustrating and distressing to community dwellers as they try to live their day-to-day lives. In a study by Fernando and Cooley (2016) one community member reported being unable to make phone calls when the trucks are going by. Similarly, in an African study conducted in Nigeria, it was reported that petrochemical industries are associated with gas flares which subject residents to continuous noise, large amounts of black smoke/soot, obnoxious smells, and undying flames whose lights cause annoyance to those exposed to it (Nriagu et al., 2016).

According to Flottum, Dahl, and Rivenes (2016) during extraction and consumption of oil and gas, huge volumes of greenhouse gases are emitted into the atmosphere. These are responsible for accelerating global warming which is a threat to human life and the natural environment. Global warming is linked to climate change, increased sea surface

temperatures, and biodiversity loss (Jones & Cheung, 2015). A Tanzanian study cited by Behera (2015) supported the above points.

According to Jaars et al. (2014) there has been erratic weather/seasonal changes experienced over the years and these have been linked to global warming. Ozone, one of the gasses emitted in the petrochemical processes is known to be a problematic pollutant in South Africa with a negative impact on air quality, climate and hence food production, and global food security.

2.2.2 Mental health risks

It is important to consider the impacts of the petrochemical industries that have a negative bearing on people's psychological wellbeing. Cox et al. (2017) and Petkova, Lockie, Rolfe, and Ivanova (2009) have reported that industrial workers and their spouses and/or families suffer psychological distress and boredom resulting from isolation since petrochemical industries are often situated in remote isolated areas. Most of the industry workers are migrants who come in to work, leaving their families and friends behind. This means that they lack social support (Weber, Giegle & Barkdull, 2014). Long working hours and unsatisfied sexual needs lead to depression, family breakdown, and family violence. These factors seem to expose young people to affective disorders (i.e., depression and suicide attempts) and/or poor life style habits including smoking, and drug and alcohol abuse to which they resort as way of coping with the stressful environment (Perry, 2012).

Forsyth, Luthra, and Bankston (2007) have explained that petrochemical industries attract an influx of people (mostly males) from different towns and countries to provide labour and this has been seen to increase crime statistics, and, hence, distress and fear of crime in local people. This mistrust brews violent confrontations between the locals and the immigrants who are often blamed for the crimes, more so the unskilled labourers (Forsyth et al., 2007).

In a study conducted in Australia by Petkova et al. (2009) it was observed that in-migration is also exacebated by the fact that employment opportunities favoured those with previous mining work experience over those who had none so most of the labour force was imported into the mining town leaving out the local people. This created observable animosity, hatred, and distrust and led to clashes between and among the locals,

employed migrants, and employers. Such clashes have also been observed in South Africa; in a recent newspaper article Mathebula (2018) reported that the eMbalenhle community took to the streets in protest because migrants were given work at their expense. Mactaggart et al. (2016) further explained that the in-migration of people results in overcrowding which has a negative effect on both the physical and mental health of the local people. It puts a strain on the social services (e.g., health care, security, schools) and influences housing prices. This in turn leads to poor quality life and unmet needs which may result in poor mental health outcomes.

Violence related to petrochemical industries seems to be a common feature on the African continent. The Niger Delta seems to be a war zone characterised by corruption, lawlessness, and violent clashes between the militants from different political groups, local communities, and oil bunkers, each of them fighting for their slice of the cake, so to speak (Iwilade, 2015). In a Tanzanian study Kweka (2009) confirmed the association of petrochemical industries with armed conflict and the formation of rebel groups over competition for resources. He also observed that, in general, natural resource extraction is linked to human rights abuse; the rich tend to protect only their interests and they threaten livelihoods, and even kill whoever stands in their way. Behera (2015) observes that such harsh and unpredictable environments tend to impact people negatively in terms of their physical, mental health and productivity.

Petrochemical-affected community dwellers/ workers were not only always fearful and distressed by environmental hazards like oil pollution, pipeline explosions, and gas flares related to petrochemical industries (Nriagu et al., 2016) but also distressed due to unpredictable futures. According to Petkova et al. (2009) the mining industry activities are cyclical and characterised by the phenomenon of boom (period of high productivity) and bust (slowed-down productivity). This results in the fleeting nature of mining towns and this, in turn, leads to workers being always stressed about their uncertain future (also see 2.2.4).

Another study conducted in Sweden by Gronqvist, Nilsson, and Robling (2014) revealed that mining and petrochemical industries may expose children to lead poisoning. Exposure to lead is associated with poor cognitive skills i.e., attention deficits,

impulsiveness, and aggression and these factors are linked to criminal behaviour. Lavy, Ebeinstein, and Roth (2016) further explained that pollutants from the petrochemical industry affect blood circulation in the human body and therefore affect cognitive perfomance. Some petrochemical industries both locally (for example, Sasol) and internationally are dependant on coal mining; they convert coal into liquid fuels, so huge coal plants are situated adjacent to the petrochemical plants to facilitate the process (Hook & Aleklett, 2010; van Dyk, Keyser, & Coertzen, 2006). Coal plants are renowned for their long history of environmental unfriendliness in terms of toxic emisions, and mental health risks such as ADHD and depression (Okedeyi et al., 2014). In a study conducted in the United States in a community near a coal burning power plant, Zierold and Sears (2015) reported the prevalence of ADHD and learning difficulties in children in most of the households as a result of the arsenic, lead, and mecury in the coal ash particles floating in the air they breathe.

2.2.3 Sociocultural and psychological risks

Goldenberg, Shoveller, Koehoon, and Ostry (2010) conducted a study in Canada and observed that the boom period of the energy resource industries was associated with increased rates of sexually transmitted infections (STIs) which are blamed on nomadic tendencies by the workforce, problematic gender relations, and gender imbalances, as well as the availability of spending money. On this same note, Weber, Giegle, and Barkdull (2014), who studied North Dakota boom periods, also report in addition to the observations listed above, high rates of domestic violence and divorce resulting from social disruption with its loss of community values and norms, along with ineffective social services.

African researchers have also observed that resource industries are linked to high HIV-infection and AIDS prevalence rates (Jefferis, 2009; Kweka, 2009; Munchlinski, 2009). They have explained that these rates have to do with the lack of quality health services, widespread prostitution and alcoholism in industrial communities, and young peoples' desire for entertainment and excitement.

Moreover, the boom is also reported to have been associated with school dropout, deliquency and truancy, and child labour. Children drop out of school to work in the plants

and this robs them of an opportunity to pursue education and make a better future for themselves (Goldenberg et al., 2010; Weber et al., 2014). Child labour has also been reported in African studies; petrochemical communities are often poor with few or no other job opportunities so parents are barely able to fend for their children so they they send them to work in the industries (Munchlinski, 2009).

These petrochemical industries are known to neutralise local community culture and alter demographic patterns. The altered demographics of the community seem to lead to increased levels of antisocial behaviour, and lack of trust and unity with women often feeling unsafe (Fernando & Cooley, 2016). Luthra, Bankston, Kalich, and Forsyth (2007) have pointed out that the oil boom in Louisiana was associated with high crime rates (assault, burglary, robbery, and larceny) because the industry attracted mainly unqualified and/or less educated black and Latino adolescents who are associated with crime. Luthra et al. (2007) also observed that overpopulation, loss of stability and community ties, and inadequate policing services also serve as additional factors that increase crime in petrochemical communities.

Play is an important part of childrens' social development. However, children in petrochemical communities tend to be deprived of this important element of their lives. Zierold and Sears (2015) observed that parents residing near a coal ash storage site tended to keep them indoors as a way of protecting them from exposure to the pollution that affected their swimming pools and playgrounds.

2.2.4 Socioeconomic risks

Socioeconomic risks are the consequences related to the petrochemical industry that hinder the capacity of people to flourish by restricting opportunities to engage positively with family and friends, and also to earn a living (World Health Organisation, 2012).

While the oil boom in Canada generated positive impacts, a number of negative consequences were generated as well (Fernando and Cooley, 2016). A number of researchers including Behera (2015); Fernando and Cooley (2016); and Goldenberg et al. (2010) observe that industrial workers are well remunerated to compensate for the bad working conditions. However, this seems to be linked to more harm than good. High petrochemical industry salaries are linked to a higher cost of living in these petrochemical

communities and this has had detrimental effects on those not employed by the petrochemical industry. According to Fernando and Cooley (2016) and Perry (2012) due to the wage disparity non industry workers (e.g., teachers, police, health personnel) have had to out-migrate from these communities or leave their professional jobs and to take up menial better paying jobs in the petrochemical industry; further compromising the accessibility and quality of social services.

On the other hand, those unable to out-migrate or secure better paying employment in the industry (including the elderly) have had to settle for poor quality lives i.e., crowd together in small houses, stay homeless, or be forced to use abandoned sub-standard housing without water and lights (Fernando & Cooley, 2016; Weber et al., 2014). Some have had to use vehicles as accommodation or live in temporary shelters called man camps that do not have proper sanitation. Efforts to provide adequate housing have not been a profitable investment because after a boom there is a bust and people move away again (Weber et al., 2014).

Another observation made by Behera (2015) in an Indian study is that the petrochemical industries' preference for male employees over female has led to marginalisation of women which has hampered their economic progress. In Africa, particularly in Nigeria and Tanzania, it has been noted that this marginalisation and alienation seems to be not limited to females; local community members often feel marginalised from benefiting from the local resources. Local communities remain poor and undeveloped yet their production enriches people from outside (Kweka, 2009; Ugor, 2013).

Munchlinski (2009) realised that in a resource rich community there tends to be a dividing line between the rich and the poor. Those who own land get huge amounts of compensation money and this blinds them to the ills of the industry so they tend to support the industry at the expense of the other residents. This creates enmity and lack of trust among people who have lived together well for a long time. In addition, the compensation or resource rents paid out to the land owners tend to create in people a dependency on the industry and they lose motivation to invest in other businesses. This impacts negatively on the adolescents because the only employment they can look out for will be industry-related yet often these industries do not last a lifetime (Munchlinski, 2009).

According to Iwilade (2015) although the Niger Delta is the biggest producer of oil in West Africa and contributed about 80% to the national economy, the local community seems to benefit very little from this resource. The area is characterised by a total lack of community resources and social services. Local people suffer inequalities, are marginalised, alienated, and disempowered by those in power and remain in poverty as oil production goes on to hinder indigenous economic activities (Iwilade, 2015). This has also been observed in Botswana where the resource industry is run by a transnational corporation. Jefferis (2009) confirms that the impact on employment for locals at the resource industry is minimal because some of the labour force is imported from the investing nations.

Two studies, one in The Netherlands and the other in India, reported that petrochemical industries caused disputes over land, displaced farmers from their agricultural lands, destroyed the quality of soil and water which led, in turn, to poor crop production, a reduction in the number of cattle and other animals reared by farmers. This compromised the livelihood of these farmers who end up with no survival options (Perry, 2012; Behera, 2015). These risks seemed to have a bearing on the overall nutrition for people in the country since it influenced the quality and quantity of food produced, affected the food supply, and led, therefore, to an increase in food prices (Perry, 2012).

2.3 HOW COMMUNITIES ENABLE RESILIENCE

Many adolescents all over the world experience some form of adversity that could either be occasional or chronic (e.g. poverty, abuse, sickness). Some adjust positively while others succumb; how they adjust depends on the resilience-enabling factors available to them (Ungar, 2012). According to Deater-Deckard, Ivy, and Smith (2005) children are neither born resilient nor have their resilience shaped solely by experience. However, both genetic and environmental factors contribute to a large extent to the healthy development of the children. Environmental factors include all factors available in the surroundings of the child starting from the home environment and extending to the neighbourhood and beyond. Environmental factors seem to be of more importance since they can be used to reduce the impact of genetic risks while the opposite may not be

possible (Deater-Deckard et al., 2005). Ungar (2013) postulates that the social environment or community holds more responsibility in enabling resilience than the individual him/herself. It is therefore important that communities be equipped with resources, supports, or structures for enabling the resilience of young people to aid their optimal development.

2.3.1 Definition of Community

The concept of community has been defined as encompassing more than just being geographically located together so as to include one's feeling of belongingness, the ability to exert influence on one's surroundings, being fulfilled in the group, and enjoying emotional connectivity resulting from shared experiences (McMillan & Chavis, 1986; Reber, Allen, & Reber, 2009). Mkhize (2006) brought out an important dimension in his definition of the same concept from an African perspective. He said that the concept of community is an important part of an individual's reality and personal identity, which includes a close relationship among both the living and the dead. My understanding of community is guided by these scholars.

In the next section I explore different processes, structures, and resources in communities that work to enable resilience. However, none of these resilience enablers were specific to adolescents living in petrochemical affected communities in South Africa. I am also aware that communities may be the cause themselves of survival risks to their dwellers, but I will focus only on how the communities enable resilience.

2.3.2 Community resources

Community resources that enable resilience include structures and institutions, and practices (enacted by community members) that are available, provided, and shared within a locality. According to Ebersöhn (2008) community practices include promoting children's rights, adolescents' mentoring programmes, safety campaigns, a discipline system that is viewed as fair to the child, and support programmes for at-risk children. Protective community structures and institutions include physical resources such as churches, police services, schools, libraries, and adolescents' centres (Ebersöhn, Nel & Loots, 2017; Malindi, 2014; Mampane, 2014). Significant people (role models, elders who offer advice, counsellors, teachers, etc.) who enable the resilience of adolescents have

also been considered a valuable community resource (Small & Memmo, 2004; Theron & Theron, 2010).

2.3.2.1 Community structures and institutions

a) Access to medical care

According to Reif et al. (2014), a study on coping with the HIV and AIDS pandemic conducted in the United States of America revealed that the nation's Southern states (Alabama, Georgia, and Florida) were characterised by poverty and the worst health outcomes including high mortality rates, diabetes, and heart disease. However, despite being infected or affected by illness, some people seemed to have better health outcomes than others. Those who had unlimited access to health care facilities seemed to cope better and lived longer than those who did not. In another study conducted in a petrochemical community with a high prevalence of asthma and respiratory infections in children and adolescents, Wichmann et al. (2009) found that there was constant need for medical care and hospitalisation for those who fell sick.

Likewise, Casale (2011) and Casale, Drimmie, Quinlan, and Ziervogel (2010) conducted a study in three Southern African vulnerable communities (two in South Africa and one in Malawi), where people experienced poverty and bouts of ill-health including HIV and AIDS, bilharzia, malaria, and tuberculosis. They noted that people tended to seek health advice from both western and traditional doctors; this was related to their general belief that diseases have multiple causes (i.e., genetic ones, those associated with witchcraft and ancestors, as well as external factors). In addition to visits to local clinics, hospitals, and local traditional healers, people also used their knowledge of home therapies to treat different ailments (Casale et al., 2010).

b) Schools

According to Masten (2014) the school constitutes an important resilience-enabling social environment for adolescents. Currie et al. (2010) suggested that what happens in the school is very important for the development of children's self-esteem, self-perception, identity formation, and healthy behaviours. It is believed that those adolescents who

experience school in a positive light are highly likely to engage in healthy behaviour, have higher levels of life satisfaction, and, therefore, better health outcomes.

In a study conducted on Southeast Asian immigrant adolescents in Canada, Hilario, Vo, Johnson, and Saewyc (2014) noted that immigrant adolescents and their families are faced with difficulties in their efforts to settle in their host countries. The problems they faced included underemployment, difficulties securing housing, and general poverty; these problems exposed the immigrants to mental distress. They observed that adolescent girls who coped better were those who had school connectedness in addition to family connectedness. American studies by Cunningham and Swanson (2010), Lee and Cunningham (2019), and Williams and Mohammed (2009) report that black American adolescents exposed to racial discrimination are highly susceptible to negative developmental consequences. However, the former studies reported that some of the adolescents did better than expected and part of the positive adjustment was attributed to the school institution- the feelings of belonging and encouragement by teachers. The adolescents felt that it gave them a sense of hope and a platform to engage in enjoyable activities that heightened their sense of self-worth. According to these scholars the adolescents felt that the school enabled their resilience when parents and the community co-operated together with the school to address their educational needs. Land, Mixon, Butcher, and Harris (2014) also noted that a positive reputation at school and having school and teacher support facilitated success for African-American adolescents.

