Social ecology factors in a tertiary education institution that facilitate student resilience

By

Mariaan Prins

Submitted in partial fulfilment of the requirements for the degree

MAGISTER EDUCATIONIS

(Educational Psychology)

in the Faculty of Education

at the

Department of Educational Psychology

Faculty of Education

UNIVERSITY OF PRETORIA

SUPERVISOR

PROF. L. C. Theron

MARCH 2019

Declaration

I, Mariaan Prins (student number 18074988), declare that the mini-dissertation titled: *Social ecology factors in a tertiary education institution that facilitate student resilience*, which I hereby submit for the degree Magister Educationis in Educational Psychology at the University of Pretoria, is my own work and has not previously been submitted by me for a degree at this or any other tertiary institution.

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Mariaan Prins

29 March 2019

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Ms Mariaan Prins

Dear Ms Prins

REFERENCE: UP 17/05/01 Theron 18-001

This letter serves to confirm that your application was carefully considered by the Faculty of Education Ethics Committee. The final decision of the Ethics Committee is that your application has been **approved** and you may now start with your data collection. The decision covers the entire research process and not only the days that data will be collected. The approval is valid for two years for a Masters and three for Doctorate.

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- Initial Ethics Approval letter and,
- Approval of Title.

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Best wishes

Prof Liesel Ebersöhn
Chair: Ethics Committee
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Ethics Statement

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

Dedication

I dedicate this research study to my wonderful support system, especially my mother, Marjorie Prins, for her endless prayers, and my father, Johan Prins, for supporting me and giving me every opportunity to further my studies.

Acknowledgements

The completion of my research study would not have been possible without the following role players, to whom I would like to express my sincere gratitude:

- My heavenly Father, for choosing this path for me and providing me with the necessary strength and courage to not only complete this study, but also to live life as His child.
- Prof. Linda Theron, my research supervisor, for her never-ending encouragement and guidance; thank you for not only being my supervisor, but also being an example of the type of educational psychologist, researcher and human I aspire to be.
- Christine Bakker, for always understanding when I needed a little more time. Thank you for the exceptional language editing.
- My family, especially my mother, for being an example of strength; my father, for showing me that anything is possible through hard work; and my siblings, Tommie and Ina, for caring and continually investing in our relationship.
- Wicus Schoeman, thank you for encouraging continual growth and learning.
- Every other Schoeman – Vicci, Paula, Jurgen, Abby, Wim, Jacqueline, Riaan, Vicci, Anculien and Jurgens – I can truly say that I am privileged to have more than one family.
- My friends, from whom I learn to celebrate and love the life that I was given. I do not have words to thank you for your unconditional love and never-ending prayers.
- My classmates, for your encouragement and support through this research journey. I specifically want to thank Katherine Malakou for understanding and loving me, even in the most challenging of times.

Abstract

Social ecology factors in a tertiary education institution that facilitate student resilience

Supervisor: Prof. Linda Theron

Department: Educational Psychology

Degree: Magister Educationis (Educational Psychology)

My study is a sub-study of the Resilient Youth in Stressed Environments (RYSE) Project (ethics clearance UP17/05/01). RYSE aims to develop a more in-depth understanding of the resilience of youth who live in environments challenged by the petrochemical industry and associated risks, specifically the community of eMbalenhle. In particular, the purpose of my qualitative sub-study is to explore which resilience-enabling factors in social ecologies (SEs) of tertiary education institutions (TEIs) shape the resilience of older adolescents from the eMbalenhle community who are engaged in tertiary education. Despite the common assumption in current South African literature that students who come from backgrounds challenged by disadvantage (the disadvantages that challenge them are often a variety of stressors in their immediate surroundings, with few public resources or services where help can be accessed) are doomed to failure at TEIs, some students from backgrounds challenged by disadvantage progress to TEIs and succeed in completing their studies. However, only a few such students succeed in completing their studies. Research shows that TEIs are not sufficiently prepared to accommodate students coming from backgrounds challenged by disadvantage. Therefore, my study of limited scope might potentially give voice to the perspectives of older adolescents from communities challenged by disadvantage regarding resilience-enabling factors in the SE of TEIs. Phenomenology was the epistemological assumption of my study and a qualitative methodological approach was used. I made use of a phenomenological research design, purposefully selected my six participants (with an average age of 20), and made use of photo-elicitation with conversational interviews to generate data. To analyse the data I made use of Braun and Clarke's (2006) six-step guide to inductive thematic content analysis. The main themes that emerged from my study were that *university structures, a sought-after qualification* (underpinned by a certain view of the future), and *fellow students* (with the subthemes *same course* and *different course*) were resilience-enabling factors. The usefulness of these themes to

resilience theory is that older adolescents entering TEIs might potentially demonstrate resilience when experiencing the identified resilience-enabling factors in the SE of their TEI, and, therefore, my suggestion would be for TEIs to consider prioritising these protective factors.

Key terms:
Social ecology, tertiary education institutions, resilience, students, risk, petrochemical industry, petrochemical-affected community.

Editor's Certificate

DECLARATION OF EDITING

This is to declare that the mini-dissertation of Ms Mariaan Prins was edited for proper academic language, grammar, punctuation, spelling, and overall style and that the overall document and references were formatted as per the prescribed style.

Title: SOCIAL ECOLOGY FACTORS IN A TERTIARY EDUCATION INSTITUTION THAT FACILITATE STUDENT RESILIENCE

Christine Bakker
Academic editor & proofreader

Typerighter

typerighter.info@gmail.com
072 252 3924
490 Verkenner Ave
Die Wilgers
Pretoria 0184

23 March 2019

List of Abbreviations

RYSE	Resilient Youth in Stressed Environments
SERT	Social Ecology of Resilience Theory
TEI	Tertiary Education Institution
SE	Social Ecology
CAP	Community Advisory Panel
SASOL	South Africa Synthetic Oil Liquid

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CHAPTER 1
INTRODUCTION

1.1 Introduction and Rationale of the Study

Since South Africa's first democratic election in 1994, the ruling party's focus has been on attempts to eradicate the negative effects the ruling of the Nationalist government had had on South Africa's education. These effects include a legacy of under-resourced schools, under-qualified teachers and poor academic outcomes, specifically in townships and rural communities challenged by disadvantage (Cross & Atinde, 2015; Leshoro, 2008; Sampson, 2011; Theron & Theron, 2014). Despite attempts to eradicate the results of the past, South African education is not in good shape (Kapp et al., 2014). The abovementioned legacy continues and learners who are challenged by disadvantage experience barriers to sufficient education at primary and secondary level (Cross & Atinde, 2015). The consequence is that, even if these learners are successful in accessing tertiary education institutions (TEIs), they are often not sufficiently prepared and, therefore, do not successfully complete their studies (Le Cordeur, 2012; Nel, 2008; Reed, Kennett, & Emond, 2015).

Besides the challenges experienced prior to entry to a TEI and being insufficiently academically prepared, learners can also experience other challenges at tertiary education level. These challenges include language barriers, nutritional deprivation and feeling inferior and inadequate due to their background (Le Cordeur, 2012; Sampson, 2011). Despite the challenges mentioned, as well as the common assumption in current South African literature that students who come from backgrounds challenged by disadvantage are doomed to failure at TEIs (Cross & Atinde, 2015; De Hart & Venter, 2013; Nel, 2008), some students from backgrounds challenged by disadvantage succeed at continuing to TEIs and in completing their studies. It is believed that students who come from backgrounds challenged by disadvantage require resilience to reach tertiary-level education and be successful (Cross & Atinde, 2015; Dass-Brailsford, 2005). Research shows that resilience, understood ecologically, is a complex socio-culturally determined process of positive adaptation when there is exposure to adversity (Masten, 2014; Theron & Theron, 2014; Theron, 2016; Ungar, 2015, 2018). This means that the successful adaptation of a student challenged by disadvantage not only depends on the individual, but also

(and possibly even more) on supportive social ecological systems that the individual is a part of, and the interaction between the individual and these systems (Masten, 2014; Theron, 2017; Ungar, 2011, 2018).

It has been noted that TEIs are not sufficiently prepared to accommodate students coming from backgrounds challenged by disadvantage; as a consequence this negatively influences the completion of their studies (Liccardo & Bradbury, 2017; Lubben, Davidowitz, Buffler, Allie, & Scott, 2010; Nel, 2008). This can be confirmed by the high dropout rates of students at TEIs, despite TEIs' attempts to provide support and resources (De Hart & Venter, 2013; Sampson, 2011; Van Zyl & Rothmann, 2012). TEIs' failure to successfully support these students can possibly be attributed to the difference in perspective of adults (Sanders & Munford, 2016; Theron, 2017) – who frequently determine which support and social ecology resources are made available at TEIs – and young adults enrolled at the TEIs regarding what resources enable the resilience of students.

As explained further in 1.2 and in the literature review in Chapter 2, I traced very few studies on the views of students from backgrounds challenged by disadvantage (such as being schooled in a township and in an environment challenged by pollution from a petrochemical industry) on resilience-enabling factors within the social ecology (SE) of their TEIs. There is thus a need to understand students' views of the aforementioned resilience-enabling factors. I am interested in closing the gap in the literature with regard to students' views of resilience-enabling factors; both my personal experience as a student and my professional experience have grown my understanding that resource-constrained townships typically offer poor quality education, which negatively influences the completion of studies of students coming from townships. In my personal experience, I witnessed how several students in my university residence successfully completed their studies despite coming from communities challenged by disadvantage, and I consequently wanted to understand what in the social ecology of the TEI acted as a resilience-enabling factor.

If TEIs had a better understanding of what in their SEs were potential resilience-enabling factors for students from communities challenged by disadvantage, TEIs could potentially be better equipped to contribute to student resilience. As a result, the negative effects brought about by the ruling of the Nationalist government may be better addressed, thereby contributing to more equal opportunities for all South Africans. Furthermore, educational psychology should

benefit from my study of limited scope insofar as its contribution to educational psychologists' capacity to promote resilience among students from township communities; through my study, educational psychologists might potentially gain new knowledge regarding resilience-enabling factors within the SE of TEIs. Consequently, they might be able to promote the resilience-enabling factors for at-risk TEI students coming from township communities.

1.2 Problem Statement

Adversities that are often experienced in townships and that contribute to negative outcomes for adolescents growing up in townships include poor housing, poor education and poor healthcare services, unsafe streets, violence, crime, gangsterism, substance abuse and poverty (Buthelezi, Alexander, & Seabi, 2009; Olivier, 2015; Swartz, 2009). Literature reports that these adversities jeopardise the outcomes of adolescents growing up in townships, given adolescents' involvement in hi-jackings, murders, drug-related violence, stabbings and shootings, and given that adolescents from townships often drop out of school. As a result, there is no, or limited, expectation for the adolescents from townships to pursue tertiary education (Davis, Dodge, & Welderufael, 2014; Kapp et al., 2014). Moreover, when adolescents from townships do pursue tertiary education, their chances of succeeding are limited (Buthelezi et al., 2009; Kapp et al., 2014; Olivier, 2015).

Although there are many studies explaining the resilience of South African adolescents, I could find only seven studies documenting the resilience of university students, including students who come from backgrounds of disadvantage (Dass-Brailsford, 2005; Edwards, Ngcobo, & Edwards, 2014; Kotzé & Kleynhans, 2013; Reed, Maodzwa-Taruvinga, Ndofirepi, & Moosa, 2018; Theron & Phasha, 2014; Theron & Theron, 2014; Van Breda, 2018). However, these seven studies do not specifically elaborate on what it was about the tertiary social ecology that supports resilience. Furthermore, not all of the mentioned studies that document the resilience of South African university students included students who come from backgrounds challenged by disadvantage; the exceptions were the studies of Dass-Brailsford (2005), Edwards et al. (2014), Theron and Theron (2014) and Van Breda (2018). Although these studies provide valuable information specifically about the resilience of students from disadvantaged backgrounds, they do not detail what it was about the social ecology of the tertiary education institution that participants attended that supported their resilience. For this reason, I think that

the existing studies can be seen as insufficient with regard to fully explaining the resilience of university students who come from backgrounds of disadvantage.

Without having sufficient knowledge of how the social ecology of a tertiary education institution supports resilience, it is possible that students from disadvantaged backgrounds will continue to struggle to complete their qualifications or to function well in a university environment. This lack of knowledge might mean that township or other disadvantaged communities might continue to experience only a small proportion of young people who succeed at university and become skilled residents or role models. A community with only a small proportion of skilled residents might potentially experience a lack of opportunities to receive an income, marginalising unskilled residents even further as they are unable to participate in the economy of a country. Similarly, too few youth role models could be discouraging to a community's residents. My study of limited scope speaks to this problem. It explores the resilience of TEI students from a township community with a specific focus on the role of the social ecology of a TEI in their resilience. This focus promises useful knowledge about resilience-enabling factors in the social ecology of TEIs of students coming from communities challenged by disadvantage, such as eMbalenhle. Gaining knowledge regarding resilience-enabling factors at TEIs for students coming from a township community, such as eMbalenhle, might enable these students to complete their studies and might consequently enable them to participate in the economy of a country as skilled residents of any community.

Adolescents from the township of eMbalenhle seldom manage to gain access to TEIs, and when they do their chances of success are apparently slim (RYSE Community Advisory Committee, 2017). According to 2016 statistics, only 3.8% of the population of 294 538 of the Govan Mbeki district (comprising of three conglomerates, one of which encompasses eMbalenhle) obtained a qualification after completing matric (Govan Mbeki Municipality, 2017; Statistics South Africa, 2016). Thus, in this particular community of eMbalenhle, there is an urgent need to better understand what supports the resilience of adolescents who access TEIs and who have most likely been exposed to adversity in their community of origin (eMbalenhle). The potential of having been exposed to adversity is most likely due to the double jeopardy of risks associated with growing up in a township that is part of a petrochemical-affected community (See Section 2.2 and Section 2.3). The Resilient Youth in Stressed Environments (RYSE) study is particularly interested in understanding how adolescents growing up in disadvantaged

communities that are impacted by the petrochemical industry (such as eMbalenhle) adapt and strive despite adversity experienced in their environments (RYSE, 2017). I was invited to conduct my study of limited scope as part of the RYSE study.

1.3 Purpose of the Study

From a social ecological perspective, research shows that the interaction between individuals and facilitative social and physical ecologies influences the formation and development of the individual's resilience, despite exposure to adversity (Ungar, 2011; Ungar, Ghazinour, & Richter, 2013; Wang, Liu, & Zhao, 2013). Thus, within the broader RYSE study, the purpose of my study of limited scope was to explore the factors in the SEs of TEIs that tertiary students from the eMbalenhle community considered resilience enabling.

1.4 Research Question

My study of limited scope was guided by a single research question: Which factors in the SE of TEIs are considered resilience enabling by tertiary students who come from the eMbalenhle community?

1.5 Theoretical Framework: Social Ecology of Resilience Theory (Ungar, 2011)

I made use of a theoretical framework to guide my study and the interpretation of my results. A theoretical framework can be described as any theory that can be used as a "lens" to look through, or a perspective from which to study and understand a phenomenon (Anfara & Mertz, 2006; Nieuwenhuis, 2012). Michael Ungar's Social Ecology of Resilience Theory (SERT) (Ungar, 2011) was used to provide a theoretical framework for my study of limited scope. My choice of theoretical framework was motivated by the following: (i) the RYSE study focuses on how the interaction of social (e.g. family, education systems) and ecological systems (e.g. natural environment, built environment) impacts the resilience of young people affected by changing contexts. SERT fits with the focus of the broader RYSE study and my focus on the social ecology of TEIs; (ii) SERT is a systemic approach to resilience, an approach similar to several previous South African studies of resilience that have employed a systemic approach to resilience (Eyles, Harris, Fried, Govender, & Munyewende, 2015; Mampane, 2014; Mampane & Bouwer, 2011; Van Breda, 2018). Accordingly, (i) and (ii) together prompted me to use SERT to

frame my study of limited scope. SERT is based on research that shows that resilience is influenced more by social and physical ecologies than by individual traits (Van Breda, 2017a; Ungar, 2012). Within SERT, resilience is understood in terms of four principles, namely decentrality, complexity, atypicality and cultural relativity (Ungar, 2011). *Decentrality* is about decentring the individual in studies of resilience, and centring the social and physical ecology of the individual (Ungar, 2011; Ungar et al., 2013). An example of the decentrality principle can be found in a study done by Malindi and Machenjedze (2012) in which they focus on how the social ecology of a school may potentially enable resilience for street children who lived in a shelter. Although the study of Malindi and Machenjedze (2012) refers to the learners' capacity to navigate their way to resources found in the school environment, the focus (centre) of the study was on the resilience-enabling factors within the social ecology of the school context, such as supportive teachers and friends.

Complexity as principle entails that the resilience of individuals is influenced as they move through contexts and time, and can thus not be narrowly described (Ungar, 2011; Ungar et al., 2013; Wessells, 2015). The principle of complexity can be found in a study done by Ungar et al. (2007). The study of Ungar et al. (2007) demonstrates how resilience-enabling factors are viewed differently when being raised in a context where western ideals of individualism are prominent, compared to when being raised in a context where a collective identity is foregrounded.

When considering the *atypicality* principle, resilience is seen from the perspective of the participant (Theron, 2017; Ungar, 2011). This means that what facilitates resilience could be counter to what might typically be expected by mainstream society. An example of the atypicality principle can be found in a study done by Malindi and Theron (2010). They found that the resilience of street youth was enabled by practices that are not typically expected (atypical) to be resilience enabling. These atypical practices included street youth engaging in violence, vandalising public property, teasing and telling lies. These practices enabled resilience in the sense that the street youth experienced that they were able to protect themselves and look after themselves despite being exposed to adversity (Malindi & Theron, 2010).

Lastly, according to the *cultural relativity* principle, resilience is influenced by culture, as a specific group's beliefs and ways of doing may determine which factors are potentially resilience enabling to that specific group (Ungar 2011; Wessells, 2015). An example of the

cultural relativity principle can be found in a study by Van Breda (2018) regarding the resilience of vulnerable students transitioning into a South African university. The study not only recognises that most individuals within the student culture often face challenges, such as running out of cash and the anxiety of independence that comes with the transition from home to university, but also recognises that previously disadvantaged individuals most likely experience that the challenges they face are worsened by their previously disadvantaged position, such as high levels of poverty. The study of Van Breda (2018) (a South African study) therefore incorporated the contextual realities of the students in the study, as well as their social environments, in the understanding of the students' demonstration of resilience. Culture can be seen as a multidimensional phenomenon that "encompasses processes, products and results of human activity, material and spiritual, transmitted from generation to generation in a non-biological way" (Mironenko & Sorokin, 2018, p. 338). In layman's terms, culture can thus be seen as people's beliefs, views and ways of being and doing (Panter-Brick, 2015). Van Breda's (2018) study found that South African students draw specifically on relational resources in their community at home (including their family) during times of adversity. The findings most likely speak to the importance of the students' culture, namely that relationships that have heritage and that endure are seen as valuable protective factors for previously disadvantaged South African students during times of adversity (Van Breda, 2018).

According to SERT, supportive SEs enable individuals to adjust well when they experience challenges (Theron & Theron, 2014; Ungar et al., 2013). By making use of SERT, and because of my attempt to understand the SE's contribution to the older adolescents demonstrating resilience, my study was guided in terms of gaining the participants' perspective (atypicality) on resilience-enabling factors in their social and physical ecology (decentrality), while considering their values, beliefs, language and customs (cultural relativity), but not generalising results across participants and other young adults (complexity).

1.6 Concept Clarification

The concepts of social ecology, tertiary education institutions, resilience, students, risk, petrochemical industry and petrochemical-affected community are central to this study, and are therefore explained below.

1.6.1. Social ecology.

A social ecology refers to the different systems of an environment that are in interaction with an individual (Lounsbury & Mitchell, 2009; Ungar et al., 2013). For the purpose of this study, "social ecology" will refer to the different systems of a TEI environment (e.g. the student's residential environment or the student's study environment) with which an individual student interacts.

1.6.2. Tertiary education institutions.

Also referred to as "higher education institutions". These institutions are approved by recognised accreditation systems or by the competent state authorities. Furthermore, "higher education institutions" include public or private universities, other educational establishments, and centres and structures of higher education. Centres of research and culture that are associated with universities, other educational establishments, and centres and structures of higher education, are also included when referring to tertiary education institutions (UNESCO, 1997). It is typical for TEIs in South Africa to offer support services to students, including psychological support encompassing academic support, career guidance, and counselling; and financial support (Knight, 2018; Munyaradzi & Addae, 2019; Schreiber & Aartun, 2011). In this study, "tertiary education institutions" will refer to the 26 South African institutions of higher education.

1.6.3. Resilience.

Understood ecologically, resilience is the capacity of individuals and the capacity of their social and physical ecologies to enable them to adjust well to risks in ways that are meaningful to them (Ungar, 2015, 2018). With reference to TEI students, resilience is inferred when tertiary students who experience/d disadvantage (e.g. low or no household income) – such as students from eMbalenhle, where almost 20% of households have no income (Statistics South Africa, 2018) – make progress in their chosen qualification (e.g. pass the first year) (Theron & Theron, 2014). For the purpose of this study of limited scope, resilience will be inferred when students from eMbalenhle are past their first year of study at a tertiary education institution, because this implies that these students have successfully completed their first year of study despite the adversity they most likely had to overcome, coming from a township school.

1.6.4. Students.

A student is someone who is in the process of completing a tertiary education qualification at a college or university, or sometimes at a school (Murungi & Gitonga, 2015). For the purpose of this study of limited scope, I was interested in the views of undergraduate students. Thus, I was interested in students that have not yet graduated in the particular course for which they are currently enrolled. In South Africa, undergraduate students are typically in the age range of 20 to 24 (Council on Higher Education, 2013). Adolescents, as defined by Sawyer, Azzopardi, Wickremarathne and Patton (2018), do not only refer to individuals 10 to 19 years of age anymore, but rather to the population group aged 10 to 24, as the transition from childhood to adulthood takes up a greater portion of people's lives in the twenty-first century than in the past. Since all of my participants fell into the age range of 18 to 23 they could be considered (older) adolescents (as per the definition of Sawyer et al., 2018).

1.6.5. Risk.

A universally agreed-upon definition of the term "risk" is considered challenging because the concept of "risk" is seen as multidimensional and a definition of risk as "a measure of the probability and severity of adverse effects" seems ambiguous (Haimes, 2009). Therefore, for the purpose of this study I focused on physical and mental health risks, psychosocial risks and economic risks associated with petrochemical-affected communities that are challenged by socio-economic disadvantage. The aforementioned risks potentially jeopardise successful completion of a university degree (see Chapter 2).

1.6.5.1. Challenged by disadvantage. When referring to individuals or communities challenged by disadvantage, the disadvantages that challenge them are often a variety of stressors in their immediate surroundings, with few public resources or services where help can be accessed (Theron, 2016; Young, 2015). In this study, "challenged by disadvantage" will refer to young adults in the South African context experiencing disadvantages, including poor education with particular reference to older adolescents from the eMbalenhle community. According to Munje and Maarman (2017), poor education includes instances where positive learner performances and desired educational outcomes are not attained. This non-attainment typically relates to insufficient learning spaces, uninvolved and/or under-trained teachers, and a lack of quantity and quality resources (Kapp et al., 2014; Ramnarain, 2014).

1.6.5.2. Petrochemical industry and petrochemical-affected community. The first refers to industries that act as important sources of emissions of chemical substances, such as oil and

gas, whereas a petrochemical-affected community refers to residents that live together nearby the petrochemical industries and who are negatively affected because of the emissions of the industry (Chen, Lin, & Chan, 2014).