In the Gaza strip where children are exposed to war and violence, it has been noted that a school-based narrative program which involves the use of story activities with children, such as telling personal stories and folk tales, yielded positive results in helping them cope with their traumatic environment (Veronese & Barola, 2018). This school programme has helped children become aware of their survival skills, and it has engendered hope and better life satisfaction.

In South Africa, schools have also been found to be positively associated with adolescent resilience (Ebersöhn, 2008; Malindi & Machenjedze, 2012; Mampane, 2014; Theron & Malindi, 2010; Theron & Theron, 2010; van Breda, 2017). A number of characteristics of schools have been investigated and found to be positively linked to wellbeing. These

include teachers who provide psychological and psychosocial support whilst instilling hope for a better future in learners (Jefferis & Theron, 2017; Phasha, 2010); prosocial teachers (Theron, 2015); learning environments that are stimulating and that have high cognitive demands (Spaull, 2015; Theron, 2016b); safety, access to material resources; participation in learning and co-curricular activities; and having goals (Ebersöhn, 2008; Mampane & Bouwer, 2011; Ungar, Connelly, Liebenberg, & Theron, 2017); supportive and nurturing school environments with clear enforced rules (Mampane, 2014); and experiencing positive relationships with peers as well as being able to achieve a sense of control over their schoolwork (Ungar et al., 2017).

In another South African study, conducted by Ebersöhn and Ferreira (2011), school teachers took the initiative of forming partnerships and collaborations with other stakeholders i.e., NGOs, businesses, community organisations, the government, children, and parents to be able to source the support they needed. Through these partnerships schools were able to provide food, after-care services, library services, school uniforms, and food parcels. School vegetable gardens are a growing initiative in South African schools and these have been seen to improve the children's nutrition in the face of poverty and HIV and AIDS (Ebersöhn & Ferreira, 2011; Ebersöhn, 2013). International literature supports school gardens as useful tools to enhance health and wellbeing in children. Morgan et al. (2010) revealed that insufficient vegetable and fruit intake is associated with a number of chronic diseases including diabetes, obesity, heart disease, and cancer, so the establishment and use of gardens in schools has the positive effect of facilitating vegetable intake for children, increasing their preference for vegetables and fruits, as well as equiping them with the important life skills of food production for their families.

c) Religion/ Faith-based organisations

Churches and faith-based organisations play an indispensable role in serving vulnerable members of society, strengthening families, as well as rebuilding communities (Barry, Sutherland, & Harris, 2006). According to Cook (2000), churches offer and promote health education, emotional and social support, they enhance belonging and connectedness, and influence community values. In this study, the black American adolescents

acknowledged the presence of mentors in church who help them to develop self-regulatory skills, shape their identity, instil in them standard acceptable behaviour, solve dilemmas, and handle stress. In another American study Ball (2003) reported that belonging to a church organisation, which the adolescents attended regularly, was associated with stability in life, abstinence from sexual activities and drugs, high self-esteem, and positive psychological adjustment. This is because the church influences how the adolescents spend their time.

Religion is viewed by Brittian, Lewin, and Norris (2013) as an act of expressing one's spirituality and is, in Southern Africa, characterised by an integration of both African traditional rituals and Christianity. Similarly, South African literature on resilience supports the contribution of faith-based organisations and/or religion in shaping the wellbeing of adolescents. Brittian et al. (2015); Phasha (2010); Theron, (2015); Theron and Hall (2016) reported that South African a dolescents who exercised faith, prayed, read the Bible and/or worshipped seemed to cope better with adversity than those who did not. These same studies have reported that the adolescents also said that they felt protected, had tolerance of hardships, and general positivity about their future when they called on and believed in a Higher Power. The faith-based organisations also gave social and financial support to their needy members. Theron (2015) reported that Sesotho-speaking rural adolescents believed that ancestral spirits took care of their needs, so they performed rituals to appease the spirits and believed that all would be well again. Casale (2011) noted that African people believe that sicknesses have many causes, one of which is ancestral wrath so ceremonies to appease the ancestors helped the sick to heal.

d) Non-governmental organisations (NGOs)

NGOs constitute an important source of aid especially in high disaster areas or emergency situations such as floods, disease outbreaks, hurricanes, and tsunamis (Adger et al., 2005). In such cases NGOs in partnership with social services i.e., the police, the fire brigade, and health services have been known to respond in good time to support communities to recover from disasters (Islam & Walkerden, 2015). Adger et al. (2005) grouped NGOs into three categories—locally formed NGOs, national NGOs, and

international NGOs—of which the local and the national are involved mostly in recovery work and relief by offering emergency sanitation, shelter, and health services. A study conducted in Bangladesh revealed that households who received emotional support and emergency relief services had better recovery outcomes than those who did not. NGOs are successful when they are free of corruption and build a relationship of trust with people in the community and even more so when they empower people rather than instil dependency (Adger et al., 2005).

Similarly, the role of NGOs has also been noted in South African communities. NGOs have responded to emergencies and crises like HIV and AIDS, and floods and drought to give relief (Burchardt, 2013; Cluver, 2016; Ebersöhn & Ferreira, 2011). For example, with the recent water crisis in the Western Cape, Sonandzi (2018) reported that the NGO, The Gift of the Givers, embarked on a programme to supply residents with clean bottled water to help alleviate the results of the drought experienced in the province.

e) Community vegetable gardens

Changing climatic conditions of the twenty-first century have left communities poverty stricken because of drought and lowered food production (Elasha, Elhassan, Ahmed, & Zakieldin, 2005). Vegetable gardens have been found to be an effective way to rehabilitate farmlands, increase food production in drought-prone areas, and reduce poverty in communities globally. Tidball and Kransy (2007) view making and maintaining gardens as a way of communities to self-organise, adapt, and manage their own resources that lead to long term resilience. Barry, Sutherland and Harris (2006) comment that vegetable gardens have been used as a traditional way of curbing poverty in both rural and urban areas internationally as well as in Africa. In an American study Litt et al., (2011) noted that community gardens provided healthy, fresh food for the community; which is linked to positive health outcomes. They also reported that the gardens also aesthetically enhanced the beauty of the environment and that this was associated with low stress and anxiety levels and general feelings of happiness, social involvement, and participation. In North America refugees who had suffered trauma and were unable to find jobs seemed to find healing through participating in gardening activities; the adolescents

and the elderly also benefited from the safe space for learning, exercise, and social activities provided by community gardens (Tidball & Krasny, 2007).

Similarly, in Africa, vegetable gardens are not a new phenomenon. A study conducted in Kenya (Skovdal & Campbell, 2009) revealed that the adolescents who are carers of their aged and sick parents resorted to vegetable gardens for both food for the family as well as for generating income. Likewise, in South Africa, community gardens have had a positive role in offering women from disadvantaged backgrounds an opportunity to produce food for their families, desist from dependency, and heal after suffering domestic violence; one such example is the “Mountain of Hope” located in Soweto, Johannesburg (Tidball & Kransy, 2007). Besides provision of food community gardens seem also to give a sense of healing and hope, along with the opportunity to use and restore degraded land and can also be used as community centres where adolescents learn more than just how to grow vegetables and fruits (Kransy & Tidball, 2009).

2.4.1.2 Community practices

a) *Relationships and support by members of the community*

Peer relationships, mentorship relationships, support groups, intimate friendships and romantic relationships are an important part of resilient adolescent development; they enhance identity formation, the development of social skills and self-esteem, and the establishment of autonomy (Currie et al., 2010; Jolly & Conolly, 2019; Sharp, Penner, Marais & Skinner, 2019). High quality peer attachments have protective effects on adolescents, but they can also be a source of negative influence. Preinsten, Boergers, and Spirito (2001) confirmed that adolescents from prosocial peer groups were found to abstain from risky behaviours such as smoking and drug and alcohol abuse while those belonging to peer groups that engaged in risky behaviours influenced the adolescents to engage in the same risky behaviours.

In both continents, America and Africa, HIV and AIDS is the leading cause of death especially among black people (Rehle et al., 2007; Reif et al., 2014). This is attributed to high poverty rates among members of the black population, lack of access to health care facilities, and poor living conditions, but black communities have responded to the needs

of their people. According to Foster and Williamson (2000), communities in Zimbabwe, Tanzania, and Zambia seem to have come up with systems to keep households and families from destitution as a result of the impact of HIV and AIDS. During times of bereavement and distress black community members take it upon themselves to offer emotional support to both the sick and the bereaved. Most members of the community made it their obligation to contribute financially towards the funeral of a dead member and others volunteered their time and skill to care for orphaned children and/or the sick (Foster & Williamson, 2000). Casale et al. (2010) noted that people in the communities of Amajuba, Warwick, and Chikwakwa relied on each other as friends and relatives for support in the form of cash loans, left-over medicines, and food as well as for moral and physical support in difficult times of sickness.

Likewise, in South African community relationships have also been proved to be an indispensable resource for resilience. Ebersöhn (2012), in her theory of Relationship-Resourced Resilience (RRR) explained that relationships enable community members to flock (huddle) and thus connect and share and exchange skills and resources to curb adversity which may not be possible when people fight among themselves or flee the situation. The practice of ubuntu entails helping the needy, accommodating others, caring, being humble, virtuous, hospitable, respectful, and standing up together for the good of everyone (Mabovula, 2011). Some ubuntu practices that have helped adolescents include relative-like teachers who go out of their way to provide both emotional and financial support to needy learners (Theron, 2015); neighbours who lend money and/or food to one another and care for one another in times of sickness (Casale, 2011); fellowshipping together, adherence to kinship systems and being respectful to the elderly in the community (Malindi, 2014; Theron, Theron, & Malindi, 2013).

2.3.1.3 Community based opportunities

a) Employment opportunities

The employment of parents or the adolescents themselves has a bearing on the family's economic standing. It determines the kinds of food eaten, the leisure activities, and the

access to health services and educational opportunities, and, therefore, to general mental wellbeing (Currie et al., 2010).

Literature regarding petrochemical industries indicates that without doubt the petrochemical industries pose a threat to the health and wellbeing of people who live in their proximity. However, residents from quite a number of studies acknowledged that the industry had a positive bearing on the local peoples' economic status and this helped people to adjust well despite the difficulties (Altug et al., 2013; Fernando & Cooley, 2016; Forsyth et al., 2007; Jefferis, 2009; Perry, 2012. Marchand (2015) reported a decline in poverty levels for petrochemical industry community dwellers as job availability increased. In another study Luthra et al. (2007) noted that the availability of employment opportunities influenced the reduction of crime in one petrochemical community in Louisiana. These benefits, however, seemed to last only for a short period when production was high in the industry while decline in production was associated with worse outcomes. Even so, these benefits suggest that petrochemical industries can function as a community-based resilience-enabler.

Studies of the communities around the Niger Delta region in Nigeria revealed that in their efforts to live on after the petrochemical industry had impaired the community's traditional ways of sustaining livelihoods, the adolescents resorted to joining violent gangs (Iwilade, 2015; Nriagu et al., 2016; Ugor, 2014). The gangs have a duty to protect the interests of the politicians who own and benefit from the oil companies. Adolescents were taken care of by being paid a stipend by their gang bosses and that seemed the best available option to enable adolescent survival. This is an example of atypical acts, for which SERT (Ungar, 2011) makes provision, that may not be considered appropriate by mainstream society but that enable resilience. As far as the petrochemical industries are concerned there are a number of other atypical actions that the community members seemed to resort to as a way coping with hardships (Ungar, 2011). Jefferis (2009) and Petkova et al. (2007) note that because of the stressful nature of the jobs and the social isolation of employees who come to work leaving their families behind, it is reported that men tend to spend nights out in community clubs or bars binging, and abusing drugs; while women tend to resort

to sex work because the industries prefer to employ mostly males. These atypical actions have been reported both globally and locally.

b) Opportunities for recreation

Given their developmental stage adolescents tend to be fun-loving and energetic and, generally, have free time. Recreational activities—those done for pleasure during spare time—offer opportunities and services that help adolescents to adjust well and facilitate healthy transition into adulthood (Witt & Caldwell, 2010). Participation in healthy recreational programmes has a number of positive outcomes. These include ensuring safety for the adolescents, reducing negative behaviour and atypical coping strategies, decreasing their exposure to violence, improving their health, enabling them to acquire confidence, and develop healthy friendships and a sense of belonging (Gilligan, 2008; Luvaas, 2010; Masten, 2014; Ungar, 2011; Ungar & Liebenberg, 2011; Witt & Caldwell, 2010).

The importance of recreational activities has also been reported in South Africa. Ebersöhn (2008); Govender and Killian (2001); Theron (2007); Ward, Martin, Theron, and, Distiller (2007) suggested that the provision of enjoyment opportunities to adolescents supported their resilience because these opportunities enabled them to achieve a sense of competence, security, and belonging. In another study by Draper and Coalter (2016) the adolescents admitted to having been able to adjust positively because of the experiences they had attending a recreational programme in Cape Town. The adolescents attributed their positive adjustments to their ability to form positive relationships with coaches and peers, to feeling safe, and to having a sense of belonging and a sense of efficacy and agency.

2.4 CONCLUSION

My focus has been limited to community supports that enable resilience. Nevertheless, in my reading for this chapter I was frequently reminded that there are other protective factors. These are related to the adolescent as an individual, to the family, and to the larger society. I acknowledged these because community-based resilience-enabling

resources often interact with these additional resilience enablers (as summarised in Table 2.1).

Personal Resilience Enablers	**Family Resilience Enablers**	**Macro-level Resilience enablers**
-Motivational factors self-determination, having hope for the future, a sense of achievement, and an internal locus of control; -Cognitive capabilities e.g., intelligence, interpersonal awareness, planning abilities, insight, being able to manage stress; - Social skills and talents; -Emotional control e.g., a sense of humour, and anger control; -Physical health self-care, physical attractiveness.	-Met basic needs -Love and care shown by family -Caring relatives -Motivation and assurance from parents -Collective beliefs and shared rituals -Constructive family relationships -Compassionate family members -Positive parenting practices -Open and positive family communication	-Social development, health, and education -Policies (e.g. on safety and the rights of children); -National programs (e.g., immunisation; treatment; feeding; -Cultural heritage.

Table 2.1: Summary of the resilience enablers (excluding my area of study focus).

[Table contents are based on Cameron, Fox, Anderson, and Cameron (2010); Cortina, Kahn, Hlungwani, Holmes, & Fazel (2016); Ebersöhn & Maree (2006); Ebersöhn, Nel, & Loots (2017); Hamby, Grych & Banyard (2018); Kuo, et al. 2019; Lethale & Pillay (2013); Malindi & Machenjedze (2012); Malindi & Theron (2010); Mampane & Bouwer (2011); Mampane (2014); Masten (2011); Mogotlane, et al. (2010); Mohamed & Thomas (2017); Panter-Brick et al. (2017); Panter-Brick & Leckman (2013); Phasha (2010); Rutter (2013); Shaikh & Kauppi (2010);Theron & Malindi (2010); Theron & Phasha (2015); Theron & Theron (2010, 2013); Theron (2007); Theron (2015); Theron (2016b); Theron (2017); van Breda (2017) and Zolkoski, Bullock & Gable (2015)].

This chapter illustrated a variety of risks to people's livelihoods caused by or associated with petrochemical industries. Different community resources, practices and structures that enable adolescent resilience were also discussed. However, none of these resilience enablers were specific to resilience of adolescents in petrochemical-affected contexts. My study therefore has the potential to make a contribution to the knowledge of how community-based resources enable the resilience of adolescents living in a petrochemical-affected community in eMbalenhle, Secunda, South Africa. In the next chapter I describe the methodology that I used to address this gap in the resilience literature.