1.7 Assumptions

In this study, I assumed that older adolescents who come from backgrounds challenged by disadvantage, and who are enrolled at TEIs, demonstrate resilience because of the SE of their TEI. I assumed this because of my personal experience as a student who had had several discussions with students who were living in the same residence as I, and who had come from communities challenged by disadvantage. In these discussions the students motivated their persistence to complete their studies and graduate (with graduation being something that can only take place within the SE of the students' TEIs) as a future means of providing for their families – despite coming from communities challenged by disadvantage and experiencing challenges at the TEI. The students believed that providing for their families would be possible if they completed their studies. Therefore, it seemed to me as if these students perceived the SE of a TEI as a necessary resource if they were to provide for their families by means of a qualification they obtained due to being exposed to the SE of a TEI. South African resilience studies suggest similar beliefs (e.g. Theron & Theron, 2014; Van Breda, 2018).

Furthermore, I assumed that participants succeed at completing their studies because they want to be able to physically leave their challenged community behind and move on to better things (consequently providing for their families from a distance).

I assumed that role players, such as mentors in our residence and sponsors providing bursaries (the SE of the mentioned students), contributed to the successful completion (and, consequently, realisation of educational aspirations) of the students with whom I had had the abovementioned conversations.

Furthermore, I assumed that strong relationships with friends in the SE of TEI would contribute to older adolescents demonstrating resilience, as I experienced that my strong relationships with friends at my tertiary education institution enabled me to stay strong when I experienced challenges. During my educational psychology training I also became aware of people often experiencing that they have strengths and assets (contributing to the enablement of

their resilience) because of their social capital, which can be found in friends (Myroniuk, 2016; Ungar, 2011).

1.8 Methodology

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

1.8.1 Epistemological paradigm.

Phenomenology was the epistemological paradigm of my study. Phenomenology holds that any attempt to understand a phenomenon, and to construct a new or richer meaning thereof, have to be grounded in people's experiences of that phenomenon (Fouché, 2005; Gray, 2009). The reasons for choosing phenomenology as the epistemological paradigm, and the advantages and disadvantages of this approach, are reported in Chapter 3 (Section 3.4.1).

1.8.2 Methodological paradigm.

A qualitative methodological approach was used in my study. A researcher that makes use of this approach is generally concerned with the interpretation and understanding of meanings that people attach to a phenomenon (Morgan & Sklar, 2012; Snape & Spencer, 2003; Taylor, Bogdan, & DeVault, 2016). The reasons for choosing a qualitative methodological approach as the methodological paradigm, and the advantages and disadvantages for this approach, are reported in Chapter 3 (Section 3.4.2).

1.8.3 Research design.

I made use of a phenomenological research design. A phenomenological design is based on the assumption that there is an essence, or essences (core meanings mutually understood by the participants through a phenomenon), to a shared experience (Bloomberg & Volpe, 2016; Marshall & Rossman, 2016; Merriam, 2009). The design typically involves conducting open-ended interviews and conversational inquiries (Guest, Namey, & Mitchell, 2013; Merriam, 2009). The reasons for choosing the aforementioned design, and the advantages and disadvantages thereof, are reported in Chapter 3 (Section 3.5.1).

1.8.4 Sampling.

As noted, my study forms part of the RYSE study. The older South African adolescents who are the focus of the RYSE study live in the eMbalenhle community, which is affected by industry (specifically petrochemical industry) and climate change associated with industrial activity. The participants that I had access to were, therefore, limited to the older adolescents from the eMbalenhle community in the Secunda area, in the Govan Mbeki district.

I selected participants purposefully. Purposeful selection entails the selection of participants that can respond to the research questions with rich information, with the goal of gaining insight and an in-depth understanding of the specific research phenomenon (Bloomberg & Volpe, 2016; Merriam, 2009; Patton, 2015). The reasons for choosing purposeful selection as the sampling method, and the advantages and disadvantages of this sampling method, are discussed in Chapter 3 (Section 3.5.2). In total, six participants (with an average age of 20) constituted the sample for my qualitative study of limited scope. I provide participant details in Chapter 3 (Section 3.5.2).

1.8.5. Data generation and documentation.

A participatory data generation method was used, namely photo-elicitation with conversational interviews (Flick, 2014; Marshall & Rossman, 2016). Photo-elicitation is a method in which the researcher uses photos to elicit conversation with the producers of the photos about the meaning of their photos (Bryman, 2012). Information provided by photo-elicitation can possibly reveal participants' perspectives on a specific research phenomenon (Boeije, 2010). The reasons for choosing photo-elicitation as the data generation and documentation method, and the advantages and disadvantages thereof, are discussed in Chapter 3 (Section 3.5.3).

1.8.6. Data analysis and interpretation.

I made use of inductive thematic content analysis, which means that concepts and categories that were identified during coding came from the data itself (Braun & Clarke, 2006; Ravitch & Carl, 2016; Schreier, 2012; Yin, 2011). Coding refers to the process of revisiting data until patterns in and explanations for the research phenomenon are identified and understood and insight occurs (Richards, 2009; Taylor et al., 2016). In my study I made use of Braun and Clarke's (2006) six-step guide to inductive thematic content analysis. The reasons for choosing inductive thematic analysis, and the advantages and disadvantages of this analytic approach, are discussed in Chapter 3 (Section 3.5.4).

1.9 Quality Criteria

Guba and Lincoln (1994) noted that to establish trustworthiness in research, a variety of quality criteria should be adhered to. These criteria include credibility, dependability, transferability, confirmability and authenticity. These criteria are discussed in detail in Chapter 3 (Section 3.6), and are thus not provided in this chapter.

1.10 Ethical Considerations

As mentioned, my study of limited scope formed part of the larger RYSE study. RYSE received ethical clearance from the Ethics Committee, Faculty of Education (UP 17/05/01). My sub-study received an aligned clearance (UP 17/05/01 Theron 18-001). When I interacted with the participants, I was careful to work ethically, as explained in Chapter 3 (Section 3.7).

1.11 Conclusion

There exists a need to explore what in the SE of TEIs enables students from disadvantaged contexts to demonstrate resilience while enrolled at TEIs; the high probability of marginalisation of residents of township and/or petrochemical-affected communities (due to not being able to participate in the economy) will most likely be lessened when a qualification at a TEI is obtained (Matooane, Oosthuizen, & John, 2011). My study of limited scope, which followed the design as summarised in Chapter 1, responds to this need. In the next chapter, I explore the risks associated with residing in petrochemical-affected communities to better understand the views of the participants regarding resilience-enabling factors in the SE of their TEIs.

CHAPTER 2
LITERATURE REVIEW

2.1 Introduction

This chapter consists of two parts. In the first part I will describe what is known about the risks associated with the petrochemical industry and the effects that it may have had on people (such as the participants in my study) who come from a community that is close to a petrochemical industry and whose families are mostly dependent on the petrochemical industry as their source of income. In addition, because my study is focused on students coming from a resource-poor township, I will describe what is known about the risks associated with townships and the effects thereof. In the second part of this chapter, I will shift the focus to a review of the resilience literature that reports resilience-enabling factors in the social ecology of tertiary education institutions. The literature review reports international and South African literature that focuses on the supports that enable university and college students to overcome risks to their academic success and well-being. The literature review was conducted after data collection to align with the emerged themes.

2.2 Petrochemical-affected Communities and Associated Risks

In the following section, I will focus on physical risks, psychosocial risks and economic risks associated with petrochemical-affected communities in addition to how these risks challenge success at TEIs for students from such communities. The activities of petrochemical industries concerning natural resources, such as petroleum (with one example being Sasol), hold the potential to influence the health and psychosocial well-being of communities in close proximity, as well as national and regional development, and may consequently influence the economy (Banks, 2009). I will therefore focus on the mentioned risks, as the participants in my study had to overcome them in order for them to gain access to TEIs.

2.2.1 Physical risks.

"Positive health" constitutes physical, mental and social well-being and not merely the absence of disease or physical or mental illness (risks) (World Health Organization [WHO], 2014). Poor physical health and poor mental health correlate positively, leading to an increased risk in terms of negative outcomes on both dimensions (Gianaros & Wager, 2015;

Mental Health Foundation, n.d.). In short, physical risks can be seen as anything that holds a threat to the physical health of someone.

Studies conducted in the Global North link physical illness (indicating that a person does not have physical positive health) and petrochemical pollution (Altuğ et al., 2013; Choobineh, Daneshmandi, Aghabeigi, & Haghayegh, 2013; Micheli et al., 2014; Wang et al., 2015). For example, Micheli et al. (2014) identified that activities from a petrochemical refinery in Italy had resulted in the death of 177 people living nearby. Among other risks, these people were typically diagnosed with haematological malignancies, such as Hodgkin lymphoma, non-Hodgkin lymphoma, multiple myeloma and leukemia (Micheli et al., 2014). Although the study of Choobineh et al. (2013), with 1 184 randomly selected employees of Iranian petrochemical industries, did not report haematological malignancies, they did find evidence of work-related musculoskeletal disorders (MSD). Furthermore, the study of Altuğ et al. (2013), with 1 880 learners (aged between 9 and 13) residing in an area near a petrochemical industry in Eskişehir, Turkey, indicated symptoms such as asthma, rhinitis and eczema in participants because of the effects of air pollution from the petrochemical industry.

Global South studies report comparable results relating to physical illness and petrochemical pollution (Wang et al., 2015; Wichmann et al., 2009). For example, Wang et al. (2015) researched the health of 53 workers in Xigu, a western suburb of Lanzhou in China, where petrochemical industries are located. Their study's results showed that a heightened risk of cancer because of red blood cell abnormality, resulting from exposure to certain toxic materials in the petrochemical industry environment, was common. Similarly, the study of Wichmann et al. (2009), with 5 282 children from petrochemical plants in La Plata, Argentina, indicated a positive correlation between air pollution caused by the plants and negative respiratory outcomes of the participants, such as a higher prevalence of asthma, asthma exacerbations, respiratory symptoms, and lower lung function than found in children living in areas exposed to heavy traffic or areas that are not exposed to air pollution. Likewise, Gonçalves, De Almeida Melo and Rêgo's study (2016), with 20 male workers who previously worked at the petrochemical industry of Salvador, Bahia, found that even when removed from the industry for several years, workers still demonstrated genotoxic damage because of exposure to benzene while working at the industry, which manifested as haematological disorders.

Although I could find only one South African study regarding the physical health risks of petrochemical industries (i.e. White et al., 2009), several newspaper articles (e.g. Comrie 2016; Mabuza, 2017; Pinnock, 2017) reported the same risks highlighted in the

abovementioned international studies. In the South African study, White et al. (2009) conducted a study with 2 361 children living near a petrochemical refinery in Cape Town. Among other risks, these children were typically diagnosed with respiratory illnesses, such as asthma.

Newspaper articles reporting on the mentioned risks (e.g. Comrie, 2016; Pinnock, 2017) mostly referred to Sasol, one of South Africa's biggest petrochemical industries, that has a petrochemical plant in Secunda. Two kilometres down the road of Sasol's petrochemical plant, one will find the township of eMbalenhle (Comrie, 2016). Sasol uses 110 000 tons of coal a day to produce fuels and chemicals, and the fuel production facility alone covers almost five square miles (or 13 square kilometres) (Meyer et al., 2011). The use of coal and the production of fuel and chemicals lead to pollution and several challenges experienced by the residents of eMbalenhle. One of the challenges can be found in the Kleinspruit river flowing from Sasol to the township of eMbalenhle, which is home to 200 000 residents (Comrie, 2016); the river is polluted by the petrochemical activities of Sasol and although the water quality is described as within legally acceptable levels, many residents experience fear regarding their health because of Sasol's activities (Comrie, 2016). The residents' fears not only include water pollution and the effects thereof, but also respiratory and cardiac illnesses such as asthma, as well as chest pains, eye problems and sinusitis, to name a few (Comrie, 2016; Mabuza, 2017; Pinnock, 2017).

From the above discussion, it is clear that toxic chemicals and the activities of petrochemical industries potentiate negative health impacts, such as illnesses caused by pollution and respiratory and cardiac diseases, which may subsequently influence the mental health of residents in petrochemical areas in a negative way (Brown, 2014). Negative health effects may result in absence from work and school; therefore, petrochemical industries may also pose certain psychosocial and economic risks. In particular, poor physical health can jeopardise academic progress at TEIs, as the case may potentially be for students whose health has been affected in a negative way because they grew up in communities in close proximity to petrochemical industries.

Positive physical health is regarded as a contributing factor to a student's learning ability, academic performance, goal achievement and positive adjustment to life at university (Adler et al., 2008; El Ansari, Oskrochi, Labeeb, & Stock, 2014; Ndahepele, Daniels, Nabasenja, & Damases-Kasi, 2018). Research shows that students who adjust positively to life at university are more likely to get better grades and graduate and are often more successful later in life (Adler et al., 2008). Hence, poor physical health might not only

jeopardise academic progress at TEIs, but also prevent graduation at TEIs altogether, thus potentially influencing a student's future prospects.

2.2.2 Psychosocial risks.

Global North studies on the psychosocial risks resulting from petrochemical industries' activities indicate that environmental threats – such as the processing of flammable and toxic materials and the production of toxic waste, wastewater, noise pollution and greenhouse gases – pose certain health and safety risks to the environment, often translating to psychosocial problems for people residing in the environment (Lavy, Ebenstein, & Roth, 2014; López-Navarro, Llorens-Monzonís, & Tortosa-Edo, 2013). The term "psychosocial" refers to the influence of social factors – including social structural factors (such as a person's economy and class) and the context of the individual – on an individual's mind or behaviour, and also to the interrelation of behavioural and social factors (Martikainen, Bartley, & Lahelma, 2002). For example, the study of Lavy et al. (2014), conducted with 71 838 learners in schools near petrochemical industries in Israel, showed that exposure to air pollution from petrochemical industries might potentially lead to a decline in cognitive performance. The results provided evidence that cognition is affected by air pollution, which might potentially lead to economic risks because academic success often facilitates entry into universities (Lavy et al., 2014). Similarly, López-Navarro et al. (2013) conducted a study with 992 people living adjacent to a petrochemical plant in Spain. Among other risks, these people typically experienced uncertainty regarding the petrochemical industry's release of toxic materials, resulting in anxiety and physiological stress.

Only one Global South study that links psychosocial risks and the petrochemical industry could be found: It reported comparable results relating to psychosocial risks and the petrochemical industry (Rasoulzadeh, Bazazan, Safaiyan, & Dianat, 2015). Rasoulzadeh et al., (2015) researched the psychosocial well-being, with regard to fatigue and psychosocial distress, of 290 shiftworkers at an Iranian petrochemical plant in Bushehr. Their study's results showed that fatigue (particularly general fatigue) and psychological distress (especially social dysfunction, anxiety and insomnia) are associated with shift-working at a petrochemical plant.

Although I could not find any South African studies on the link between psychosocial risks and petrochemical industries, several newspaper articles reported on people's fears and experiences of living near a petrochemical plant, which might negatively affect their psychosocial well-being (e.g. Comrie, 2016). For example, Comrie's article reports on people

living near the Sasol petrochemical plant in eMbalenhle who voice their fears concerning their health because of the activities of Sasol and report experiences of degeneration of their quality of life (Comrie, 2016). The people from eMbalenhle also experience challenges of poor service delivery, despite Sasol claiming that they are contributing to residents' expectations of safe and attractive environments by collaborating with the local municipality ("Sasol Partnering with Local Government", 2014). Numerous challenges regarding service delivery are reported on in *Ridge Times*, the local newspaper. Challenges that are experienced by residents of eMbalenhle include sewage overflowing streets and contaminating drinking water, sporadic power outages, and no refuse removal services (Mathebula, 2018a, 2018b, 2018d; Oosthuizen, 2018a; "Shops Looted", 2017). The psychosocial impacts of the abovementioned poor service delivery include worrisome residents who are concerned about their health and about their families being exposed to dangerous waste that gets dumped in the environment where they play (Mathebula, 2018d).

There is evidence that students experiencing psychosocial challenges may find that these psychosocial factors jeopardise their academic progress at TEIs (El Ansari & Stock, 2010; Ndahepele et al., 2018). Research shows that depression, anxiety, maladjustment and stress often contribute to burnout and poor academic performance of students at TEIs, because of symptoms such as poor concentration and poor sleep (Al-Busaidi et al., 2011; Lee, Mun, Lee, & Cho, 2011; Ndaphepele et al., 2018). Consequently, such students often discontinue their studies (Al-Busaidi et al., 2011). Furthermore, Arnett (2010) explains the developmental stage of older adolescents as the emerging adulthood stage. According to Arnett (2010) individuals often experience transitioning during emerging adulthood; a need to make independent decisions; explore their emerging adult identities and have high expectations with regard to educational attainment for reasons such as finding a satisfying job and consequently be independent (Arnett, 2010). Factors such as transitioning from one developmental stage to another as well as identity exploration might pose psychosocial risks as these factors are likely to contribute to anxiety, depression and stress (Robinson, 2019). Students from backgrounds exposed to the psychosocial risks often associated with petrochemical-affected communities might consequently experience double jeopardy with regard to psychosocial risks.

2.2.3 Economic risks.

Studies conducted in the Global North link economic risks and petrochemical environments (Bolte, Tamburlini, & Kohlhuber, 2010; Bottrell, 2009; Cox, Irwin, Scannell, Ungar, & Bennett, 2017). "Economic risks" is a term used to describe the impact of economic lack or economic fluctuations, which may result in a loss, on a particular person or organisation (Spacey, 2015). For example, the study by Bolte et al. (2010), with children and adolescents living in the contexts of petrochemical industries in Europe, indicated that the socio-economic status of people living in contexts of petrochemical industries are often of such a nature that they lack resources, such as access to quality healthcare to reduce health consequences imposed by the activities of the petrochemical industry. Therefore, low socio-economic status most likely contributes to inequality and poverty. Likewise, Bottrell's study (2009), with 12 girls in inner-city Sydney, Australia, contributed to a better understanding of economic risks associated with petrochemical industries. It highlighted the odds of being successful in education for youth coming from low socio-economic backgrounds, such as areas surrounding petrochemical industries. Inadequate education usually results in a lack of employment opportunities later in life and, therefore, holds an economic risk for youth growing up in areas surrounding petrochemical industries (Bottrell, 2009). Similarly, a study by Cox et al. (2017) on the economic impacts (among other) experienced by families and communities living nearby a petrochemical industry in (mainly) North America indicated that, because petrochemical industries provide many employment opportunities, transforming energy systems introduces a potential for increased unemployment and associated economic risk. Due to global recognition of the negative effects of petrochemical industries' chemical releases (such as unsafe emissions) on climate change, many countries are working to transform energy systems of such petrochemical industries to no-carbon energy alternatives.

Global South studies report comparable results relating to economic risks and living in the context of petrochemical industries (Banks, 2009; Bharadwaj, Gibson, Zivin, & Neilson, 2014). The study of Banks (2009) drew on research done in Melanesia, New Guinea on the effects of living in contexts affected by extractive industries (such as petrochemical industries). The link between economic risks and working at petrochemical industries indicated in this study by Banks (2009) can be seen in the rise of inequality. Labourers often receive low and unevenly distributed wages depending on their gender and hierarchical position within the industry. Similarly, the study by Bharadwaj et al. (2014) on the effect of air pollution in Santiago, Chile indicated that the negative effects of pollution from petrochemical industries impact human capital outcomes in the long term in terms of health-related issues and, as a result, influence the country's economy negatively, thus posing an

economic risk. The study also found a strong correlation between fetal exposure to the air pollution of petrochemical industries and children's performance later in life, especially in math and language tests. Since school performance can be seen as an important factor when it comes to employment and wage outcomes later in life, the effects of petrochemical industries potentially contribute to economic risks for the individuals involved (Bharadwaj et al., 2014).

I could not find any published South African studies that documented links between economic risks and petrochemical industries. Nevertheless, local newspaper articles do make this link. For example, a newspaper article published in South Africa shows that people living in areas surrounding petrochemical industries, such as the people of eMbalenhle, experience concerns about the health of youth resulting in unemployment (Comrie, 2016). Examples can be found of expressions of dissatisfaction with the high occurrence of unemployment, accompanied by claims that companies hire "outsiders" rather than people from the community. There are also expressions of concern and accompanying frustration with Sasol, the petrochemical industry, which is apparently to blame for poor health of people, resulting in people being unemployed (Comrie, 2016; Rathebe, 2018).

Economic risks – such as a lack of financial support and consequently experiencing financial problems and financial stress – and coming from low socio-economic backgrounds often threaten students' academic progress at TEIs (Munro, 2011; Ndaphele et al., 2018; Soh et al., 2012). Students who experience a lack of financial support are often in a position where they have to support themselves, with the result being that they are distracted from their studies; consequently, their academic prospects are negatively influenced (Firfirey & Carolissen, 2010; Joo, Durband, & Grable, 2008; Munro, 2011). Furthermore, several studies have shown that students with poor financial status often experience moderate to high mental distress, frequently resulting in poor academic performance and discontinuation of studies (Al Ghanboosi, 2013; Britt, Canale, Fernatt, Stutz, & Tibbetts, 2015; Soh et al., 2012).

2.3 The Risks of Township Residence

Since my study is focused on students coming from eMbalenhle, a resource-poor township, I will describe what is known about the risks associated with growing up in townships and the effects thereof on academic progress at TEIs in particular. Subsequently, I will include a description of how the described risks predispose students to academic failure at TEIs. Townships, today also sometimes referred to as "informal settlements", can be described as spatial structures that were historically built under the Apartheid legislation to be

occupied by non-white population groups (Agrisystems Consortium, 2008; The Department of Co-operative Governance and Traditional Affairs [CoGTA], 2009; Mahajan, 2014). Today, low-cost housing settlements can also form part of the definition of a township; post-Apartheid developmental policies (such as the free public housing programme) are being implemented, resulting in post-Apartheid townships being filled with low-cost houses (Agrisystems Consortium, 2008; Mahajan, 2014; Manyaka-Boshielo, 2017). The risks associated with growing up in townships and the effects thereof will be sub-divided into inadequate infrastructure and services; unemployment and poverty; violence and crime; and poor education, and discussed accordingly.

2.3.1 Inadequate infrastructure and services.

A township was generally built at a distance from economic activity and from white residential areas and often lacked public services, recreational facilities and infrastructure, such as tarred roads, sanitation, water and/or electricity (Jürgens, Donaldson, Rule, & Bähr, 2013; Mahajan, 2014; Ngqela & Lewis, 2012). Residents of townships were separated from economic activity by a natural or artificial buffer (such as an industrial area) and their housing did not exceed certain minimum standards, as defined prior to the establishment of the townships (Jürgens et al., 2013; Mahajan, 2014). Today, residents of townships still experience risks associated with inadequate infrastructure and being far from urban areas (Jürgens et al., 2013). As townships are still located at the outskirts of urban areas, the residents experience challenges such as dependence on public transport for job seeking and economic integration (Mahajan, 2014; Pernegger & Godehart, 2007). Because residents (including youth) are dependent on public transport while experiencing poverty, the risk of unemployment heightens, which will be discussed in the following section. As such, students at TEIs who come from townships will probably experience financial challenges at TEIs because they come from households where there is a high possibility of unemployment; this potentially results in psychosocial risks, which may jeopardise the students' academic progress at TEIs. See Section 2.2.2 for a discussion of the effects of psychosocial risks for students at TEIs.