3 CHAPTER 3: METHODOLOGY

3.1 INTRODUCTION

In this chapter I outline the methodology that informed my study of limited scope. I explain the purpose of the study and describe interpretivism, the meta theoretical paradigmatic stance I took. Then I describe the methodological paradigm—qualitative research methodology and the process of participant selection and offer a brief description of the research setting. I explain the data collection methods—the visual participatory ones of draw-talk-write, clay modelling, and body theatre. I then discuss the quality criteria I used as well as the ethical considerations.

3.2 SITUATING MY STUDY OF LIMITED SCOPE IN THE RYSE STUDY

As I explained in Chapter 1, my study is part of the RYSE study that is interested in explaining the biological, psychosocial, and environmental determinants of the resilience of young people who live in stressed environments in Canada and South Africa (www.ryseproject.org). I had no role in designing this study. My role as a student researcher in RYSE was to choose a research focus that fits with its overall aim, to motivate for this focus, and decide which type of sub-study would fit with this focus (chapter 1, section 1.3). I then had to collaborate with the other South African student researchers and with members of the research team to choose qualitative methods that would fit with my choice of research approach and help generate data that would answer my research question. While we were deciding on qualitative methods, I gave a lot of thought to my research question and checked that the activities and broad questions that would guide these activities would, at least potentially, provide answers to my question. Because the community determined the dates when we could come and co-generate data and because my pregnancy was then advanced, as I have already explained, I was unable to join in the data generation. However, my membership of the RYSE team meant that I had access to the data. The data refers to the transcripts and photographs that were generated by the team of RYSE co-researchers (i.e., I had access to the data of all the 4

groups). Strictly speaking, then, my study of limited scope uses what Smith (2008) would call secondary data. I was responsible for analysing and interpreting this complete RYSE data set to provide answers to my chosen research question. Even though I worked with secondary data, it had not been analysed previously.

3.3 PURPOSE OF STUDY

The purpose of my study of limited scope was to explore which community supports enable the resilience of adolescents living in a community affected by the petrochemical industry, with specific focus on the South African context of eMbalenhle township in Secunda, in the province of Mpumalanga. It is therefore an exploratory study. According to Saunders et al. (2016) “an exploratory study is particularly useful if you wish to clarify your understanding of a phenomenon, issue or problem such as if you are unsure of its precise nature (p.175). A number of resilience studies have been conducted in South Africa. However, none have focused on the resilience of adolescents living in a community affected by the petrochemical industry, hence my choice of an exploratory study. Dudovskiy (2018) explained the process of engaging in an exploratory study as involving a literature study and interviewing of experts on the subject to gain a deeper understanding of the matter. For him, the process generally uses unstructured interviews. Like Kumpulainen et al. (2016), I saw the adolescent participants as the experts and believed that they knew best how community supports facilitate adolescent resilience. Exploratory studies have the advantage of being flexible and adaptable to change as well as being economical because one can figure out early on if the study is worth pursuing or not (Dudovskiy, 2018). However, exploratory studies may also be linked to disadvantage in that they use smaller samples, so findings from such a study may not be generalisable to other settings (Saunders et al., 2016).

3.4 PARADIGMATIC PERSPECTIVE

3.4.1 Meta theoretical paradigm

A paradigm represents a particular way of thinking common among researchers as well as their shared commitments, beliefs, values, and methods (Chilisa & Kawulich, 2012). For this study, I chose the meta-theoretical paradigm (or epistemology) of interpretivism.

Interpretivists believe that people attribute meaning to experiences from the way they understand a particular phenomenon. Therefore, when we listen to people's rich and deep stories about a phenomenon as they experience it, we get to understand the meanings they give to their life experiences (Nieuwenhuis, 2015). Through the interpretive paradigm researchers try to understand the world as other people see it, so they make an effort to get inside the person, as it were, so as understand the world as they do without imposing outside knowledge or values on them (Cohen, Manion, & Morrison, 2008). Creswell (2014) explained that this paradigm pays special attention to people's actions and behaviour. The aim of interpretive research is to explore how people define themselves and how they explain their lives in a specific context at a specific period and then compare that with others who live in different contexts and/or in different times (Cohen et al., 2008; Chilisa & Kawulich, 2012)

Saunders et al. (2016) share the above sentiments and explain that insofar as the interpretivists are concerned, knowledge is unique to each individual and is shaped when people relate to each other in their natural spaces. The paradigm allows a researcher to study phenomenon broadly in their natural setting and in their various spheres, i.e., historically, geographically, and socio-culturally.

My choice of the interpretive paradigm was guided by the aim and purpose of my research, which was to find out about community supports that facilitate the resilience of adolescents, from the perspective of the adolescents themselves, living in a community affected by the petrochemical industry. The RYSE team engaged with the community of eMbalenhle to find out how the adolescents in the community experience the phenomenon of living in such an affected area and what enables them to be resilient given this living environment. They audio recorded and photographed these interactions and so although I was not personally present to interact with the participants, I could

interact with the RYSE team and I could become familiar with the recordings, transcripts, and photographs. Following Creswell (2014), using an interpretive paradigm was advantageous in that I was able to get the accounts of the participants' first-hand experience and their opinions about living in a community that is affected by the petrochemical industry. Tracy (2013) explains that interpretivism is essentially about "the first-person perspective that participants have" (p. 41) and I am confident that the recordings, transcripts, and photographs allowed me to appreciate the participants' first-hand interpretations of how their community supports adolescent resilience.

It is important to note that this paradigm is also complex in that the researcher is interpreting participants' interpretations and the researcher may also have ideological biases especially if he/she has experiences with the phenomena in question. For this research, this disadvantage was countered through the RYSE team's establishing a relationship of trust with the participants, following Chilisa and Kawulich (2012) in order to better comprehend their interpretations. The team also used three data collection methods—draw-talk-and-write, clay modelling, and body theatre—that were helpful in yielding richer stories from participants. The use of multiple methods helps to ensure that the researcher's assumptions do not influence the study and also enables the researcher to get the true opinions of participants (McMillan & Schumacher, 2014).

I recognise that the interpretive research approach is also criticised for the fact that one may not be able to generalise one's findings beyond the situation studied (Nieuwenhuis, 2015). The concept under scrutiny, resilience, is unique to each different context and cultural group (Ungar, 2011). My intention is therefore not to generalise the findings but, rather, to gain a deeper understanding of adolescent resilience in a petrochemical context.

3.4.2 Methodological paradigm

The qualitative approach is a research approach for exploring and understanding the way in which people define themselves, their beliefs, and events happening around them (Creswell, 2014). Qualitative research enables researchers to understand why people do things the way they do (Nieuwenhuis, 2015) and data collection procedures are flexible to allow participants to provide their individual meanings of phenomena (Tracy, 2013).

This approach allows for rich explorations of data by allowing the researcher to be involved in collecting, analysing, and interpreting data (Nieuwenhuis & Smit, 2012). Collection of data for qualitative research often involves a combination of a variety of techniques, for example, observation, interviews, the analysis of artefacts, pictures etc. (Saunders et al., 2016). This leads to more than one kind of data which may be visual, written, and/or narrative data. Data collection for qualitative research happens in the participants' natural setting thus enabling the researcher to observe and probe further so as to add to the richness, trustworthiness, and credibility of the study (Creswell, 2013).

Along with my student co-researchers in the RYSE team I chose the qualitative approach. We agreed that we needed to hear the voices of the people, the adolescents of eMbalenhle, on their experiences of living in a community affected by the petrochemical industry and what enables adolescent resilience. The qualitative approach is best suited for this because of its focus on participants' perspectives, meanings, and subjective views and for exploring interactions among people and their contexts (Creswell, 2014) which is what my research was about. It is also an emergent design, hence its flexibility that allows for the revising of methods or interview questions whenever necessary. It also means that the RYSE team could always go back to consult the participants for clarity or to remedy any lack of data saturation (McMillan & Schumacher, 2014).

However, in pursuing rich data the researcher ends up with huge chunks of data that may be difficult and time consuming to analyse (Nieuwenhuis & Smit, 2012). In the RYSE study, we worked as a team, so the load was shared to ensure that we did not lose out on any detail given its vastness. For example, we co-revised our understanding of the data (see 3.5.4).

The success of a qualitative study does not end with being able to get the research participants, but, rather, in the ability to create rapport, and in being warm and empathic to the participants (Nieuwenhuis & Smit, 2012). Although, I personally did not manage to partake in the data collection process the RYSE team took time to meet the community before collecting data to establish relationships and earn their trust. The use of the qualitative research method enabled me to listen and re-listen to the recordings of the data as well as view the photos and artefacts. I also talked to my team members about

their impressions of the whole process of meeting participants and collecting data. I went on to read their reflections on the process of data collection. In this way I became acquainted with both the participants and the data.

3.5 METHODOLOGY

3.5.1 Research design

A research design is a plan for how the researchers intend to conduct their study (Mouton, 2012). I chose to do a phenomenological study. This kind of study seeks to describe and interpret the meanings of people's direct and lived experience of a phenomenon (McMillan & Schumacher, 2014). It seeks to establish the extent to which people find their experiences and/or behaviour and/or action an important part of the phenomenon which is being studied through seeking inclusive explanations of the phenomenon (Nieuwenhuis & Smit, 2012). In other words, the purpose of a phenomenological study is to understand individual experiences of a phenomenon and determine how different or similar the experience is to what others have experienced before or in different contexts (Cohen et al., 2008; Creswell, 2014). In this way, a phenomenological study provides a deep understanding of a phenomenon as experienced by individuals; it allows the researcher to get the real opinions, voices, and subjective experiences of the participants (Creswell, 2012). This is the main reason the research design is relevant for my study. As a psychologist in training, I sought to get a deeper understanding of how young people in eMbalenhle experience living in a petrochemical-affected area that is susceptible to pollution, overcrowding, and migration and the community supports that enable adolescent resilience. According to Creswell (2014) such knowledge is valuable to therapists, teachers, health personnel, and policy makers. Such information needs to be considered when we are promoting physical and mental health for children and adolescents living in adverse conditions.

In order to get the participants' perspectives, it is important that the researcher bracket his/her preconceptions out of the study. This means that the researcher sets aside his/her personal experience and preconceived ideas of the phenomenon and focuses only on the participants in the study and on what they think/know/understand (Creswell, 2014; Morgan & Sklar, 2012). To do this, I declared my assumptions about the phenomenon by

describing and recording pre-conceived ideas I had about life in a community that is affected by a petrochemical industry. In short, at the start of my study of limited scope, I believed that the communities affected by petrochemical industries have resources to help young people cope well with the negative effects and also that these resources are easily accessible to adolescents. My beliefs were informed by my experience when I was growing up in a rural area. During the school holidays I would visit my brother and his family who lived in a small cement mining township. I observed that although the township my brother worked in was small it was well resourced compared to other townships. There were public and private schools in the area, a clinic, and a hospital, ambulance services, a library, and sports amenities that catered for the young people and the adults in the community, males and females. Mine buses were always available to ferry people to their different destinations. People in the community knew each other and lived harmoniously together. When I was first introduced to the RYSE study I drew from these experiences of a small township based on cement mining to understand eMbalenhle, a community based on a petrochemical industry, and I assumed that eMbalenhle township would be equally well resourced.

I had to reflect constantly on my thoughts and activities to ensure the validity of my study as suggested by Berger (2015). I also engaged in peer debriefing (with the RYSE team) to check repeatedly that my assumptions were not influencing my study as recommended by Creswell (2012) and Saunders et al. (2016).

The phenomenological study yields a large volume of data that may be difficult to handle in analysis (Nieuwenhuis & Smit, 2012). However, as I have already alluded to earlier, my fellow masters students and I worked as a team. They collected data in different forms, i.e., photographs of the clay models and participants engaging in body theatre), drawings, and written and verbal data, but we collaborated to analyse this data.

3.5.2 Sampling and participants

The participants of a phenomenological study need to be carefully chosen so that they are people who have experience of the phenomenon (Creswell, 2014). For this reason, phenomenological studies usually use purposive sampling deliberately to enhance the chances of getting participants who have experience of the phenomenon under

investigation. In purposeful sampling the researcher chooses participants in a calculative manner so as to achieve a sample of participants that will be able to provide the information needed to answer the research question (Creswell, 2012; McMillan & Schumacher, 2014). Participants selected should represent the target population with regard to age, location, class, socio-economic status, or race (Nieuwenhuis, 2015).

In this study, the RYSE team worked with a Community Advisory Panel (CAP) from eMbalenhle that helped to purposefully identify adolescents who could help us to better understand the resilience of adolescents who lived in this township. In the RYSE study, the CAP used a flyer to recruit participants. The criteria listed in this flyer were boys and girls between the ages 15-24, who lived in Secunda, specifically eMbalenhle (the community affected by the petrochemical industry), and who had functional knowledge of the English language (so that they would be comfortable with researchers who could not speak indigenous South African languages). Refer to Addendum A for the flyer.

Purposive sampling eases the researcher's task, time, and sample size as she/he directly focuses on learning more about the research phenomenon from knowledgeable participants than if he/she were to use random sampling (Cohen et al., 2008). These authors further explain that in purposeful sampling, because participants are deliberately handpicked, a researcher can boost the sample whenever he/she notices exclusion or under-representation of participants needed to give richer data.

The information obtained from purposeful sampling may not be generalisable as I have already pointed out (see Creswell, 2012). However, in qualitative inquiry generalising the knowledge is not the primary idea. Rather, it is to acquire in-depth information.

My study engaged 30 adolescent participants of both sexes, aged between 15 and 24 who had experience of living in a community affected by the petro-chemical industry. Of the participants 10 attended local high schools, 2 were in tertiary education and 4 were part-time Sasol employees and the rest did not disclose their occupations. The majority were males i.e., 17 of the 30 participants were males. All participants were from eMbalenhle, a township in Secunda in Mpumalanga, which is affected by Sasol, the petrochemical industry (see Figure 3.1). They spoke Zulu, Swati, and isiNdebele as their home languages.

For the purposes of data generation, the participants formed four groups. Groups were made up of both males and females. See Table 3.1 below. Each group was facilitated by a member of the RYSE team.

Group	Number of participants	Male	Female	Age range
1	7	4	3	17-24
2	8	4	4	16-22
3	7	4	3	17-24
4	8	5	3	15-23

Table 3.1: Summary of participant groups

eMbalenhle is a small township in Govan Mbeki Municipal district, of about 20 square kilometres with a multi-cultural population of approximately 120 000 (predominantly black) people constituting 35 404 households (Statistics SA, 2011). Over 50% of the population are Zulu-speaking people although one would expect to find more Ndebele speakers since they are the ones originally from this province. The major economic activity in eMbalenhle is oil and gas production by Sasol industry which also happens to be the main employer of the community population. The industry attracts job-seekers from different provinces as well as from different countries, but the community has high levels of unemployment (26% of locals are unemployed, Statistics SA, 2011). eMbalenhle has quite a number of public schools and private schools. There are also medical facilities both private and public servicing the area. However, eMbalenhle community members are disadvantaged in a number of ways. Besides suffering the effects of the petrochemical industry (pollution, allergies, lung infections) the community is also characterised by competition for limited employment opportunities, shack dwellings (see Figure 3.1), poor service delivery (Mathebula, 2018), and hence service delivery protests (Mathebula, 2017). The pollution levels in the area of Secunda and eMbalenhle are regularly documented in the national press (e.g., Aukema, 2017; Comrie, 2016; Mabuza, 2017).

Figure 3.1: eMbalenhle community

As mentioned earlier, I was not able to partake in the data generation process due to my pregnancy being at an advanced stage at the time. In hindsight I realised that it would have been valuable to visit the site to better understand the data.