2.3.2 Unemployment and poverty.

Several studies done in townships indicate unemployment rates as very high, even as high as 70% (Bak, 2008; Pernegger & Godehart, 2007; Mahajan, 2014; Manyaka-Boshielo, 2017; Ngqela & Lewis, 2012; Rolfes, Steinbrink & Uhl, 2009). High unemployment rates effectively indicate high levels of poverty among township residents; unemployed people often have inadequate housing such as informal shacks or a lack of access to housing (Pernegger & Godehart, 2007; George & Booyens, 2014). Unfortunately, high unemployment rates continue to rise as economic and social circumstances negatively affect the opportunities of working as wage earners, which is often the way township residents earn an income (Bak, 2008). Living in both a township with high unemployment rates and a township community serving the petrochemical industry with declining jobs poses double jeopardy to residents (such as the residents living in eMbalenhle) with regard to being unemployed and experiencing poverty (Mathebula, 2017; "Sasol Cuts More Than 1000 Jobs", 2015). The aforementioned circumstances put students who come from such communities at risk with

regard to academic progress at TEIs – that is, if they even get the opportunity to attend a TEI (Le Cordeur, 2012; Firfirey & Carolissen, 2010). Due to a factor such as poverty, only 4% of youth in South Africa who pass their matriculation exam go to a TEI and obtain a qualification (Nortje, 2017). Youth growing up in poverty-stricken communities most often have parents with low levels of education and who have not attended university themselves (possibly as result of their own experiences of growing up amidst unemployment and poverty); consequently, the parents usually lack cultural and social resources to support their children at university (Bok, 2010; Devlin, 2013; Mhlongo & O'Neill, 2013). These youth themselves experience that they do not have the necessary social and cultural capital to adapt to and feel comfortable at university because of their poor backgrounds, which results in putting them at risk to discontinue their studies (Christie, Tett, Cree, Hounsell, & McCune, 2008; Devlin, 2013; Fataar, 2012).

Furthermore, students from poor rural backgrounds (such as the community of eMbalenhle) often live much further away from TEIs than their peers from more affluent communities, due to South Africa's political past (Abbott-Chapman, 2011; Bok, 2010). Coming from a community far away from their TEI will most likely result in students experiencing financial challenges (due to travelling costs), as well as a lack of supportive family and friends nearby, which influence students' attendance and success at TEIs in a negative way (Abbott-Chapman, 2011; Fleming & Grace, 2014; Meeuwisse, Severiens, & Born, 2010).

2.3.3 Violence and crime.

In addition to poor economic circumstances, township residents continually experience the government to be unable to provide basic services such as provision of water, sanitation, electricity, schools and housing, resulting in the discussed inadequate infrastructure and services (George & Booyens, 2014; Jürgens et al., 2013; Manyaka-Boshielo, 2017). Poor economic circumstances, unemployment (especially with regard to youth) and a lack of basic services often lead to service delivery protests and xenophobic attacks, which contribute to violence and crime (Jürgens et al., 2013). Repeated unrests and strikes by residents of townships and the occurrence of xenophobic attacks, as reported by several newspaper articles, confirm the seemingly high prevalence of violence and crime in townships (Loria, 2018; Ngqakamba, 2018; Ntuli, 2018; Van Huyssteen, 2018b). Furthermore, the lack of infrastructure and recreational areas in townships may be seen as a risk factor for youth to become involved with criminal activities because they do not have positive outlets for their

energy (Manyaka-Boshielo, 2017). What is worrisome is that the high prevalence of violence at township schools contributes to the risk of being subject to poor education, or no education at all, as some youth drop out of school because of their involvement in crime (Kapp et al., 2014; Ngqela & Lewis, 2012; Mampane & Bouwer, 2011).

Double jeopardy exists for residents of townships such as eMbalenhle: They are exposed to violence and crime as mentioned above, and are simultaneously residents of a community serving the petrochemical industry, that might potentially contribute to the uprise of xenophobic attacks by hiring outsiders rather than locals (Mathebula, 2017). Growing up in a community where one is exposed to violence and crime potentially jeopardises students' academic progress at TEIs (Ngqela & Lewis, 2012; Schmidt, Zimmerman, & Stoddard, 2018; Van Breda, 2017b, 2018). Exposure to violence (also at school) is often associated with mental health problems such as anxiety and depression, in turn leading to sleep disturbances and decreased attention and concentration, which might affect a student's academic progress negatively (Bach & Louw, 2010; McKelvey et al., 2011). Being exposed to violence and the effects thereof (such as mental health problems) may continue while students are at TEIs, affecting their academic progress negatively (Van Breda, 2018). Furthermore, exposure to violence during adolescence can affect an individual's ability to cope effectively with stress during older adolescence (Aiyer, Heinze, Miller, Stoddard, & Zimmerman, 2014; Schmidt et al., 2018). Also, in the context of violence at schools, learners' education is affected severely, as the school is no longer a safe environment in which authentic learning can take place (Kapp et al., 2014; Ngqela & Lewis, 2012). Learners' attendance and their ability to focus and concentrate while at school are affected negatively by the presence of violence in township schools (Dass-Brailsford, 2005; Ngqela & Lewis, 2012; Nortje, 2017). This contributes to the poor education often found in township schools and, consequently, jeopardises academic success at TEIs, as discussed in the next section.

2.3.4 Poor education.

One of the biggest risk factors for youth from townships, especially with regard to their future, is poor education. Research shows that resources in township schools are insufficient when it comes to positive learner performances and desired educational outcomes (Munje & Maarman, 2017). Although ensuring learner access to resources such as teachers, books, stationery supplies, libraries and computer laboratories has the potential to influence learner performance and educational outcomes significantly, the negative influence of existing township school challenges remains (Bush & Glover, 2016; Spaull, 2013). Existing

challenges that prevent desired outcomes include insufficient learning spaces, under-trained and unprepared teachers, high absenteeism of teachers, uninvolved parents, and a lack of quantity and quality resources (often because of theft after resources had been provided) (Kapp et al., 2014; Ramnarain, 2014).

Poor education places young people at risk for failure at university (Cross & Atinde, 2015; Eunice, Mudau, & Ncube, 2018; Kapp et al., 2014; Oluwajodu, Blaauw, Greyling, & Kleynhans, 2015; Sampson, 2011). For example, poor education because of a lack of resources (such as unprepared and absent teachers) contributes to students from townships feeling insufficiently prepared for the TEI environment; for instance, they lack certain skills expected at university, such as critical engagement (a skill that has not been developed in their context of education prior to university), time management and independent learning (Cross & Atinde, 2015; Sampson, 2011). Furthermore, poor education often contributes to gaps in these students' knowledge content because sections of the curricula have been left out by inadequately trained teachers (Kapp et al., 2014). TEI students, whose secondary education was poor, often demonstrate inadequate writing, mathematical and communication skills for the level needed at TEIs, often leading to high dropout rates for these students (Oluwajodu et al., 2015). While education is seen as a tool to reduce poverty in South Africa, a poverty cycle is often sustained in townships because of a poor public education system (Nortje, 2017).

2.4 Conclusion to Risk Section

Although Section 2.3 focuses on risks associated with townships, multiple studies note that townships can also be supportive spaces, characterised by strong bonds, shared social capital and certain protective resources such as the youth's entrepreneurial outlook (Kapp et al., 2014; Mahajan, 2014; Manyaka-Boshielo, 2017; Myroniuk, 2016). Even so, the participants in my study were faced with the double risk of detrimental petrochemical industry effects and township risks (Kapp et al., 2014). Growing up in a petrochemical-affected community means that each of the participants most likely experienced risks with regard to their health, their psychosocial well-being, and their household's socio-economic status. As the participants were growing up in a township (eMbalenhle), they were almost certainly also challenged by poor infrastructure and services, poverty, and violence and crime. The participants attended township schools, indicating that they were probably exposed to sub-standard education that minimally supported the development of skills that

are crucial for tertiary education success (Spaull, 2015). As an educational psychologist-in-training, I have assumed that the participants in my study had to overcome the risks mentioned to be able to gain access to TEIs. My assumption is supported by the literature on the resilience of university students from disadvantaged backgrounds (including townships) (Van Breda, 2017b, 2018). However, all the risks that have been described set young people up for failure at TEIs, even when they are successful with regard to enrolment at TEIs. Therefore, in the next section I will review what is known in literature regarding resilience-enabling factors in the SE of TEIs, to gain knowledge of how TEIs support students from disadvantaged backgrounds to adapt well to tertiary education contexts and academic demands.

2.5 Resilience

A vast amount of literature on resilience exists (Masten, 2018). Therefore, I will focus on literature from the Global North (defined by Atapattu and Gonzalez (2015) and Odeh (2010) as wealthy, industrialised countries that are technologically advanced and politically stable) that documents resilience-enabling factors in the SE of the TEIs of university/college students who are at risk of discontinuing their studies. Given this definition by Atapattu and Gonzalez (2015) and Odeh (2010), Global North countries mentioned in my review include Australia, New Zealand, Italy, Spain, Canada, England and the United States of America (specifically the states of California and Massachusetts). With regard to Global South literature, I will draw on South African studies, as they hold particular value for my own study that is done in the South African context.

I acknowledge that focusing on resilience-enabling factors in the SE of the TEIs means that I will be omitting resilience-enabling factors within the individual (e.g. agency and/or faith) or the SE of other contexts of the individual's life (e.g. family support). Personal resilience enablers (such as agency and faith) do matter for resilience; current understanding of resilience shows that resilience is the interaction between individuals and both their social and physical ecologies with regard to their ability to adjust well in the face of adversity (Masten, 2014; Ungar, 2015, 2018). However, the capacity of the social ecology is seen as a potentially far more important factor in enabling individual resilience compared to the capacity of the individual in the process of enabling resilience (Van Breda, 2018). I will consequently focus on resilience-enabling factors in the SE of TEIs since, in order to successfully complete their studies, students from communities challenged by disadvantage

may depend more on the supportive social ecological systems they are a part of (and their interaction with these systems) than on themselves.

2.5.1 Perceived benefits of receiving a qualification at a TEI.

A qualification can be defined as the degree, certificate or diploma that a student receives because they completed their study course. Henceforth, literature on how receiving a qualification at a TEI acts as resilience-enabling factor will be viewed according to the abovementioned definition. Studies conducted in the Global North with tertiary education students reported that graduating (and the implication it holds for the future) is important to the resilience of students (Day & Nolde, 2009; Demir & Aliyev, 2019; Knight et al., 2012; Phinney, Dennis, & Osorio, 2006; Reed et al., 2015; Xuereb, 2014). In summary, in Global North and South contexts, the benefits are often about students' perceptions that qualifying will make a positive difference to their own future and that of their family.

For example, Day and Nolde (2009) conducted a study with 12 indigenous Aboriginal students (aged 18 to 24) at a metropolitan Australian university who were challenged by being of a minority group often facing risks. The risks they experienced referred to financial barriers; poor prior educational experiences; inadequate orientation programmes that do not consider specific needs of indigenous Aboriginal students; a poor feeling of belonging; and racism, resulting in the indigenous Aboriginal students leaving their TEI before completing their studies (Day & Nolde, 2009). These students were identified as likely coming from low-income communities and gained entry to their universities through means of non-traditional routes (e.g. admitted with scores just below cut-off for non-indigenous students). They reported that their dreams of graduating with a degree to reach planned goals (such as being financially secure) helped them succeed from their first year of study to their second year of study (Day & Nolde, 2009).

A similar study by Demir and Aliyev (2019) found that the career goals enabled by attaining a university degree acted as a protective factor at university despite challenges. The study by Demir and Aliyev (2019) was conducted with 10 university students between the ages of 21 and 28 at a Syrian university in Turkey to determine resilience-enabling factors among the students who experience adversity because of their immigrant status. The adversities experienced by the students included financial difficulties and a poor feeling of belonging caused by social prejudice (which were also experienced by the students in the study by Day and Nolde (2009)). The students in the study by Demir and Aliyev (2019) reported that goals, such as a social contribution to the society the students lived in and the

hope to contribute to their families' wealth, both of which they believed can only be reached by attaining a university degree, enabled them to overcome adversity factors.

Similarly, Knight et al. (2012) researched the resilience of 31 former students, now registered nurses, who were enrolled at nursing schools in New Zealand. Their study's results showed that these students, who were threatened by multiple challenges – such as trying to maintain an almost unbearable balance between study, working for finance, and personal and family work – managed to overcome these challenges by being motivated by the perceived sense of personal accomplishment they would gain from graduating (Knight et al., 2012).

In much the same way, Phinney et al. (2006) piloted a study with 713 ethnically diverse first-year students (aged 17 to 22) at a Californian university, with some of the participants being of an ethnic minority group. Research indicates that students who are from ethnic minority groups often experience challenges at tertiary level as result of generally coming from lower socio-economic backgrounds and having parents who do not have higher education themselves (Dennis, Phinney, & Chuateco, 2005). Challenges include feeling less equipped for the demands of the TEI due to poor academic preparation from high school, and experiencing that their parents typically cannot help them directly with college tasks (Dennis et al., 2005). The participants in the study of Dennis et al. (2005) – from Latino, Asian American, African American and European American ethnic backgrounds – indicated that attending and graduating from college in order to help their families financially had helped them to overcome their challenges.

Similarly, Reed et al. (2015) conducted a study with 147 students at a university in Ontario, Canada (aged 18 to 65) who were challenged by the risk of having a disability and who felt that they did not fit in. These students – first-year and mostly full-time students – reported that their motivation to persist in higher education because of the prospects of a brighter future (i.e. getting a better job than the options available to them if they did not persist in higher education) buffered the risks they faced.

Likewise Xuereb (2014) performed research on 176 undergraduate psychology students (aged 18 to 52) at a British university, of whom 76 students doubted whether they should continue with their studies because of reasons such as perceived academic overload, competing priorities, various personal difficulties and financial stress. These students, who included traditional and non-traditional students, reported the reason why they were able to continue with their studies despite experiencing doubt: It was their desire to achieve the end goal, namely to be able to graduate and, consequently, get a good job.

With regard to Global South studies, South African studies also reported links between students' views on receiving a qualification and demonstrating resilience (Cross & Atinde, 2015; Dass-Brailsford, 2005; Firfirey & Carolissen, 2010; Mhlongo & O'Neill, 2013; Sampson, 2011; Sommer & Dumont, 2011). For example, Cross and Atinde (2015) conducted a study with eight undergraduate students from the University of Johannesburg who faced risks of being marginalised because of the colour of their skin, because they had originated from poor families, and because they had attended relatively under-resourced schools. These students, who were black students from poor rural communities outside Johannesburg, reported that they were able to proceed with their studies, despite hardship, because of the perspective that the completion of university studies provided an opportunity (i.e. attaining a job) to change their life situation prior to university (Cross & Atinde, 2015).

Likewise, Dass-Brailsford (2005) conducted a study with 16 students in their first year at a university in KwaZulu-Natal who were challenged by being socio-economically disadvantaged. Challenges experienced by these students included financial stress, living in their particular township, violence, the lack of facilities (such as libraries and recreational facilities) and even not always having access to food (Dass-Brailsford, 2005). These students, who were isiZulu speakers and from a township, reported that being able to stay committed to completing their tertiary education studies resulted from the perspective that education will change their current socio-economic status (Dass-Brailsford, 2005).

Similarly, Firfirey and Carolissen's study (2010) reported on four students from a university in the Western Cape who experienced challenges at their TEI as result of poverty (and psychological distress associated with poverty). Their study indicated that the students' view of education as escape route from poverty enabled them to demonstrate resilience. The participants' view of education as escape route from poverty – implicating escape from challenges that trap them in their conditions, such as inadequate infrastructures, struggling to survive and unemployment – manifests in their expressions of hope for a better future in which they rise above their poverty through means of graduating (Firfirey & Carolissen, 2010).

Likewise, Mhlongo and O'Neill (2013) conducted a study with 15 black first-year students (aged 18 to 30) from the University of KwaZulu-Natal at the Pietermaritzburg campus. These students were at risk because they were from backgrounds challenged by disadvantage and experienced financial challenges. These students, who were from contexts seen as historically disadvantaged, reported that they experienced commitment to complete their studies, despite challenges such as financial difficulties, because of the financial benefit

that they will be able to bring to their family and the rest of their community upon completion of their studies.

In a similar manner, Sampson's study (2011) was conducted with six final-year students who were studying at the University of the Western Cape and came from communities challenged by disadvantage. These students, who did not speak English as home language, who had mostly not been exposed to technology such as computers prior to university enrolment, and who all experienced financial difficulties, reported that they were able to work hard and continue studying because of the belief that they will be able to contribute to a better life for their family upon completion of their studies (Sampson, 2011).

Likewise, Sommer and Dumont (2011) conducted a study with 101 full-time, mostly black first- and second-year students (aged 18 to 38) at the University of Fort Hare who were assumed to be at risk for dropping out because of their low socio-economic background and the accompanying chronic poverty. The students, who were predominantly from rural areas in one of the poorest provinces in South Africa (namely, the Eastern Cape), reported that they were motivated to perform academically because of their perceived idea that a university degree is likely to be a precondition to improving their own and their family's economic well-being.

Four out of the six South African studies (Dass-Brailsford, 2005; Firfirey & Carolissen, 2010; Mhlongo & O'Neill, 2013; Sampson, 2011) reported that the enrolment at TEIs and the completion of an educational qualification were encouraged by the parents and/or teachers and/or communities of the participants. To this end, the qualification is inherent to the SE of the TEI, but the drive is supported by the South African community (and the young person him/herself).

2.5.2 Built environment and university-facilitated services as resilience-enabling factors.

Buildings and other infrastructure within the university ecology can all be seen as the built environment of the university, whereas accompanying services providing for students' needs and opportunities for social and economic development can all be seen as university-facilitated services (Turner, Scott-Young, & Holdsworth, 2017). Services provided at university include counselling services; career advice; pastoral and religious support and financial support; services providing information; and services in the form of human capital, such as tutors and lecturers provided by the university (Julal, 2013). Both the built environment (e.g. accommodation or areas dedicated to studying) and services providing for

people's needs have an influence on a person's physical and emotional well-being and can therefore potentially be seen as resilience-enabling factors (Ministry of Social Development, 2003).

2.5.2.1 Enabling infrastructure. Studies done with tertiary education students in the Global North reported that enabling infrastructure and/or services are important to the resilience of students (Knight et al., 2012; Reed et al., 2015; Turley & Wodtke, 2010).

With regard to resilience-supporting infrastructure, Knight et al. (2012) researched the resilience of 31 former students, now registered nurses, who were enrolled at nursing schools in New Zealand and who were challenged by the attempt to maintain a balance between study, working for finance, and personal and family life. The study reported that support services (such as learning centres) guided the students in times they faced challenges. Therefore, the learning centres (the infrastructure) provided for the students' needs through the support services that make the learning centre an enabling infrastructure. Examples of guidance included staff at the support services teaching students how to reference information sources and make use of the library databases (Knight et al., 2012). One participant mentioned that he would have discontinued his studies had it not been for support services provided by the university, specifically the tutors at the learning centres.

Reed et al. (2015) studied 147 students (aged 18 to 65) at a university in Ontario, Canada who were challenged by the risk of having a disability and felt that they did not fit in. Their study reported on how accommodation services at university helped these students to improve their academic skills and general resourcefulness, despite them facing challenges. Similarly, an American study was conducted by Turley and Wodtke (2010) with 2011 students (aged 18 to 25) at 371 institutions. Black students in this study – being of a minority group and often experiencing challenges such as financial difficulties – indicated that living on campus in a student residence had a significantly positive influence on their academic success, as they benefited from the campus living environment, for instance through interacting with their faculty more frequently.

A South African study has also reported links between physical environmental factors at universities and accompanying services, and students demonstrating resilience (Zulu, 2008). Zulu (2008) researched the resilience of 500 students at Mafikeng Campus in South Africa. The students mostly came from rural disadvantaged communities of the North-West province of South Africa and from schools that generally do not have adequate facilities or enough teachers (Zulu, 2008). Zulu's (2008) study showed that by using the library and the

sources found there (such as asking a librarian for help with finding information on a topic), students were able to be successful at university.

2.5.2.2 Services. Some studies conducted with tertiary education students in the Global North reported mainly on the importance of services to the resilience of students (Abreu, Hillier, Frye, & Goldstein, 2016; Day & Nolde, 2009; Dhillon, McGowan, & Wang, 2008; Julal, 2013; Onan, Karaca, & Unsal Barlas, 2019; Paul, Hinman, Dottl, & Passon, 2009; Pearce & Down, 2011).

The study of Abreu et al. (2016), with 525 students at the University of Massachusetts Lowell (aged 18 to 30) who are challenged by disabilities, found evidence that students who made use of Disability Support Services by visiting the office on campus demonstrated better academic outcomes. Performing well academically potentially mitigates challenges that could be used as reasons for students to discontinue their studies. The services that these students made use of included assistance with time management and organisation, getting advice from staff, establishing accommodations and emotional support (Abreu et al., 2016). Another American study, with 36 Midwestern medical schools in America, reported on students being at risk because of academic difficulties such as problems associated with test-taking and test anxiety (Paul et al., 2009). These students also reported that support services, such as a mental health department to where they could be referred, enabled them to manage the challenges they experienced.

Two Australian studies reporting on services at university being resilience enabling could be found: one by Day and Nolde (2009) and another by Pearce & Down (2011). The results of the study by Day and Nolde (2009) support the findings of the abovementioned American studies. The study by Day and Nolde (2009) was conducted with 12 indigenous Aboriginal students (aged 18 to 24) at a metropolitan Australian university. These 12 students were challenged by being of a minority group often facing risks, such as coming from a household that generally receives an allowance from the government as their only source of income. They also reported support of academic resources at the indigenous support centre (among other factors), such as supportive staff, which enabled their academic success during times of challenges. Similarly, Pearce and Down (2011) researched the resilience of 16 undergraduate students (aged 20 to 45) of low socio-economic status who experienced exclusion at their Australian university. Although the study by Pearce and Down (2011) also reported on services as a resilience-enabling factor for students at university, their results specifically reported on access to lecturers as a service provided by the university. The results

of the Pearce and Down (2011) study showed that positive relationships with lecturers enabled students to be resilient, as they experienced the lecturers to be supportive and contributory to their focus on academics. The positive relationships between the students and their lecturers were encouraged by invitations from lecturers to interact in lectures or in regular and unscheduled conversations outside class time (Pearce & Down, 2011).

Also, the study by Onan et al. (2019), conducted with 78 first-year nursing students at a university located in Istanbul, found services provided by the university, such as courses taught by lecturers, to be resilience enabling. The students experienced high levels of stress caused by the workload of their specific course and by the fear of making mistakes with patients. The students considered a stress-coping course taught by lecturers at their university to be resilience enabling in that they experienced an increase in their psychological well-being because of the course, which equipped them to better manage stress (Onan et al., 2019).

In much the same way, two British studies reported on support services at university as resilience enabling. Dhillon et al. (2008) conducted a study at a British university by making use of six focus groups and a follow-up questionnaire distributed to 200 students (aged 20 to 29). These students faced the risk of potentially not relating to the institution on an emotional, social and/or academic level. The students, who were mostly female and studying at undergraduate level, reported that departmental support systems such as personal tutors buffered the risks they faced (Dhillon et al., 2008). Similarly, Julal (2013) studied 131 undergraduate students at a British university (with a median age of 19 years old) who experienced personal difficulties related to feeling depressed, getting along with friends, and choosing a career. Fifty-six of these students, who were mainly female and in their first year of study, reported that they made use of social support provided by their university (such as career advice, pastoral and religious support and financial support) to help in times of experiencing difficulties (Julal, 2013).

Similarly, a South African study was conducted by Van Breda (2018). Van Breda (2018) explains that the transition from school to university is accompanied by many challenges, specifically in the South African context where students often have to make this transition in the midst of experiencing poverty and inequality. As such, he conducted a study with 232 psychosocially vulnerable undergraduate students at the University of Johannesburg to identify resilience processes that contribute to life satisfaction and academic progress. These students regarded the tutoring system at university (among other factors), in which they are guided through the means of supplemental instruction that facilitates appreciation for the value of learning, as resilience enabling.