3.5.3 Data Generation

The process of data generation and other aspects of methodology follow from research questions (McMillan & Schumacher, 2014). Nieuwenhuis (2015) cautions that qualitative research is based on a naturalistic approach through which the researcher seeks to understand phenomena in context without manipulating them, so data generation techniques for this kind of research need be unobtrusive.

For this research study, the RYSE team used visual participatory data generation activities which yielded visual and narrative data. We chose these activities together. Visual participatory methods involve the use of a variety of forms of artistic expression (or arts-based methods) during which participants get involved in knowledge construction and yield visual data in the form of paintings, models, drawings, and/or photos which are used by researchers to examine, and also get an understanding of, people's experiences of a phenomenon (Clark, 2011; Conrad, 2004; McNiff, 1998). Rowling (2010) explains

that arts-based methods are grounded in arts practices, so they break down the boundaries between science and arts. Conrad (2004) splits arts- based methods into creative arts and performative arts. For this study we chose both the creative (drawing as part of draw-talk-and-write, and clay modelling) and performative (body theatre) methods. As indicated by Huss (2005) and Mitchell, de Lange and Moletsane (2017), using a variety of visual participatory methods yields a fun-filled and playful environment that enables participants to explore research phenomena in a relaxed atmosphere without feeling threatened. According to my fellow RYSE team researchers, and according to the photographs I reviewed, participants were actively involved in the knowledge creation process so were kept motivated throughout the process. Conrad (2004) notes that participatory methods break boudaries between researchers and participants thus enabling a relationship of trust.

Below, I explain the arts-based methods which were used to generate the data that I drew on to answer my research questions.

3.5.3.1 Draw, Talk and Write

Draw and talk, and draw and write are arts-based methods of research which involve the use of drawings (MitcheII, Theron, Stuart, Smith & Campbell, 2011). These have been advocated for enabling people who may have difficulty expessing themselves in the language in which the research is conducted (in this case, English).In the case of the RYSE project these were combined in the draw-talk-and-write activity; participants drew a picture and then talked to explain their drawing and also wrote an explanation of their drawings. This worked to the advantage of the RYSE team, because although the CAP tried to get people who understood English they were not first language English speakers, so I believe that the opportunity to draw gave them greater opportunities for self expression. Young and Barret (2001) observed that visuals (drawings) are helpful since they provide stimulus for discussion. While listening to the audio recordings I realised that participants expressed themselves better when they explained a picture they drew than when they had to explain something from memory. Theron (2016b) notes that combining drawing with talking and writing yields richer data than using only interviews. Even though I had not been part the data collection, as I have explained above, I was able to view the artefacts while listening to the audio recordings to get a better understanding of the data.

For the drawing part of this activity participants were provided with pencils, crayons, and sheets of paper. Facilitators put participants at ease by explaining that it did not really matter how well they drew and that what was of importance was that they drew and explained their drawing. Participants made individual drawings to answer the question*: Who/What makes it possible for young people to be Ok when the petrochemical industry affects their life in a negative way? (*see Figure 3.2 below).

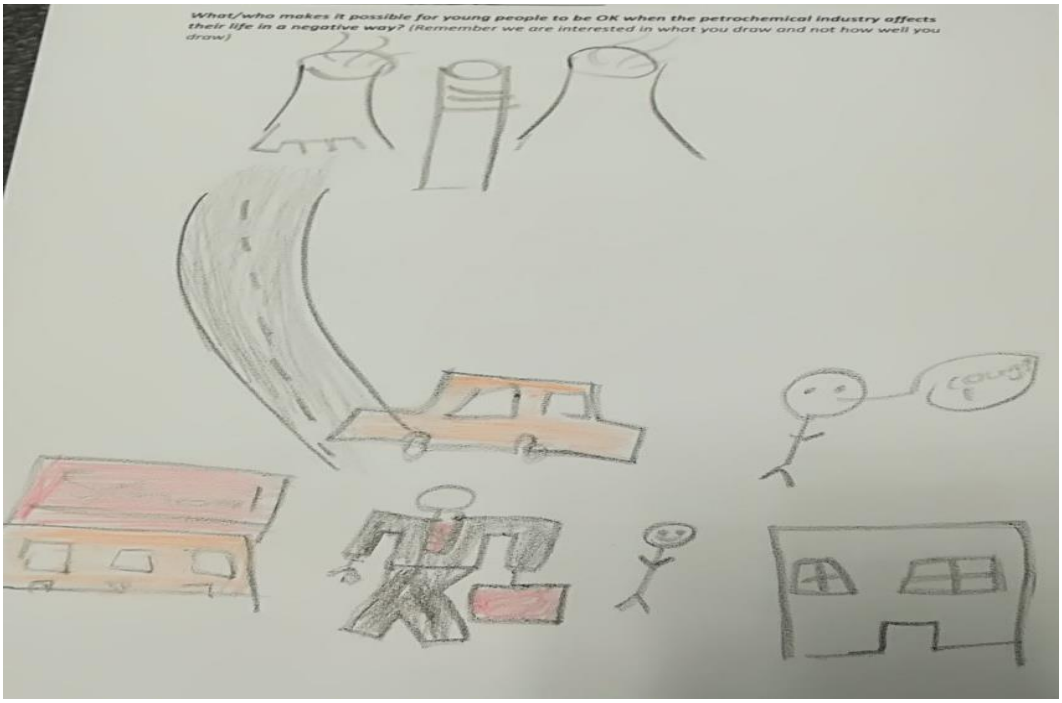

Figure 3.2: An example of an individual drawing

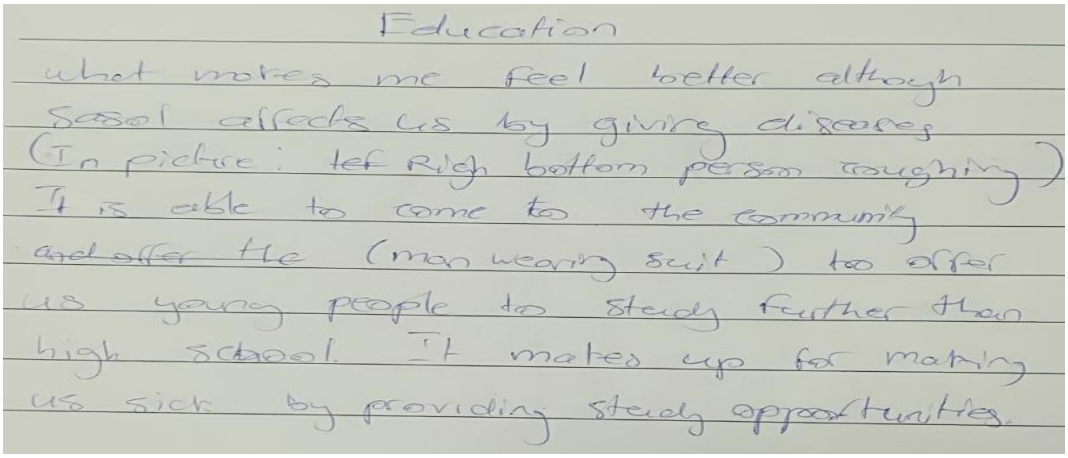
Education
what makes me feel better although
Sasol affects us by giving diseases
(In picture: left Righ bottom person coughing)
It is able to come to the community
and offer the (man wearing suit) to offer
us young people to study further than
high school. It makes up for making
us sick by providing study opportunities.

Figure 3.3: An example of a written explanation of a drawing

Participants were asked to write an explanation of their drawing (see Figure 3.3.). This was followed by a group discussion in which each participant talked about and explained his/her drawing. With participants' permission, drawings were photographed, and discussions were audio recorded. Participants also consented to the RYSE team's using their work for research purposes.

3.5.3.2 Clay modelling

Clay modelling is a creative form of arts-based method (Conrad, 2004) about which not much has been written specifically. However, Roos (2008) used clay modelling together with traditional African art methods (like grass work, woodwork, and beadwork) and branded this combination the Mmogo™ method. She explains this as a culturally mindful method of data generation during which participants make artefacts with materials that are found in their local African environments that represent their life experiences. The Mmogo™ method is based on the collectivist cultures of African people and is used to understand the cultural factors that influence a research phenomenon (Roos, 2012). Noted advantages of using this method include participant involvement in knowledge creation, and diagramatic data that yields knowledge that may be hard to get and that breaks down language barriers (Roos & Ferreira, 2008). Disadvantages include the fact that participants initially seem to be reluctant to create artefacts since they are unsure of what is expected of them (Roos, 2008).

Although our RYSE team used the same materials as those specified by Roos (2008) for the Mmogo™ method, our purpose was not to understand the cultural factors that influence adolescent resilience. Also, our team asked each group to make a collective clay model (rather than individual models as required in the Mmogo™ method). For this reason, I think it is more accurate to describe what our team did as a clay modelling activity. My colleagues did not report experiencing the disadvantages discussed by Roos (2008), but this could have been because they explained clearly and assured the participants that there was no right or wrong answer and that their skill in executing the activity was not of as much importance as the artefact and its meaning to themselves as participants.

For the clay modelling activity, the participants used some clay, beads, a piece of cloth, and some sticks (See Figure 3.4 below). As a group, participants were asked to create a group artefact in response to the question: *What/ who makes it possible for young people to be OK when the petrochemical industry affects their life in a negative way?* This was the same question as we used in the draw-talk-and-write activity, but now the participants had a chance to generate a collective answer.

Figure 3.4: An example of a clay model

Participants reflected on and explained their models. The model above was explained as showing the petrochemical industry as the provider of multiple opportunities (jobs, learnerships, housing etc.) to the people of eMbalenhle. Permission to photograph the models was sought. The participants' explanations of the clay models were also audio recorded and transcribed.

3.5.3.3 Body Theatre

Body theatre is a performative form of arts-based inquiry that involves participants using their bodies to reveal their feelings, beliefs, and thoughts about a research phenomenon (Boal, 2004; Conrad, 2004). Performative inquiry, such as body theatre, provides the researcher with a deep empathic understanding of the research phenomenon (Fels, 2012). This might relate to Boal's (2004) argument that the language of body theatre has more likelihood of being "heard" than spoken words and that it also gives an opportunity

to those who may not be able to express themselves through words. Like other arts-based methods its downside may be related to participants being reluctant or shy to perform. In the RYSE study this disadvantage was offset by first engaging in a group rhythm during which the co-researchers and participants tapped, clapped and moved their bodies in unison to create musical rhythm in the process. According to my colleagues it was an enjoyable activity that succeeded in loosening up participants.

Participants were then asked to use their bodies to answer the following question: *What does it mean for a young person to be OK when the petrochemical industry affects their life in a negative way?* Participants could position their bodies (e.g., crouch or curl up) or use part of their bodies (e.g., use their hands or legs to make a shape) in order to visually represent their answer (see Figure 3.5).

Figure 3.5: An example of body theatre

Participants were asked to explain their body theatre. In the above picture the participant explained that the love she gets from her friends and relatives in the community helps her

adjust well. Another participant curled her body up and said that this position represented a rock; the rock was a metaphor for the inner strength needed to adjust to the challenges of the petrochemical industry.

Permission to make audio recordings of participants' explanations and to photograph the body theatre (i.e., the ways in which they used their body or parts of their body to represent an answer to the question) was given by participants.

3.5.4 Data analysis

Qualitative data analysis is a systematic process through which researchers synthesize and make meaning from data to provide explanations of a phenomenon (McMillan & Schumacher, 2014). Qualitative data analysis aims to establish how participants make meaning of a specific phenomenon by analysing perceptions, attitudes, understanding, knowledge, values, feelings, and experiences (Nieuwenhuis, 2015). This is best achieved through inductive analysis with the intention of finding dominant and frequent themes inherent in raw data (Braun & Clarke, 2006). It involves coding, categorising, interpreting, and identifying themes or patterns in the data (Creswell, 2012; Kawulich & Holland, 2012; McMillan & Schumacher, 2014).

For my study of limited scope, I used inductive thematic content analysis. This means, following Tracy (2013), that the data (and not a particular theory or piece of literature) guided my analysis. Thematic data analysis is a step-by-step process. There are six steps involved in thematic data analysis as proposed by Braun and Clarke (2006).

1. ***Familiarising self with data***: The first step involves immersing oneself in the data which occurs through observation, transcribing, reading, and re-reading of it (McMillan & Schumacher, 2014). Having not been involved in the data collection process, this was quite a lengthy and rigorous process for me. I had to read data scripts over and over and had also to listen to the audio recordings while looking through the visual material. I also consulted my colleagues for clarification.
2. ***Coding data***: Coding involves the labelling of pieces of data that answer the research question with a code (or label) that summarises the meaning of the

particular extract (Saunders et al., 2016). I worked through the data scripts highlighting all words, phrases, and sentences that I felt answered my research question. I labelled each highlighted piece, mostly by paraphrasing how that piece answered my research question. See Addendum B for an example of how I coded.

3. ***Searching for themes****:* This involves searching for patterns and relationships among the codes to create a short list of possible themes that answer the research question (Saunders et al., 2016). To do this, I searched for similar codes and grouped them together into potential themes that answered my research question. See Addendum B for an example of how I grouped similar codes to form potential themes (or what Braun & Clarke (2006) call candidate themes).
4. ***Reviewing themes:*** Braun and Clarke (2006) explain that this process involves the refinement of themes, merging some as well as breaking down others into separate themes. At this stage one needs to consider if the extracts for each individual theme form a coherent pattern and if the themes give an answer to the research question. My research colleagues and I met our research supervisor and together we reviewed the themes we found. For instance, originally, I proposed five themes, namely 'provision of jobs by the industry, infrastructure, bursaries, medical benefits and death cover'. When we discussed the themes, I realised that they all related to Sasol (the petrochemical industry) so I merged them into one theme, namely 'Support from Sasol' (see Chapter 4).
5. ***Defining and naming the theme:*** This process involves the defining of themes and determining what they entail and what they do not (see Addendum B). It is important to consider how each of the themes fits with the overall research. I introduce my themes and define them in Chapter 4.
6. ***Producing the report:*** The final step of data analysis involves the writing up of the findings. These must be reported in a coherent, concise, non-repetitive, logical, and interesting narrative report. Extracts to support the themes need to be vivid and must capture the themes (Braun & Clarke, 2006). In Chapter 4 I provide the write up of my findings.

Through an inductive thematic content analysis approach, I was able to find links between the data sets (clay models, body theatre, and drawings along with written and verbal

explanations) as well as common patterns and themes across these data sets in order to answer my research question. According to Nieuwenhuis (2015), this data analysis process is an ongoing and iterative process which is time consuming and cumbersome. Working with other student researchers in the RYSE team was beneficial; we supported each other as we worked together to generate and compare codes, patterns, and themes. Each of us analysed the data to answer the research question we had conceptualised, and this meant that we knew the data well and could therefore comment on one another's emerging themes and conclusions. I believe the themes I report in Chapter 4 are saturated.

3.6 QUALITY CRITERIA

Qualitative research is hardly ever free of bias. However, it is still important for researchers to ensure quality (trustworthiness) in qualitative research (Kawulich & Holland, 2012). According to Di Fabio and Maree (2015) trustworthiness issues are concerned with the way in which verbal and textual data is collected, sorted, and classified. Lincoln and Guba (1985) proposed a four criteria model for ensuring trustworthiness in qualitative research: these are credibility; transferability; dependability; and confirmability of findings. They later added a fifth criterion that they termed authenticity (Lincoln & Guba, 1994)

3.6.1 Credibility

Credibility refers to the truth value of findings (Krefting, 1991). It is the extent to which the researcher, research participants, and readers have confidence in the accuracy of the findings (Thomsen, McCoy, & Williams, 2000). Prolonged engagement with data, persistent observation, triangulation, peer debriefing, and negative case analysis are some ways of ensuring credibility (Kawulich & Holland, 2012). To ensure credibility for my study, I read and re-read my data scripts over and over as a way of immersing myself in the data. We also used multi-methods of generating data and I triangulated these (i.e., I found evidence across the activities that answered my research question). My colleagues and I also met with our research supervisor for a debriefing session. Each of us made a power point presentation on the themes we found and reported back to the

group of RYSE researchers. When the RYSE team had meetings with the CAP, the CAP (which included adolescents from eMbalenhle) reviewed and confirmed the findings. In addition to all of the above the team of RYSE co-researchers was trained by the RYSE project manager to use the chosen methods competently.