2.5.3 Social capital as resilience-enabling factor.

Social capital refers to the value, which will vary in different contexts, of an individual's connections to others in assisting or potentially assisting an individual to gain access to other capital and resources (Myroniuk, 2016). In this section, the literature referring to social capital in the SE of the TEIs includes friends, fellow students and mentors. I differentiate between mentors, tutors and lecturers on the basis that in the studies the mentors were chosen by the students and thus did not cost money, whereas tutors and lecturers are services provided by universities or paid for as a private service. Consequently, tutors and lecturers as resilience-enabling factor in the SE of TEIs are not included in this section, but in the previous section when the particular study referred to tutors as a service provided by the TEI.

Studies done in the Global North with tertiary education students reported that social capital is linked to the resilience of students (Boehm, Cordier, Thomas, Tanner, & Salata, 2017; Bhopal, 2011; Day & Nolde, 2009; Dennis et al., 2005; Gibbons & Woodside, 2014; Gilardi & Guglielmetti, 2011; Knight et al., 2012; Speirs Neumeister, & Rinker, 2006; Tomás-Miquel, Expósito-Langa, & Nicolau-Juliá, 2016; Xuereb, 2014). For example, two Australian studies by Day and Nolde (2009) (which I referred to in Section 2.5.2.2) and Boehm et al. (2017) reported on relationships with friends and fellow students as resilience enabling. Boehm et al. (2017) conducted a study with 58 second-year occupational therapy students at an Australian regional university, of whom 25% considered leaving the occupational therapy course during their first year. Reasons for wanting to leave included homesickness, the perceived challenging academic demands of the course, and feeling overwhelmed. The students reported that close relationships with fellow students who provided social support was one of the main factors that influenced their decision to continue with their studies. Day and Nolde (2009) similarly conducted a study with 12 indigenous Aboriginal students (aged 18 to 24) at a metropolitan Australian university who were challenged by being of a minority group. These students referred to their sense of belonging by having close friendships with peers of the same indigenous group and their dependence on each other as vital to their academic success.

Likewise, two British studies by Bhopal (2011) and Xuereb (2014) reported on support by friends and supportive staff as resilience-enabling factors. Bhopal (2011) conducted a study with 32 British Indian women (aged 20 to 25) who were challenged by being Indian women in a British society who experience marginalisation. These students, who were Punjabi-speakers and the first members of their families to attend university, reported that friends from the same social and cultural backgrounds as themselves contributed

to their ultimate goal of succeeding in their studies. The participants experienced closeness and empathy within their friendship groups because they identified with each other as members of a shared community that existed in the university environment, contributing to a sense of belonging in the university context. The study of Xuereb (2014), with 176 undergraduate psychology students at a British university (aged 18 to 52) (referred to in Section 2.5.1), reported that support offered by university staff and friends who have a helpful attitude can be seen as the main reason for staying at university despite challenges.

Likewise, Dennis et al. (2005) researched the contributing factors to students' academic success at a Californian university. The study was conducted with 100 ethnic-minority students (aged 18 to 19) at an ethnically diverse urban university that typically serves students coming from lower-class backgrounds. Many of the students were immigrants, with 84 being of Latino descent and 16 being of Asian descent. These students faced challenges typically associated with being of a minority group, such as being first-generation students whose parents naturally cannot help them with university-related tasks, and having unrealistic expectations about university, resulting in feelings of not being prepared. The students reported that peer support, along with other types of support, enabled them to do well at university. The students mentioned that they relied on peers in their class to form study groups and to share assignments. Peer support was consequently seen as a strategy to face academic problems. Likewise, Tomás-Miquel et al. (2016) conducted research with 154 fourth-year students at The Campus of Alcoy of the Universitat Politècnica de València (UPV) in Spain. These students, coming from different countries and social and cultural backgrounds, with different experiences and needs, indicated that interaction with peers in the same course as them enabled them to perform well academically because the interaction exposed the students to several sources of support and knowledge.

Although the study of Gibbons and Woodside (2014) – with 17 first-generation students (whose ages ranged from their 20s to early 60s) from a university in a Southeastern state of America – did not report on resilience-enabling factors in the SE of TEIs, they did find evidence of mentorship being a resilience-enabling factor at tertiary level. Participants noted that their mentors were often lecturers who encouraged, motivated and cared about them. Consequently, the participants viewed their mentors as a contributing factor to being able to continue their studies.

Another American study, by Speirs, Neumeister and Rinker (2006), found that students' friendships with peers were resilience enabling. The study was conducted with four female Caucasian first-generation students at an American university who were facing risks

generally associated with first-generation students, such as having to manage work (as a means to an income to pay for their studies) on top of their studies. These students attributed their ability to continue with their studies despite the challenges they faced to friendships with high-achieving peers who provided healthy competition, as the achievements of high-achieving peers were seen as the norm by the students in the study.

Similarly, Gilardi and Guglielmetti (2011) conducted a study with 228 non-traditional students at a northern Italian public university who were challenged by being employed while studying and/or by being from a lower socio-economic background. These students, who were all first-year students, reported that other students acting as social support helped them to continue with their studies.

Likewise, the study by Knight et al., (2012) (referred to in Section 2.5.2.1), with 31 former students (who are all now registered nurses) at a tertiary education institution in New Zealand, indicated that these students were able to complete their studies due to the social support from family, friends and peers, as well as tutorial staff at their educational institution, despite being at risk because of the challenge to keep up with various demands from different aspects of their lives, such as studies, finances, personal life and family (Knight et al., 2012).

South African studies have also reported links between social capital and the resilience of students (Cross & Atinde, 2015; Pillay & Ngcobo, 2010; Vincent & Idahosa, 2014). For example, the students in the study of Cross and Atinde (2015) (referred to in Section 2.5.1) reported that networks of support for collaborative consultation, resulting from relationships with friends, helped them to overcome challenges such as being marginalised because of the colour of their skin, and financial difficulties. Their relationships with friends provided support to the students in the form of getting clarification regarding academic work, and being able to share ideas and resources. For example, the students in the study borrowed textbooks that were not currently being used from one another for the duration of an academic year to save money.

Another South African study demonstrating the link between social capital and resilience is the study of Pillay and Ngcobo (2010), which was conducted with 243 students (aged 17 to 41) at a rural black university in South Africa who were threatened by stress caused by fear of academic failure, finances and accommodation. These students, who were from rural areas and secondary school settings characterised by poverty and educators that are less well trained, reported that social support from friends and classmates buffered the risks they faced.

Similarly, Vincent and Isahosa (2014) conducted a study with 33 participants of an elite South African university who were challenged by having a low socio-economic status, experiencing poverty and being accepted into university despite not meeting standard university entry requirements. These students reported that finding someone from a similar background as them enabled them to be resilient, as they were able to see themselves as having an academic identity. Furthermore, the students reported that having friends with similar backgrounds provided them with resources (such as being able to ask for assistance with academic tasks) in their TEI environment where they experienced themselves as having the identity of a minority.

2.5.4 Conclusion to resilience section.

I recognise that the identified resilience-enabling factors are only a few of many. Additional factors could include staying healthy, spirituality, self-agency, friends outside of the university and family (Morgan Consoli & Llamas, 2013; Morosanu, Handley, & O'Donovan, 2010; Turner et al., 2017). The identified factors are specifically relevant to my study because the identified factors could all potentially be found in the SE of TEIs and, therefore, I have chosen to focus on *receiving a qualification*, *built environment and university-facilitated services*, and *social capital* as resilience-enabling factors.

I could find almost no difference in the number of literature studies reporting social capital (14 studies), built environment and university-facilitated services (14 studies) and perceived benefits of receiving a qualification (12 studies) as resilience-enabling factors in the SE of TEIs. However, based on my assumption (see Section 1.7), informed by my own experiences while attending a TEI, I am inclined to think of social capital as a crucial resilience-enabling factor. Research indicates that students who adjust well socially, generally perform better academically and are more satisfied with the services offered at university (Petersen, Louw, & Dumont, 2009). By being socially well adjusted, students have a social support network consisting of their peers and faculty staff (which contributes to the students experiencing less homesickness and loneliness), generally meet the demands of the university, and, in turn, perform well academically (Petersen et al., 2009). The vast number of positive outcomes resulting from social support might be seen as the reason why so many studies found social support from role players in the SE of TEIs to be resilience enabling.

According to Cowell, Cicchetti, Rogosch & Toth (2015) and Yoon et al., (2019) factors that might be seen as resilience-enabling will most likely be based on the developmental stage of the individual. The emerging adulthood stage as explained by Arnett

(2010) is characterised by individuals mostly transitioning into the roles of marriage, parenthood, and a stable work only in their late 20's; exploring their identities and building on the skills they will need for adult life; making choices based on their expectations of their work as being identity-based and satisfying in that it fits with their talents and interests; and consequently high expectations with regard to educational attainment. Thus, the developmental stage of students (most likely emerging adulthood) might determine that some resilience-enabling factors are experienced as more important than others.

2.6 Conclusion

According to prior international and South African studies, resilience enablers in the SE of TEIs can potentially support students to overcome the risks that have the potential to jeopardise their success at university. With regard to my participants, the risks to their success at university are potentially rooted in physical, psychosocial and economic risks, as well as inadequate infrastructure and services, unemployment and poverty, violence and crime, and poor education, which are all associated with growing up in a township adjacent to the petrochemical industry. However, none of the studies that I have reviewed in this chapter were specific to students enrolled at TEIs who were challenged by the compound risk of the petrochemical industry *and* township life. There is thus a need to understand these students' views on resilience-enabling factors within the social ecology of their tertiary education institution, as some (few) of these students from backgrounds challenged by disadvantage progress to tertiary education institutions and succeed in completing their studies. The petrochemical industry is a flourishing industry in South Africa (Majozi & Veldhuizen, 2015) and if we want to potentially understand and promote the resilience of these students coming from petrochemical-affected townships, we have to understand what factors in the SE of their TEIs help them to realise their educational aspirations.

CHAPTER 3
RESEARCH METHODS

3.1 Introduction

The purpose of Chapter 3 is to situate my study of limited scope, communicate the purpose of my study and demonstrate how I conducted my study by referring to the research methods that I used.

3.2 Situating my Study of Limited Scope in the RYSE Study

The broader RYSE study, of which my study of limited scope was a sub-study, is a collaboration between Canada and South Africa, with their interest being in understanding the influence of a specific SE on the resilience processes of adolescents and young adults (RYSE, 2017). The participants that I had access to were therefore limited to adolescents that fell within the focus of the bigger RYSE study. I was not part of the research team that designed the RYSE study, and was free to choose a research focus of my own that fitted with the overall aim of RYSE. I chose to focus on students at TEIs who come from backgrounds challenged by disadvantage, the eMbalenhle community in particular, as I have traced very few studies on the views on resilience-enabling factors within the social ecology (SE) of TEIs of older adolescents from backgrounds challenged by disadvantage who are enrolled at TEIs. Therefore, the older adolescents from eMbalenhle's views on the resilience-enabling factors in the SE of their TEIs would be relevant, as they are challenged by disadvantage due to the double jeopardy of having been schooled in a township and previously having resided in a petrochemical-affected community. Consequently, my participants were older adolescents from the eMbalenhle community in the Secunda area who were enrolled at a TEI anywhere in South Africa.

To explore the views of the older adolescents, I chose qualitative methods (as explained later in this chapter). I did not personally recruit participants because it was the responsibility of the RYSE Community Advisory Panel (CAP), but I did guide the recruitment by proposing sampling criteria to the CAP. After the CAP had recruited my participants, I arranged meetings with the participants by making use of cell phone texts. I asked the participants to suggest a place, time and date for our meeting that would suit them. Subsequently, I met with the participants on the following dates in 2018: the 21st of April, 5th of May, 12th of May and the 26th of May, at times and places that suited them best.

During our meetings, I recorded the conversations between my participants and me, with their consent. The recordings were transcribed verbatim by listening to the recordings of the conversations.