3.6.2 Transferability / applicability

Transferability refers to the extent to which results can be generalised to other contexts (Lincoln & Guba, 1985). A thick description of the features of the research study (including context and participants) enables one to judge its applicability/ transferability (Di Fabio & Maree, 2015). For my study I made detailed descriptions of all processes beginning with the rationale, methodology (Chapter 3) to reporting findings (Chapter 4) and I also offered a description of participants and the research site in Section 3.5.2 above.

3.6.3 Dependability/ Consistency

Dependability refers to the consistency or stability of research processes and data over time and context (Goetz & LeCompte, 1984; Polit & Beck, 2012). Dependability can be achieved by ensuring proper recording, accurate data transcription, using a variety of methods, and providing an audit trail (Kawulich & Holland, 2012; Thomsen et al., 2000). For my study this was ensured by my using different streams of data for each data generation activity (eg., a drawing and both its explanations—the verbal and the written given by participants). Proper transcription of data also was ensured; after transcription of all data by the co-researchers the project manager listened to all the audio recordings against each script to confirm that the transcriptions were correct. In addition, I added an audit trail in Addendum B to demonstrate how I analysed the data.

3.6.4 Confirmability

Also termed neutrality, confirmability refers to the extent to which the research data is bias-free and is a represantation of participants' views (Thomsen et al., 2000). In qualitative research it may be difficult for a resercher not to have her/his own opinion but she/he needs to ensure that her/his opinions do not influence the data. For this reason I detailed my assumptions and motivated my methodological chocies. The RYSE team did member checking and debriefing to ensure that data findings represented only the participants' views as recommended by Harper and Cole (2012).

3.6.5 Authenticity

Authenticity is the extent to which researchers exercise fairness and truthfulness in reporting participants' experiences of the phenomenon (Tobin & Begley, 2003). To ensure authenticity my colleagues clarified their observations, participants' responses, and noted whatever participants did not understand. They also summarised the participants' responses to enable them to reflect and further explain their responses. In my reporting of the findings I was truthful and I reported only on the information given by the RYSE study participants. I tried to include as many adolescent voicesas possible so that their insights were fairly represented (see Chapter 4).

3.7 ETHICAL CONSIDERATIONS

Ethics are "standards of behaviour that guide the researcher's actions relative to the rights of the research participants and other people affected by the research" (Saunders et al., 2016 p. 712). Ethics need to be considered at every step of the research process since participants may be easily harmed physically or emotionally (Ogletree & Kawulich, 2012).

For this research study, as already explained, I am part of the RYSE project. The RYSE project acquired ethical clearance which guided our conduct as student researchers (See Addendum C). Participants were not forced to engage in the study, participation was voluntary, and informed consent was sought beforehand by the CAP (See Addendum D). Participants were informed of their right to withdraw whenever they needed to, and the purpose of the study was clearly explained to them by my colleagues and the CAP. The nature of the research and what is expected of participants was explained in a language they understood (English and Zulu). All the participants understood English and were able to converse in it. Issues of confidentiality were also addressed in group activities in which participants were engaged. It may have been difficult to ensure total confidentiality because of the nature of the group-based activities but partial confidentiality was ensured. Participants were free to use their names or pseudonyms as they preferred. Permission to record, to take pictures, and to use the information the participants provided for our dissertations was sought beforehand. Above all, participants were treated with respect and protected from any form of harm. Debriefing was done at the end of each session

with research participants. The visual participatory methods that the RYSE researchers used have been found to provoke strong feelings related to participants' experiences (Theron, 2016b). This was catered for in the RYSE study by having a psychologist on standby to contain the situation in case anyone felt emotional.

Ethics were also adhered to in data use and report writing. I used the data collected only for the purposes of completing my dissertation. I also reported my findings truthfully, respecting and causing no harm to my research participants in a clear and understandable description. In line with Creswell's (2014) suggestion, raw data has also been kept safe for the sake of confidentiality.

3.8 CONCLUSION

In this chapter I detailed the methodology I used for this study including both the advantages and disadvantages of each. I explained how as a team we allowed for the disadvantages. In the next chapter I report on my findings.

4 CHAPTER 4: FINDINGS

4.1 INTRODUCTION

In answer to the question, “To which community supports do youth living in a community affected by the petrochemical industry attribute adolescent resilience?” four themes emerged (as summarised in Figure 4.1). Although my question focused on community supports that enable resilience, participant-generated data also spoke to how the petrochemical industry affected participants negatively and exposed them to other risks that I include when I explain the themes, but in short, participants were challenged by pollution, poverty and unemployment, and protests/unrest.

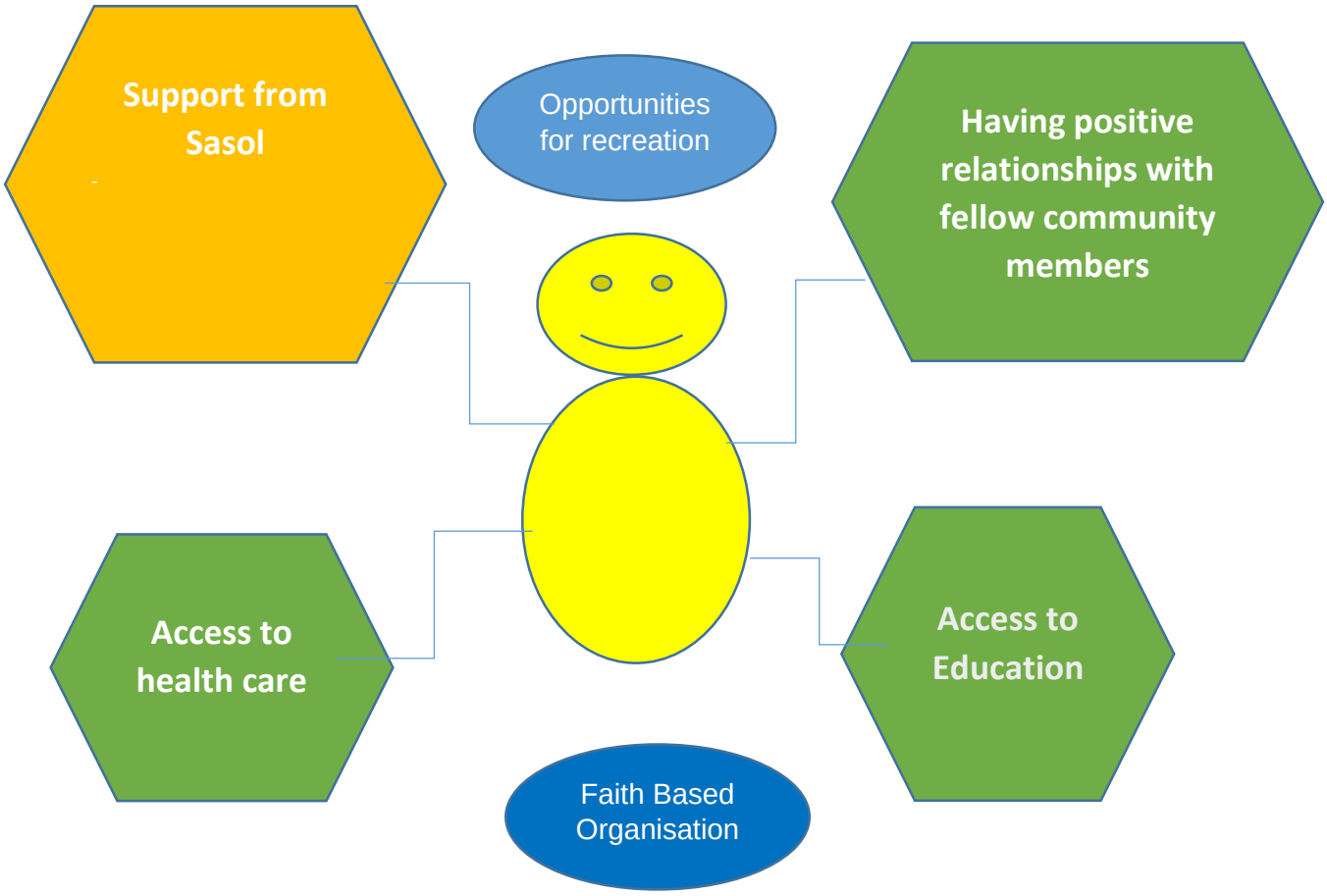

Figure 4.1: Visual summary of findings

Four themes that supported adolescence resilience emerged. Some themes were reported by all the groups while others were more reported by either female or male participants. For example, the theme 'Support from Sasol' was common among the four groups and 'Faith based organisations' was reported by females whilst 'Opportunities for recreation' was mostly reported by males. These themes also emerged as outliers 'Faith based organisations (FBOs) and 'Opportunities for recreation'. One girl participant, Gugu from Group 2 reported that at her local church they have a youth group where they discuss issues that affect young people. She said, "In our church we have studies for the youth… Last week we debated on why we think education can make us succeed." In this study, therefore, 'FBOs' is an outlier and not a saturated theme.

Similarly, considering that the research participants are young people, one would have expected that *Opportunities for recreation* would come out as a theme. However, only one group out of four raised the theme and it was supported mostly by boys rather than girls. This could have been linked to the fact that generally in black families girl children do not have much free time since they are expected to help their mothers with household chores. Tsepo (male), Lunga (female), Sibusiso (male), and Brute (male) explained that eMbalenhle community offers them opportunities to engage in activities (dance and soccer) that are good for their health and that they love and enjoy doing. They said that these have the effect of protecting them from engaging in bad things and also keeps their focus away from the negative effects of the petrochemical industry. Lunga said, "I don't really love being here, but at least there is a place where I can dance and exercise." Likewise, Tsepo appreciated the recreational opportunities available. He said, "Here we don't have clean air but when it comes to recreational activities we are well catered for. Sports can keep you from doing bad things …when I dance cha-cha I don't think a lot. It is just me and my partner enjoying the dance." See Figure 4.2, a photo of Tsepo's image portraying him enjoying the cha-cha dance. In summary, even though there were four participants that spoke of 'Opportunities for recreation', they were all from the same group. No other group mentioned such opportunities.

Figure 4.2: A photo of Tshepo's body theatre

4.1.1 Comparing these findings to the literature

It is unusual for 'FBOs' to come in as an outlier. From my previous engagement with the literature on resilience (Masten, 2014; Theron, 2013; Ungar, 2011), I had been led to expect that the youth would include both traditional African and Christian Religion as responsible for enhancing their resilience.

Literature, to a larger extent, supports the idea that recreational activities/ sports enable resilience internationally (Gilligan, 2008; Masten 2014; Ungar, 2011; Ungar & Liebenberg, 2011; Witt & Caldwell 2010) and locally (Draper & Coalter, 2016; Ebersöhn, 2008; Govender & Killian, 2001; Malindi, 2012, 2014; Theron, 2007; Ward et al., 2007), I would have thus expected all four groups of youth participants to support the theme.

4.2 THEME 1: SUPPORT FROM SASOL SECUNDA

Support from Sasol Secunda denotes various actions by the branch of Sasol that is part of the community of eMbalenhle (i.e., Sasol, Secunda) that supports the residents (including the young people of eMbalenhle) as well as reduces the impact of the petro-chemical industry. These included the provision of well-paying jobs, educational bursaries, medical and insurance benefits, promise of a better future, and the provision of infrastructure. All four groups mentioned various actions that Sasol facilitates that helped them adjust well to the challenges related to living in a petro-chemical community. It is important to note that although Sasol provides services meant to help the adolescents adjust well, the adolescents need to be motivated to make an effort to access or navigate the resources.

Provision of jobs includes all the employment opportunities provided by the petrochemical industry and the security brought about by being employed. All four groups reported that employment of the adolescents themselves or their parents helped them function well since their needs were provided for. For example, Blessed (female) from Group 1 said, “I have food, I have clothes, I have shelter because my parents and my brother work at Sasol hence they are able to provide all those things for me.”

Similarly, a male participant from Group 2, Danny, also explained that people who work for Sasol earn huge sums of money and they are able to buy big properties and big cars, so this makes it worth overlooking all the negative effects of the industry. Danny said, “It [the industry] gives us an opportunity to live in big houses, to drive any cars we want . . . so we can live in any area we want to live.” In his drawing Danny shows that Sasol enables the people to afford whatever they desire. He drew big houses that the people have been able to buy and big cars that are driven around eMbalenhle. (See Figure 4.3.)

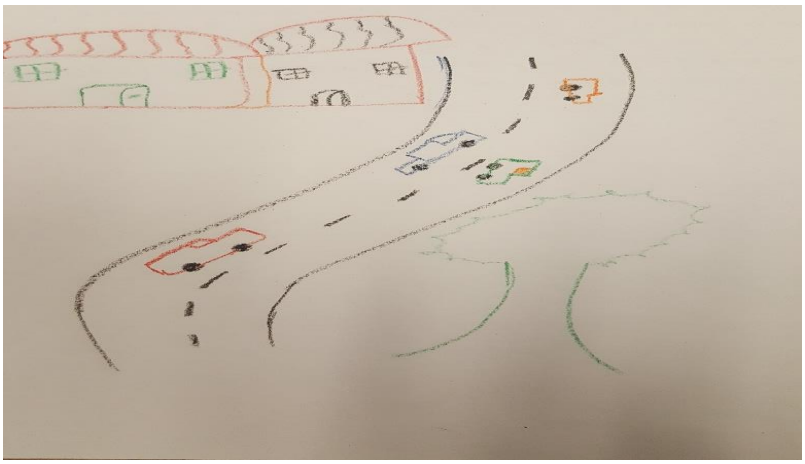

Figure 4.3: Danny's drawing of big cars and properties bought by Sasol employees

Likewise, from Group 3, a male participant who preferred to be called MJ also explained that job opportunities offered by Sasol enabled their parents to provide for their needs. He said, “Life becomes easier because they [Sasol] opened job opportunities . . . if there is no work they [parents] won’t be able to pay for our school fees and stuff you know – our needs.” Also, Group 4 participants were aware and appreciative of the job opportunities provided by Sasol. For example, Tshepo (male) said, “Elsewhere people struggle to find jobs but when you are here it is easy to get one [at Sasol].” Gugu (female) from Group 2 also mentioned other job opportunities available in the community. She said, “Everyone at home works but no one works at Sasol.”

Besides the above, the participants in all four groups were appreciative of the bursaries offered by Sasol. This form of support enabled their resilience in that those from impoverished backgrounds are also able to attend tertiary institutions which they would not have been able to afford on their own. This strengthens the youths’ hope for a better future. For example, Zenande a female participant from Group 1 said, “Sasol is a big company it provides jobs with study opportunities…it enables less fortunate students from the location to be successful.” Likewise, Carol (female) from Group 4 acknowledged the provisions of a variety of services as well as bursaries offered by Sasol. She said, “Sasol provides for its community with bursaries, learnerships, everything.” Similarly, members of Group 3 were also aware of Sasol’s support of youth education. Minky (female) explained that Sasol uplifts the youth by offering advice on subject choice, learnerships, and bursaries that help them study at tertiary institutions of their choice. In her drawing

(see Figure 4.4) she drew herself having been awarded a bursary by Sasol and studying at her preferred tertiary institution.

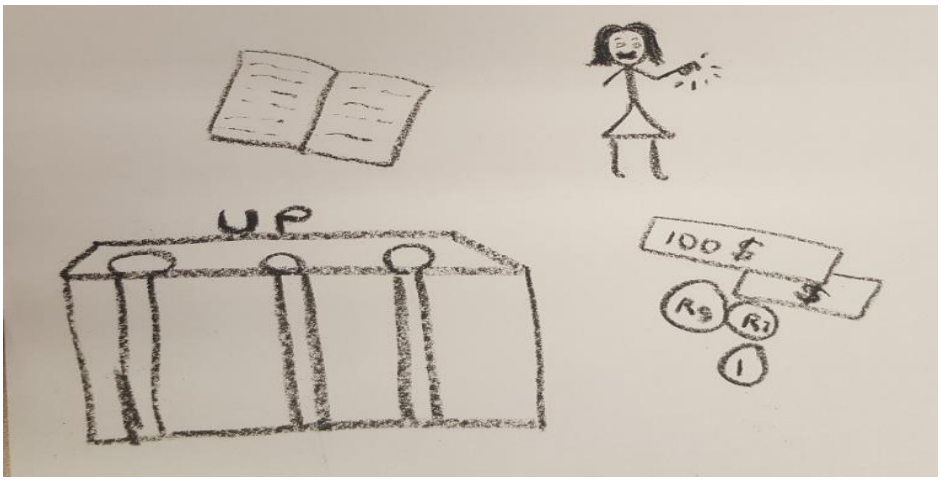

Figure 4.4 Minky's drawing depicting Sasol as an awarder of bursaries

The promise of a better future refers to the motivation and support Sasol gives to students and the assurance that they will be well taken care of in terms of job security after finishing school. All four groups alluded to this theme. Blessed (female) from Group 1 expressed her unshaken hope of getting both a bursary and employment at Sasol after completing her studies. She said, "I can get a learnership and come back to Sasol, be an engineer, be an artisan né, and earn a lot of money." Similarly, Khutso a male participant from Group 2 explained that working at Sasol opens up more employment opportunities for one because the industry is seen as a good reference. He said, "If you once worked at Sasol you will have a good record. When searching for employment other companies consider you first because they view Sasol as an effective and efficient company." Likewise, Carol (female) realised the plight of youth in the country insofar as employment opportunities are concerned and considers herself lucky to be assured of employment after graduating from school. She said, "In my mind I have less stress because when I finish my matric it will be easy for me to get a job [at Sasol]."

Provision of medical insurance benefits refers to financial aid provided for Sasol employees and their families in the event of sickness or death of a member. This theme was supported by two out of the four groups. The provision helps them be well in the sense that even though they may get sick because of the effects of the industry they can

still access medical care because they have medical aid. Also, when they lose a parent, the family can still live on the death benefits. Gugu from Group 2 said, “You see if you work at Sasol you are covered for everything … in case you pass away or if an accident happens … those who work at Sasol have a Salmed Medical Aid which they don’t use on themselves only but for the whole family. We are covered even if the bread winner were to pass away there is money.” Similarly, a Group 3 participant, Lelo, explained that Sasol takes care of the health needs of its employees. She said, “They [Sasol] provide medical aid for permanent Sasol workers.”

Provision of infrastructure denotes all the structures built up by Sasol specifically for the benefit of the community. This includes housing, school blocks, recreation parks, roads, and sport recreation clubs. All four groups expressed recognition of a variety of infrastructural amenities provided by Sasol. Participants explained that some of these structures enhanced their wellbeing by helping them keep fit and healthy. For example, a Group 2 female participant, Andy, said, “Sasol offers us a gym you can actually get fit whilst living here, it’s a choice ...”

Similarly, another female member of Group 3 (Perseverance) also explained that the industry helps the families cope well since it builds houses for its employees and other less fortunate members of the community. Her family has been enabled to own a home and that helps her cope well because they live comfortably as a family. She drew a big house in which her family lives happily and together, that Sasol helped them acquire (see Figure 4.5). This is affirmed in a recent newspaper article; Mathebula (2019) reports on another batch of houses that has been handed over by Sasol to its employees as a way to improve their lives.

Figure 4.5: Perseverance's drawing of a big family house

Likewise, Group 1 appreciated the infrastructure provided by Sasol. In their clay activity they modelled a road and a bridge to represent the infrastructure and explained that these are provided by Sasol. Danny explained, “Sasol provides these infrastructures.” (See Figure 4.6.)

Figure 4.6: Clay model showing a road and a bridge provided by Sasol

4.2.1 Comparing this theme to the literature.

The theme *Support from Sasol* is in line with what has been reported in resilience literature related to living in petrochemical industry dependent communities both

internationally and locally. The supports that the adolescents reported reminded me of the international literature which suggests that petrochemical industries are an important, potential community-based resilience-enabler; the more supportive the industry the better able people are to cope with its negative consequences (Altug et al., 2013; Beidari et al., 2017; Behera, 2015; Jefferis, 2009; Marchand, 2015; Perry, 2012).

Maslow (1970) postulates that shelter is a basic need for humans without which one's efforts to thrive may be hampered. According to international literature (see, for example, Fernando & Cooley, 2016) the lack of housing in petrochemical industry dependent communities has the effect of breaking up families and straining family bonds (e.g., when the family has to remain in another city while the father goes to work for the industry in a remote town).

The theme *provision of jobs* aligns well with what has been reported in current resilience literature. Job opportunities are one of the most important community benefits brought about by the petrochemical industries, in both global resilience literature (Altug et al., 2013; Behera, 2015; Fernando & Cooley, 2016; Marchand, 2015; Perry, 2012) and local resilience literature (Beidari et al., 2017; Jefferis, 2009).

International literature supports the evidence above on '*provision of health insurance'*. Reif et al. (2014) found that among HIV and AIDS patients those who had better health outcomes were those who had medical aid schemes that did not limit their access to health care in opposition to those who did not have medical aid at all or those whose medical aid limited their access to services.

4.3 THEME 2: POSITIVE RELATIONSHIPS WITH FELLOW COMMUNITY MEMBERS

This theme refers to all positive relationships with people outside the family (friends, neighbours, and fellow community members) who help the youth cope well by supporting (physically, emotionally, and mentally) and motivating them. This theme featured in data from all four groups. Living in a petrochemical community seems to be linked to a variety of challenges including medical conditions and injuries that may result in the death of

family members. In times like these community members come together to support each other and to search for a way forward. For instance, in Group 1, Thuso (male) explained that the community members cooperate to mitigate the side effects of their environment. He said, “The whole community is basically like one huge family, because they actually hold together to not be affected by what is happening around them.” In his drawing (see figure 4.7), he showed people bound together by love despite the difficulties caused by the industry. He explains that in collaborating with one another the community becomes stronger than the problem at hand.

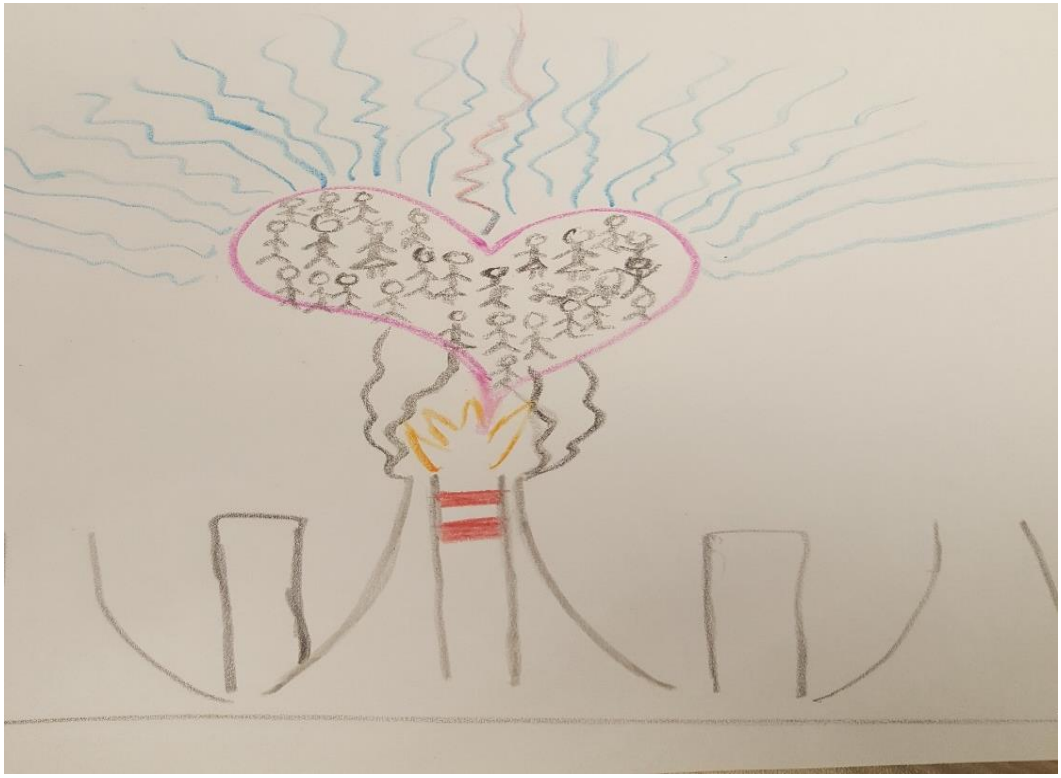

Figure 4.7: Thuso's drawing depicting the community as one big family

Similarly, a participant from Group 3, Minky, reported that living in a petrochemical community is allied with hardships; showing love for one another and staying together as a united community helps them to beat the odds. She said, “Even though it’s hard we try and stand together as community and overcome what we face.”

Likewise, another member from Group 2, Gugu, clarified that in the community of eMbalenhle people can unite and support one another because they have common needs and goals. She also alluded to the presence of members of the community who have

taken it upon themselves to be motivators of the community youth. She said, “There are people here in eMbalenhle who motivate us not only to end up here at Sasol but to succeed.”

From Group 4, Quphza (male) also felt that having friends who cheer him up and encourage him when he is on the verge of giving up (because of the adversity in the community) helps him to cope. He said, “The only thing that keeps me okay while the petrochemical industry affects me are my friends. I have friends who have a positive attitude to life and they encourage me to stay positive too.”

4.3.1 Comparing this theme to the literature

This theme is in line with those referenced in current resilience literature. Having positive relationships with significant others has been found to be positively associated with resilience in youth both internationally (Hilario et al., 2014; Masten, 2014; Ungar, 2011; Williams & Mohamed, 2009) and locally (Malindi, 2014; Theron, 2015; Sarra & Berman, 2017).

4.4 THEME 3: ACCESS TO HEALTH CARE

Access to health care refers to the health advice and medication administered by health personnel available in the community to those young people who get sick. All four groups supported the theme. As mentioned above, the pollution resulting from the industry is associated with a variety of illnesses including lung infections, respiratory/breathing problems, headaches, and sinus problems. Participants reported that they did have access to community-based health service when the need arose (i.e., when they or their relatives got sick).

For instance, Danny (Group 1) explained that the industry has caused him to be sick so he has had constant need for hospitalisation and treatment. He said, “Before the industry I did not have problems with breathing … now I have sinuses, because of this industry I have had to lay in hospital.” In Group 3 Lelo (female) also reported that she had had problems with her eyes and had to seek medical advice. She said, “My eyes were watery all the time and the doctor said it is to do with the industry.” Likewise, Quphza from Group

4 explained that at some point he got sick and got relief after accessing medical advice. He said, “Sasol makes me sick sometimes, once I got sick and went to the doctor he told me to move away from this place [eMbalenhle].” Andy (Group 2) explained that he has had to seek medical help because of a number of ailments related to living in eMbalenhle. He said “I have been to doctors a lot of times due to that and also having headaches, massive headaches…” Nomalanga (a female participant from Group 2) explained that the medical doctors are available to treat the ailing. She said, “The doctor treats people that are sick.” Her drawing (see Figure 4.8) illustrates that there are doctors available to help people in the community who get sick. In all of the above, participants confirmed that health care was accessible, even though they would have preferred not to need health care.

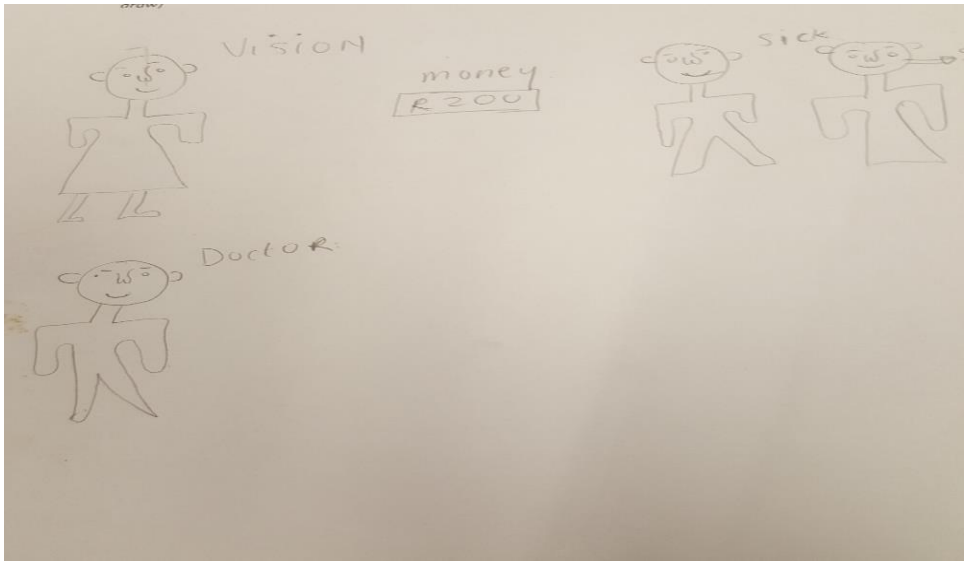

Figure 4.8: Nomalanga's drawing of people who are seeking medical care from the doctor

4.4.1 Comparing this theme to the literature

This theme is in line with what has been reported in resilience literature. According to Altug et al. (2013); Behera (2015); Perry (2012) and Wichmann et al. (2009) living in a petrochemical community is associated with more hospital admissions. They report that children and adults who lived in such communities stood higher chances of admission because of many sicknesses related to petrochemical industries when compared to their counterparts who lived elsewhere. In local resilience literature, it has been reported that

accessing medical treatment from doctors as well as from traditional healers (sangomas) helped facilitate the healing of the sick (see Casale, 2011; Casale et al., 2010). However, in this study there was no mention of the sangomas or other traditional healers. According to some literature (e.g., Casale, 2011), African people believe that sicknesses have different causes (ancestors, witchcraft, or the will of God, or nature). The choice of treatment will, therefore, probably differ for each suspected cause. Probably for ailments related to the petrochemical industry people generally prefer to use conventional medicine over traditional medicine.

4.5 THEME 4: ACCESS TO EDUCATION

The theme *Access to educatio*n refers to the educational facilities/ institutions available for the youth and the value they attach to education to enable a bright future by either enhancing their chances to get out of the petrochemical environment (eMbalenhle) or enhancing their future employability by Sasol. This theme was supported by three groups. It relates to how schools offer a variety of subjects that enable the youth to be who they want to be. For example, Blessed (Group1) explained that she has access to education and to studying her preferred science subjects which she feels is going to be her key into the Sasol doors of employment. She said, “I can go to school, I can study physics, I can study maths you know and go to Sasol be an engineer, be an artisan ne, earn a lot of money … I am chasing an education.” On a similar note, Gugu (Group 2) mentioned the availability of a business school that offers support to the youth who want to venture into business. She said, “There is a business school at our church. They teach you to start your own business … They nurture you to actually start your own business.” Likewise, Nkosilathi (a male participant from Group 3), explained that having access to education is important in his life because it helps him gain knowledge about the world he lives in through reading books at school. In his picture (see Figure 4.9) he drew a book that enriches him with knowledge.

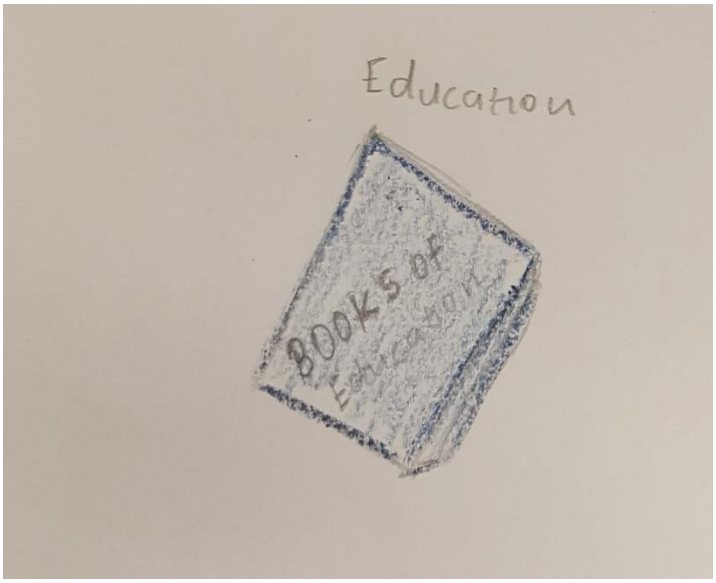

Figure 4.9: Nkosilathi's drawing of a book

4.5.1 Comparing this theme to the literature

Access to education for the youth is a theme that has been widely reported as enabling youth resilience internationally (Masten, 2014; Ungar, 2008; Hilario et al., 2014) and locally (Ebersöhn, 2008; Jefferis & Theron, 2017; Malindi, 2014; Mampane, 2014; Phasha, 2010; Pillay, 2012; Theron, 2015). It is therefore surprising that although the youth from eMbalenhle mentioned the theme, it was only scantily discussed. Like the international researchers, South African researchers also notice that the youth spend quite a significant time of their life at school, so they view schools as a significant environment for healthy adolescent development.

4.6 CONCLUSION

I identified four community supports that adolescents included in how they explained adolescent resilience. Adolescents were unanimous in acknowledging various ways in which Sasol supported their resilience. Interestingly, there was no mention of two community resources that were mentioned in the current literature that is NGOs (Burchardt, 2013; Cluver, 2016; Ebersöhn & Ferreira, 2011; Islam & Walkerdern, 2015) and community gardens (Barry et al. 2006; Litt et al., 2011; Skovdal & Campbell, 2009; Tidball & Kransky, 2009). As explained earlier in this chapter, ‘Opportunities for

recreation' and 'Faith based supports' were mentioned but not often enough to constitute saturated themes. It was also interesting to note that although the 'Access to education' constituted a theme it was only brought up by 50% of the participants. In current resilience literature both locally and internationally; schools have been realised to be a key adolescent resilience enabler (Currie et al., 2010; Ebersöhn, 2008; Hilario et al., 2014; Malindi & Machenjedze, 2012; Mampane, 2014; Masten, 2014; Phasha, 2010; Theron & Malindi, 2010; Ungar et al., 2017; van Breda, 2017; Veronese & Barola, 2018). In the next chapter, which concludes my work, I integrate the themes to provide a final answer to my research question.

5 CHAPTER 5: CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

In this chapter I wrap up my study, highlighting my conclusions as well as recommendations. I start off by revisiting my primary research question and then provide a summary of my findings. I also discuss limitations, reflect, and then make recommendations.

5.2 QUESTION REVISITED

My study of limited scope focused on the primary research question: *To which community supports do adolescents living in a community affected by the petrochemical industry (i.e, eMbalenhle, Secunda) attribute adolescent resilience?*

As has been alluded to in the previous chapters, resilience is positive adjustment despite adversity (Masten, 2011; Ungar, 2011). The adolescents in eMbalenhle endure the perpetual negative effects of the petrochemical industry (see the red arrows in Figure 5.1). These include physical and mental health hazards, sociocultural impacts, pollution (air, water, noise), and unfavourable climatic conditions linked to the industry (Akani & Luiselli, 2009; Behera, 2015; Cox et al., 2017; Perry, 2012; Uzoekwe & Oghasanine, 2011).

Adolescents exist in multiple interrelated and interactive systems (social ecologies) i.e., the child her/himself, the family, the school, and the community system which are characterised by both protective and risk factors (Ebersöhn, 2014). Related to this, resilience studies have shown that resilience is a mutual activity between adolescents and their social environments that is rooted in a given social ecology and that depends on culturally appropriate interactions (Theron et al., 2013; Ungar, 2011). Using SERT (Ungar, 2011) my study was aimed at specifically exploring community support systems that enable the adolescents to be resilient given the challenges. This focus was influenced by the observations of Theron et al. (2013) and Ungar (2008, 2011, 2015) that an

individual's social ecology contributes immensely to enabling his/her resilience. This has been further supported by Ebersöhn (2008); who explained that children coping with HIV infection mentioned that community systems are the most protective of their life world. However, because no previous study has explored the resilience of adolescents in a petrochemical affected community, I had reason to research how a petrochemical-affected community supports the resilience of its adolescents. The diagram below is a conclusion of my study (see Figure 5.1).

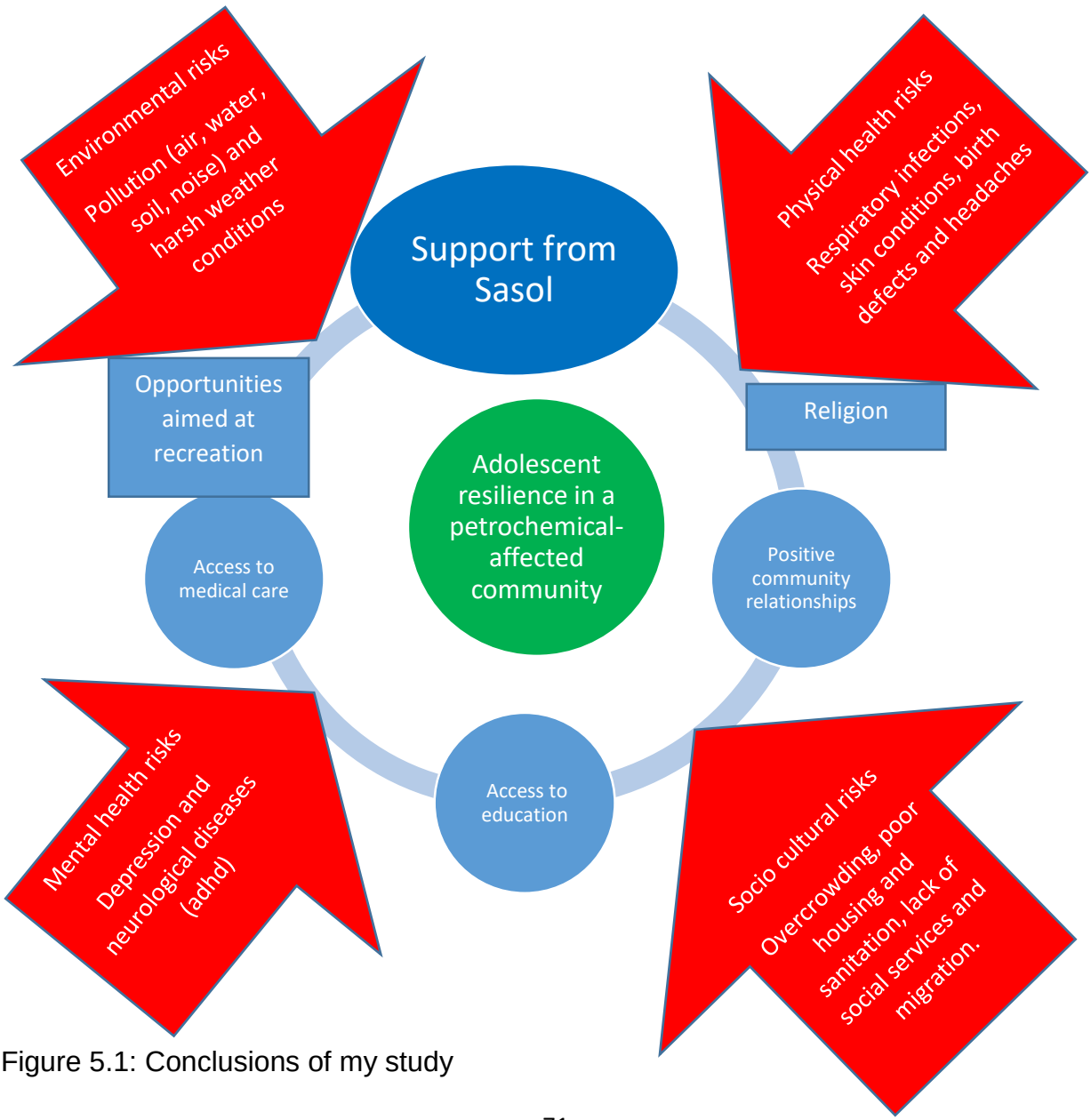

Figure 5.1: Conclusions of my study

Figure 5.1 gives a summary of the results of my study. The figure shows that the petrochemical industry (Sasol), which is located close to eMbalenhle, makes a notable contribution towards adolescents' resilience in a number of ways. These include the provision of jobs to the adolescents (four of the participants were part-time Sasol employees) and their families which enables them to have their survival needs (food, shelter, clothing, and transport) met. Sasol also provides some study opportunities for the adolescents through bursaries and learnerships. The opportunity to study beyond high school gave the adolescents (most of whose parents would not be able to afford this) hope for a better and brighter future thus motivating them to work hard and do well at school. Besides, the industry also caters for the physical and emotional welfare of the employees and their families by offering a recreation club, medical aid schemes, and death benefits. I found it interesting that the industry which adolescents link to their health concerns and environmental pollution, was also a prominent source of resilience-enabling resources. It was a form of community-based support that was reported by all the groups. In this sense, my study's findings align with the international studies (Altug et al., 2013; Beidari et al., 2017; Behera, 2015; Fernando & Cooley, 2016; Perry, 2012) that report that the petrochemical industry can be a community support. Still, I do not think that the benefits that petrochemical industries hold for communities can excuse the health and environmental risks.

The local government also provides education and health services. The industry is related to a number of ailments like chest infections, headaches, and skin conditions. Accessible health care services give the adolescents an opportunity to seek medical advice in case of these opportunistic infections. Education also enables adolescents to work towards a better future. While the school in previous South African resilience studies (e.g., Ebersöhn & Ferreira, 2012; Hall & Theron, 2016; Malindi, 2012; Mampane, 2014) had come out as a most important resilience enabler, I found that in my study education was mentioned by only 50% of the participants. These findings could have been linked to the fact that there were only a few (10) participants still in school at the time of the study and probably also to the state of education and schools in townships. According to Mampane and Bouwer (2011); and Spaull (2015), most black children in rural and township schools still receive

inferior education since their schools continue to be confronted with challenges including lack of resources, unknowledgeable teachers, wasted learning time, low cognitive demands placed on learners, lack of discipline, violence, and poor educational outcomes. These challenges lead to a lack of motivation and satisfaction with the educational system and this leads to school dropouts in opposition to what we know about resilience enabling schools.

The adolescents also acknowledged the role of friends, neighbours, and other community members with whom they associated who helped them function well. These were said to help with advice, companionship, influencing positive attitudes, and being in a position to come together to find a way forward when the community experienced problems. The role of a supportive community did not surprise me. It fits with my experiences as an adolescent and it fits with the South African literature (E.g., Casale et al., 2010; Ebersöhn, 2012; Mabovula, 2011; Malindi, 2014; Sharp et al., 2019; Theron et al., 2013). In some South African resilience studies a supportive community is interwoven with church and religious activity (E.g, Malindi, 2014; Theron 2015). However, in my study religion and relationships relating to faith-based organisations and/or activities were not part of the positive community relationships that were reported. Faith based supports emerged just as an outlier, being mentioned only by one female participant, Gugu (Group 2). This could probably be linked to Sullins's (2006) observations from a study conducted in over 100 countries, including South Africa. He found that women were more religious than men and this has been linked to socialisation, gender roles, and personality. Nonetheless, I cannot explain why faith based support was not reported by other female participants or even some male participants. The CAP confirmed that there are many churches in eMbalenhle and that many adolescents attend. I have recommended that the RYSE ream explore the under reporting of the faith based supports further.

The summary above therefore gives an answer to my question. While acknowledging that the petrochemical industry poses risks to the adolescents' health and well-being, I also notice that if the adolescents are able or enabled to access available supports from their community (with Sasol included as part of the community) it helps them function despite

these risks. Given what Figure 5.1 illustrates, I found that the community plays a multi-dimensional role in enabling adolescents' resilience. While personal factors like agency, temperament, and intelligence (Malindi, 2014; Shaik & Kauppi, 2010; Ungar, 2008) and family (Black & Lobo, 2008; Masten, 2018) are important, the role of community resources cannot be downplayed. The community provides a platform for the adolescents to influence, be influenced, achieve and acquire (Ebersöhn, 2008; Theron, 2016).

5.3 LIMITATIONS OF THIS STUDY

The research process that informed my study is linked to a number of limitations. To begin with, during data generation participants worked in groups which means that participants might have not felt free to share sensitive information. For example, participants mentioned that some adolescents in the community are using drugs to cope with the stressful environment but in a group situation it would not have been easy for a participant to share openly if she or he was using drugs. On the same note, in working in groups participants seemed to influence each other in responding to some questions and this might have led to some information being held back as participants tend to follow the first speaker's line of thought (Marrelli, 2008). In one group participants seemed to converge on one theme although they were encouraged to express their personal thoughts and experiences since there was no wrong answer to the questions.

The data generation process was handled by four student facilitators and, although they got training in data generation, some of the data from one group was hardly usable. This was because there was poor handling of data recording equipment so that most of the recordings were inaudible.

The research study was conducted in English which is generally a third or fourth language of most black South African adolescents (Casale & Posel, 2011). Although the CAP sought participants with functional knowledge of English, they still struggled with expression. This might have prevented some research participants from engaging in discussion. The audio recordings and transcripts show that in some groups specific participants dominated the discussions more than others.

Resilience is a process that occurs over a period of time (Bonanno, Romero & Klein, 2015) therefore the current study may have restricted benefit in explaining adolescent resilience because of its being a single study. I would suggest that a longitudinal study be done or a similar study be repeated and the results compared to my results.

The study was part of a bigger project, i.e., RYSE, so I did not have complete control. For instance, I could not influence the data generation date on which it would have been suitable for me to participate, so I had to be absent. hype

5.4 REFLEXIVITY

Reflexivity has been defined as a conscious process whereby the researcher critically evaluates his/her social positioning (in terms of sex, gender, race, age, immigration status, sexual orientation, as well as political and professional beliefs) to recognise and acknowledge his or her personal impact on the research process (Berger, 2015; Takhar-Lail & Chitakunye, 2015a). During the reflexivity process the researcher criticises his/her world views, thoughts, assumptions, potential biases in relation to the research topic, context, and study participants (Takhar-Lail & Chitakunye, 2015b). According to Berger (2015) this self-introspection is important because the individuality of a researcher has the potential to influence his/her ability to access the research site, to establish rapport with research participants and also the ability to report research findings due to the his/her subjective experience and beliefs about reality. Although Finlay (2002) notes that it is a difficult skill to master and requires a lot commitment, care, and time, Guillemin and Gillam (2004) explain that reflexivity should be a continous process spanning the whole research process with the goal of enhancing rigor; and, hence, quality and trustworthiness.

My primary reason for engaging in this research project was for the completion of my post-graduate degree. My research study was part of the bigger RYSE project and even though this was limiting in some ways, it was of great benefit that I got to be part of it. I engaged in teamwork in high school as a netball player and as a teacher teaming up with

other teachers for different school goals. This research study gave me an opportunity to again be part of a multi-cultural team. This was beneficial for me as a student because I got an opportunity to understand and relate closely to colleagues from different cultural backgrounds. This was an important experience for me as an educational psychologist in training. I hope to work with people from different cultures so having affiliations with others of different cultures will be beneficial. Hence it was an enjoyable and eye-opening experience that formed relationships that will last beyond my post-graduate studies.

From engaging in this study, I realised that there are more ways of generating data (draw-talk-and-write, body theatre, and clay modelling) than just the ordinary interviews and questionnaires. Although I did not generate the data myself, I got the training and hope to use this knowledge in future. From listening to the transcripts and reading my student co-researchers' reflections I believe participants generally enjoyed the experience although a few introverted participants needed more encouragement to loosen up. Arts-based methods offered participants a variety of artistic expressions that catered for different individual interests. As a psychologist I will use arts-based activities to identify the risks and resources in my clients' lives.

Being an inexperienced researcher and having been unable to attend the data generation in the community, I was anxious at first as to how I was going to be accommodated in accessing the data and also if I was going to make sense of the data I did not generate. Through the team spirit of my colleagues I was easily accommodated and made part of the process. They gladly shared their reflections and I was welcome to ask questions at any point that I needed to. The use of qualitative methods was very helpful in my case; it yielded a lot of data in three different forms (verbal, written and pictures). Although, I spent much time engaging with the data, having different forms of data made it a lot easier to understand and make sense of. I looked at the drawings, read participants' written explanations, and also listened to the audio recordings and in this way I got a deep understanding of the participants' points of view.

The last school in which I worked was a combined school with both primary and high school learners. At the school, there were often challenges with discipline among high school learners stemming from issues like uncompleted assignments to smoking around

the school premises. This experience had sort of shaped my perceptions of the generation of young people in South Africa as unruly, uncooperative, and lazy. However, hearing the voices of the adolescents from eMbalenhle and my colleagues' reflections on how they worked co-operatively, I am persuaded to look again at the school context. According to SERT (Ungar, 2011) at times people use coping strategies that may not be socially accepted, not because they want to look bad but just as a coping mechanism. My view of the adolescents as an educational psychologist is not going to be shaped by my experiences at the school in which I worked. I realise from this study that many young people are passionate, strong-willed, and hardworking.

Of interest to me about my findings, as an educational psychologist in training, is that the adolescents were able to identify the risks of the petrochemical industry to their lives. They also identified community supports that enable their resilience. This shows that they are able to identify their problems and therefore, with support, they may be able to navigate towards efforts to alleviate the problems. What I take from this as an educational psychologist is that I will use my influence purposefully not only to equip communities with resources but also to engage the community resources when I am working with vulnerable youth.

5.5 RECOMMENDATIONS

5.5.1 Recommendations relating to future research

For future research studies that may follow up from this study, I would recommend a slightly different approach insofar as methodology is concerned. While the arts-based group activities yielded a warm and playful atmosphere (Mitchell et al., 2017), it might have also led to some voices of introverted participants being silenced and group members influencing each others' responses. I would therefore recommend mixing methods by including the use of questionaires/individual interviews that would elicit individual information.

While I would still recommend purposive sampling, I suggest that the sample not consist of only those adolescents who are fluent in English. I believe the so-called uneducated adolescents and those on the street could bring important and useful information to a

study like this. With regard to language issues, perhaps translators should be used. Although translators may have certain limits, e.g. translating according to their own understaning, allowing participants to use their preferred language may generate richer data.

Athough the student reseachers received some training this was sometimes not enough to enable them to handle a group of adolescents and the equipment, and probe skillfully. For the next study, I would recommend that a student researcher works hand-in-hand with an experienced researcher throughout the information generation processs.

I would also recommend a longitudinal study or an ethnographic study which would allow the researcher to study resilience over a period of time. Resilience is a process that manifests over time (Masten, 2014; Ungar, 2011) and hence it is would best investigated through a longitudinal study.

The CAP revealed that there are many churches in eMbalenhle community and that many adolescents attend. Surprisingly the theme related to faith based supports was raised but never supported. I would therefore also recommend that the RYSE team explore the under reporting of this theme further.

5.5.2 Recommendations for educational psychologists

Having participated in this research study I cannot agree more with two sentiments echoed by Ungar et al. (2007). First, children do not gang up to do what is labelled as bad according to societal standards because they want to be bad but, rather, because they want to address unmet physical and emotional needs. Second, resilience should not be seen only “as an individual capacity to overcome adversity, but also as the capacity of the individual environment to provide access to health-enhancing resources in culturally meaningful ways” (p. 288).

Psychologists as advocates of children, adolescents, and community health and wellbeing, will therefore need to make these declarations known in high risk communities. Psychologists need to work multi-systemically to benefit adolescents holistically (Ungar, 2008). Based on the findings from my small study, educational psychologists should implement community education programmes that are aimed at changing community

views on vulnerable adolescents as well as helping communities realise their roles in enabling the resilience of its adolescents, while, following Theron (2016), simultaneously offering psycho-education to the adolescents to help them build on personal strengths. Important to note is that for adolescents to function better, while they might engage their personal capabilities, the environment, context, or community should also meet them at their points of need.

Masten (2014) observed that researches are a means through which the governments and international agencies search for evidence and guidance on what helps in alleviating risks and promoting resilience. Being privileged to influence policy, educational psychologists need to work to ensure that community resources and supports are made accessible to adolescents. For instance, studies (including mine) reveal the association not only of physical health difficulties but also mental health problems with the petrochemical industry. Educational psychologists may therefore advocate for policy that will enhance accessibility of physical and mental health services for adolescents in such high-risk communities as eMbalenhle.

As my study results portray, adolescents from eMbalenhle consider their community an important source of support. In working with vulnerable adolescents from this community the educational psychologist needs to involve multiple systems and multiple role-players (Bronfenbrenner, 1979), such as the petrochemical industry itself, and the health-care, and education systems. While it may be important to empower the individual, it may also be critical to include supportive community networks for successful outcomes.

A number of participants expressed their wish to leave the petrochemical affected community. However, the limited subjects offered at the school seemed a hindrance. The school is under-resourced and offers only a few subjects (Sciences and Maths) that are biased towards Sasol. School psychologists need to liaise with the Department of Education so that the school resources are accommodative of non-science and maths learners who are failed and frustrated in the meantime.

5.6 CONCLUSION

> "I am human because I belong, I participate, I share in harmony friendliness, community are great goods, social harmony . . . you and I are made for interdependence, complementarity. I have gifts that you don't have and you have gifts that I don't have." (Tutu, 1999, p.35).

It has been proven that positive personal attributes including cognitive abilities, agency, and optimism as well as positive parenting practices play an important role in resilience (Cameron et al, 2010; Cortina et al, 2016; van Breda, 2017). It is also true that community connectedness, kinships and interdependence constitute another crucial element in one's resilience since humans may not exist in isolation (Currie et al., 2010; Deater-Deckard et al., 2005; Ebersöhn, 2008; Jolly & Conolly, 2019; Lee & Cunningham,2019; Masten, 2014; Sharp, et al., 2019; Small & Memmo, 2004; Theron & Theron, 2010; Ungar, 2011). Tutu's words above express the sense of being part of a community and are in line with eMbalenhle adolescents' sentiments. They reiterated that *positive relationships* with significant people (role models, advisors, friends and relatives etc.) as well as the *support from Sasol*, being able *to access education, and medical care* when sick, and *having opportunities for recreation* in their community were important for their healthy adjustment. Therefore, in their efforts to support the adolescents, educational psychologists need to promote positive personal attributes, positive family practices and, from the perspective of my study, ensure not only that communities such as eMbalenhle, are equipped with supports that enable adolescent resilience, but also that adolescents are supported to navigate to and access available supports, as advocated by SERT (Ungar, 2011).

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7 ADDENDA

7.1 ADDENDUM A: FLYER USED BY CAP TO RECRUIT STUDY PARTICIPANTS

Looking for volunteers

Are you:

- **15-24** years old,
- Living in **the Secunda 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.

7.2 ADDENDUM B: DATA ANALYSIS (AN EXAMPLE OF HOW I CODED, GROUPED CODES, DEFINED THEMES).

Audit trail

Focus: 'To which community supports do youth living in a community affected by the petrochemical industry attribute adolescent resilience?'(Group 2 data).

P: So my vision actually is what gets me going. Then uh Sasol helps, it actually even this it's a Sasol recreation club in a way they try for us not to see the bad, its hiding the bad things that they are doing by giving us clubs ect, so that if, actually it's a choice here to be healthy coz some people are healthy, whereas they live here coz of gym. Sasol offers us gym you can actually get fit whereas you living here. It's a choice of whether you really want to get fit. If you don't want to you will always be saying that Sasol hurts me and there is nothing that I can do. But then if it's trying to…

F: it's a Sasol gym you say?

P: yes… its different for people who work there you are able to go in.

F: you want to say something?

Gugu: oh yes, you see why we see Sasol in as if it's the only place its because Embalenhle is not a developed like township. I not a lot to do truthfully speaking. Its Sasol only that offering jobs, like jobs seriously is Sasol only. You see you can't compare Embalenhle to Soweto or Tembisa because there there are serious businesses where they offer real jobs you see. Here well what other jobs then working at Shoprite or at the mall or at Sasol you can't say you want to do dancing in you live here at Embalence. Where are you going to dance here at Embalenhle. There is not a lot of activities to do as a young person.

F" Do you perhaps want to answer your question and then…

Gugu: Yes

F: What it ok to live in this petrochemical even though there are negative effects and who?

Gugu: ok mina, I am talking about myself as Gugu, I developed myself from a young age, from grade 5 I already knew what I wanted to do. I knew my path. At home they raised us like at. At home, ok at home know works at Sasol. Everyone at home works but no one works at Sasol. My father obviously he owns taxi's he takes people from Sasol and all ut he motivates us each and every day, he does not want us ending up at Sasol. He he, see. Ok let me start with me, at home like if at you home there want to see you elsewhere, they want you to a doctor or something, they won't let you go to Sasol, right. Okay one, two the church that I am in, in our church we have studies, there are A threes for the youth, the youth we do this exactly this, we have debates, last week we had a topic that said do you really think education can make you succeed, you see. So we have that

explore we get motivated you see. Sometimes we get people from Sasol who are higher standards who come to motivate us that we should go to Sasol. [mmmm] at least they tell us

F: what do they say the reason is?

Gugu: they tell us that Sasol is not the end in life. There is a business school at our church. They teach you to start your own business you see. They teach you to create yourself, the Alliance Community Church. They teach you, they nurture you to actually start your own business We need more entrepreneurs. They pray for people who are going to start things here, they pray for businesses that let other people come and start a business at least you have started it knowing that you are going to motivate other people to start their own business and stuff.

P: ok, what…Its family and the community, the people that I am surrounded with. It goes with who you surround yourself with first, you can't surround yourself with people who will end up here, those who don't see the future.

Line	Open codes	Axial codes	Emerging themes
1-2	Sasol recreation club supports youth	Support from Sasol	Support from Sasol
4-8	Sasol offers gym	Support from Sasol	Support from Sasol
10-12	Sasol offers jobs	Support from Sasol	Support from Sasol
13-14	Working at Shoprite /mall	Other employment opportunities	Employment opportunities in the community
22	Employment out of Sasol	Other employment opportunities	Employment opportunities in the community
26-28	Church youth activities	Church engagement	Religion
29-30	Sometimes we get people Sasol who motivate us to go and work for Sasol	Motivation from Sasol	Promise for a better future by Sasol
32	There is a business school	Learning opportunities	Access to education
32-34	At our church they nurture, teach and motivate you.	Support and motivation by church	Religion
35-36	At church they pray for people to do well	Religious activities	Religion
38	People in the community	relationships	Positive relationships

Axial codes	Inclusion criteria	Exclusion criteria
1. Support from Sasol	Any positive input from Sasol (physical, infrastructure, education).	Any detrimental consequences from Sasol.
1.1 Sasol bursaries and learner ships	Statements relating to educational support through bursaries and learner ships	Any other support from Sasol / other source that is not related to funding and learner ship opportunities
1.2 Employment at Sasol	Statements relating to employment opportunities created by Sasol	Any other employment opportunities available in the community

1.3 Motivation and promise for a better future by Sasol	Any statements that indicate motivation by significant people representing Sasol	Any other statements that indicate support by family members, peers or other community members.
1.4 Sasol provision of infrastructure	Information relating to infrastructure provided by Sasol	Any other infrastructure that is not linked to Sasol
1.5 Sasol benefits (Medical aid, property loans and insurance benefits)	Any statements referring to provision of medical aid and loans and insurance by Sasol	Statements that have nothing to do with financial benefits by Sasol.
2. Relationships	Any statements relating to positive relationships with other community member (e.g., friends).	Reference to unhealthy relationships with other people in the community.
3. Learning opportunities	Reference to accessible learning opportunities and institutions.	Reference to learning without specifically pointing to institutions and/or opportunities available.
4. Religious/church activities	Statements referring to activities related to religion or faith	Statements that have nothing to do with faith/ religion.
5. Recreation	Statements relating to recreational opportunities and activities in the community	Statements referring to lack of recreational facilities opportunities
6. Availability of health care	Any reference to accessible health care services within the community	Statements that do not relate to accessible health care
7. Employment opportunities in the community	Statements relating to employment opportunities within the community other than Sasol.	Employment linked to Sasol.

7.3 ADDENDUM C: ETHICAL CLEARANCE

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

RESEARCH ETHICS COMMITTEE

CLEARANCE CERTIFICATE	CLEARANCE NUMBER: **UP 17/05/01 Theron 17-002**
DEGREE AND PROJECT	Community support and the resilience of youth in stressed environments
INVESTIGATOR	Ms Sibongile Sithole
DEPARTMENT	Educational Psychology
APPROVAL TO COMMENCE STUDY	31 August 2017
DATE OF CLEARANCE CERTIFICATE	01 April 2019

CHAIRPERSON OF ETHICS COMMITTEE: Prof Liesel Ebersöhn

CC
Ms Bronwynne Swarts
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.

7.4 ADDENDUM D: INFORMED CONSENT

PARTICIPANT INVITATION AND ASSENT FORM – Activity 2
(Adolescents)

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 industry. We will do the same with people living in North American communities which are involved in and challenged by the oil and gas 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 oil and gas 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 15-17 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?

- You can say no. If you say no, there will be no problem, you don't need to give a reason. Even if you say yes now, it is OK for you to change your mind later and stop taking part.
- If you want to participate, then you must ask your parents/caregivers to agree that you can participate. If they say no, then we unfortunately cannot let you participate. If they say yes, but you say no, then there will be no problem: nobody can force you to say yes. If they say yes and you say yes, then you and your parents/caregivers must complete and sign pages 5 - 6.
- 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 (e.g., a drawing or clay model or video; we will lend you everything you need to do this) that will help answer the following questions: – How does the petrochemical industry affect your life? – Are boys and girls 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 boys and girls 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 videoactivity 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.

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

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

We will ask a person/people to listen to the audio-recordings of 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 oil and gas 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 oil and gas 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 on 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 my parents/legal caregiver must also say yes (in writing) before I can participate
- I understand that what I contribute (what I say/write/draw) 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: _____

Cell Phone Number: _____

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

Name & Surname:

_____

Phone/ Cell Phone Number /Email:

_____

Declaration by Parent/Legal Guardian

By signing below, I …….. [full name] agree to allow my child/the child I legally care for [child's full name: .....] to take part in a research study entitled: *Patterns of Resilience Among Youth in Communities that Depend on Oil and Gas Production and Those Coping with Climate Change*. I declare that:

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

- I agree that photos/videos of my child engaging in the 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 parent/legal guardian **Signature of witness**

Declaration by person obtaining consent

I *(name)* ..... declare that:

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

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

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?

- 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 videoactivity 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**