I analysed my own data. Data analysis training took place on the 17th of May at the University of Pretoria. It was attended by my co-researchers and me and led by our supervisor. During the data analysis training I was guided in terms of how to code (e.g. open coding) and in terms of what was expected of me when I code; for example, my codes would have to be detailed. Because the answer(s) to my research question would be something within the SE of the TEIs of my participants, my codes would start with "UE" – namely the University Ecology. Our supervisor provided examples, after which we were encouraged to provide our own examples of open codes. This gave me the opportunity to reflect my codes against my co-researchers' perspectives; in this way we were able to help each other and I had the opportunity to learn that by looking at who/what the actor is in terms of whom/what my participants refer to as resilience enabling, I was better able to code my data.

My co-researchers and I met with our supervisor again on the 24th of May. We presented some of our codes during this meeting, after which we were guided with reference to how our codes must be grouped to identify candidate themes. The identified candidate themes were presented during a 15-minute visual presentation to my supervisor and co-researchers on the 31st of May, after which I received feedback from my supervisor and co-researchers; for example, I had to find richer evidence in my data, such as why a qualification at a specific TEI is seen as resilience enabling.

Lastly, member checking took place on the 12th of October. I presented my candidate themes to the members of the CAP, my supervisor and my co-researchers. All who were present (especially the CAP) had the opportunity to provide feedback on my themes and ask questions regarding my themes.

3.3 Purpose of Study

The purpose of my study of limited scope was to explore the factors in the SEs of TEIs that tertiary students (from the eMbalenhle community) considered resilience enabling. The aim of this study is therefore exploratory. An exploratory study is undertaken with the objective to explore an area where there is little known about the specific phenomenon, (Hesse-Biber & Leavy, 2011; Kumar, 2011), as in the case of resilience-enabling factors in

the SE of TEIs for students coming from backgrounds challenged by disadvantage (specifically petrochemical-affected communities).

The advantages of making use of an exploratory study include the opportunity to get a fairly detailed, tentative idea of what the resilience-enabling factors in the SE of TEIs are, as seen by the participants, since interviewing in an exploratory study is descriptive and process orientated and makes use of probes to explore even further (Hesse-Biber & Leavy, 2011; Richie & Lewis, 2003). Furthermore, when interviewing is used in an exploratory study such as my study, the interview is likely to create insightful (albeit tentative) knowledge about a phenomenon that is relatively under-explored (Gray, 2009; Richie & Lewis, 2003). The process of interviewing is likely to be generative because of the in-depth format in which I, as researcher, am enabled to explore factors underpinning participants' answers, for example, by making use of probes (Gray, 2009).

A disadvantage of an exploratory study is that I, as researcher, might not have probed my participants sufficiently and thereby have run the risk of not exploring the focus of my research (Richie & Lewis, 2003). Another potential disadvantage would be if a researcher does not do sufficient research regarding a phenomenon and wrongly find it necessary to conduct an exploratory study (Gray, 2009).

3.4 Paradigmatic Perspective

3.4.1 Epistemological paradigm.

I made use of phenomenology as the epistemological assumption of my study. A phenomenological paradigm is appropriate when the researcher is interested in individuals' lived experiences of a phenomenon. The researcher does so by means of uncovering the contained meanings through conversation and/or text (Ravitch & Carl, 2016; Ritchie & Lewis, 2003). The potential value of making use of a phenomenological epistemology is that a detailed account and greater insight of my research phenomenon can possibly be provided (Houser, 2015; Seabi, 2012). I experienced a better understanding of the research phenomenon in which I am interested (i.e. the factors in the SEs of TEIs that are viewed as resilience enabling by students challenged by disadvantage) when I had the opportunity to gain rich descriptions of participants' experiences of resilience-enabling factors in the SEs of their TEIs.

The value of phenomenology is the possibility that a new, fuller or renewed meaning of my research phenomenon might emerge (Gray, 2009). The reason for the potential

emergence of a new, fuller or renewed meaning of my research phenomenon is because of the key assumption of a phenomenological epistemology, namely that the world is socially constructed and that reality is subjective, i.e. it is what people perceive it to be (Gray, 2009; Patton, 2002; Taylor et al., 2016).

However, despite the abovementioned value of a phenomenological approach there are also potential challenges; for instance, my assumptions regarding the essence of my research phenomenon may have shaped my understanding of the research phenomenon, resulting in researcher bias. As literature suggests, I must thus be able to distance myself from my own assumptions about the essence (core meanings) of the phenomenon (Bloomberg & Volpe, 2016; De Vos, Strydom, Fouché, & Delport, 2011). However, according to Bloomberg and Volpe (2016) and Merriam (2009), the bracketing of one's own assumptions is challenging. Following Lunenburg and Irby (2008), I addressed this challenge through self-reflection by means of a research journal, debriefings with my fellow student-researchers and stating my working assumptions prior to entering the research field (see Chapter 1, Section 1.7), thereby contributing to the trustworthiness of the study.

3.4.2 Methodological paradigm.

A qualitative methodological approach was used in my study of limited scope. The value of a qualitative methodological approach lies therein that emphasis is placed on the experiences of the participants and that it allows for the construction of participant-led knowledge (Snape & Spencer, 2003). It also allows for naturalistic engagement between the participants and myself; participants were seen at times and in settings of their choice, thus making engagement as natural and nonintrusive as possible (Ravitch & Carl, 2016; Taylor et al., 2016). Other advantages include gaining an insider's perspective, namely my participants' perspectives on my research phenomenon, and that it is helpful in the exploration of phenomena which are relatively unknown (Houser, 2015; Mouton, 2001).

In addition to the danger of my assumptions shaping my understanding of the research phenomenon (as explained in 3.4.1.), I had to guard against other potential disadvantages, such as gaining commitment from participants, as they might perceive my study as time-consuming, and the potential for a loss of privacy for the studied individuals (Houser, 2015; Ravitch & Carl, 2016). Following methodologists Flick (2009) and Maree (2012), I used the following strategies to overcome the mentioned challenges: describing my research to my participants (in the consent form), meeting with participants once at a date and time that suited them, and giving my participants the choice with regard to revealing their identities.

The reason behind giving my participants the choice to disclose their identity or not was informed by South Africa's political background as well as relevant literature (Elias & Theron, 2012; Silverman, 2016). Although literature such as that of Flick (2009) and Maree (2012) reminds researchers that part of conducting an ethical study includes the protection of participants' anonymity as far as possible, Silverman (2016) argues that the assumption cannot be made that all participants want to be treated anonymously. Keeping South Africa's political context in mind (with reference to the negative effects of the Nationalist government's ruling pre-1994), certain groups (i.e. mostly black people) had been discouraged or even prevented from expressing [/sharing] their lived experiences in the past, resulting in them feeling that their voice had been silenced and their identity deprived (Elias & Theron, 2012). Consequently, I gave my participants (all of whom are black) the choice to reveal their identity, as the focus of my study is not likely to lead to the stigmatisation of participants.

According to the American Psychological Association (APA) (Levitt et al., 2018), standards for qualitative reporting, which I have adhered to, include reporting on the process of my study by organising my findings thematically, presenting my study of limited scope in a first-person style, and detailing the ways in which I arrived at questions, methods, findings, and considerations for the field. Since my study of limited scope focused on human experience, which will not necessarily extend across time, place, and culture, I also sought to develop findings that are bound to the context of my participants.

3.5 Methodology

3.5.1 Research design.

As mentioned in Chapter 1, I made use of a phenomenological research design. Within a phenomenological design the researcher focuses on the common essence(s) found within participants' descriptions of the phenomenon of interest, as experienced by all the participants (Bloomberg & Volpe, 2016; Marshall & Rossman, 2016; Merriam, 2009). Prior to the interviews, I explored my own experiences of the phenomenon to set aside personal assumptions (this is called bracketing), as described in Chapter 1, which enabled me to better explore the participants' experiences (Richards & Morse, 2007). A phenomenological design potentially gives insights into the essences of participants' experiences that researchers may previously have been unaware of (Richards & Morse, 2007). This was valuable for my study, taking into account that it seems as if there is little to be found in existing literature about

resilience-enabling factors in the SEs of TEIs for students coming from petrochemical-affected communities challenged by disadvantage. Open-ended questions and conversational inquiries are typically used in a phenomenological research design (Guest et al., 2013; Merriam, 2009) and are valuable because they eliminate constraints imposed by fixed-response questions. This potentially enabled me to distil what is common, and unique, in the students of eMbalenhle's perspectives of resilience-enabling factors in the SEs of their TEIs (O'Leary, 2010; Guest et al., 2013). It was important to clarify what is common and unique in the students' perspectives so that the identified resilience-enabling factors in the SEs of the students' TEIs can be compared to identify the essence of the phenomenon under study (Marshall & Rossman, 2016).

The advantages of making use of this design included getting rich descriptions of the phenomenon that I am studying (Lunenburg & Irby, 2008; O'Leary, 2010). The design also provided the advantage of a structured approach, which is typical of a phenomenological design (Bloomberg & Volpe, 2016; Creswell, 2007), towards a deep understanding of a phenomenon; for instance, systematic steps were used in the data analysis procedure.

However, potential disadvantages that I had to guard against (excluding the potential danger of my assumptions shaping my understanding of the phenomenon, as discussed in 3.4.1 and 3.4.2) included the possibility that my research might be difficult to replicate (Gray, 2009). Furthermore, participants' experiences had to be captured carefully and thoroughly to avoid misinterpreting their experiences (Patton, 2002; Seabi, 2012); this proved to be time-consuming. To overcome the concerns about replicating my research, I richly described my research and used purposive criteria to select participants that will be able to contribute rich descriptions of their perspectives of the phenomenon in question (this process is described in Section 3.5.2). In an attempt to prevent misinterpretation, I followed Patton's (2002) advice and captured participants' experiences through conversational interviews and verified my interpretation of their experiences by member checking. Regular communication with my supervisor and keeping a research journal both lessened the effect of my assumptions (as detailed in Chapter 1) that might have contributed to misinterpretation. I kept a research journal by detailing everything I have observed and became aware of upon reflection on an interview session. To do this I recorded myself on my cell phone when driving from an interview as I reflected on the interview. I then made use of this recording to write down what I observed and reflected on. I have added Addendum 4, an extract of my research journal, to demonstrate the content of my research journal. Planning in-depth interviews well in advance most likely helped me to overcome the challenge of limited time.

3.5.2 Participants.

Purposeful selection of participants took place through the RYSE project of which my study of limited scope is a part. Being part of the RYSE project, the participants in my study were selected by the Community Advisory Panel (CAP) of the RYSE project. A CAP is a panel that consists of representatives from the community being researched who collaborate with the researcher in order to guide and facilitate the process of research (Theron, 2013). In the RYSE study, the CAP comprises 10 representatives (six adolescents, four adults) of the communities of eMbalenhle and Secunda. I, however, indicated the required criteria for the recruitment of participants, which were as follows: Participants should be adolescents from the eMbalenhle community, be enrolled at any TEI in South Africa, be comfortable participating in English medium research, and should be in their second year or beyond in terms of their studies. Students being in their second year or beyond marks academic progress and thus potentially shows resilience to the challenges of tertiary education; literature indicates that most students who discontinue their studies at TEIs often do so in their first year (Chireshe, Shumba, Mudhovozi, & Denhere, 2009; Kovačić, 2010; Peterson, Louw, & Dumont, 2009). The value and advantage of selecting the participants purposefully through the CAP lay therein that they could facilitate my access to participants that were potentially able to provide context-rich and detailed accounts of my research phenomenon, which led to a better understanding of my research phenomenon (Patton, 2002; Ravitch & Carl, 2016).

As stated by Boeije (2010), Creswell (2007) and Jurkowski et al. (2013), the selection of participants by means of a CAP can potentially break down hierarchical relationships and contribute to the building of trust between the researcher and the participants. In my case, the CAP most likely knew how my participants would think and behave and could, therefore, foresee potential concerns regarding the participants' involvement in my study. Fortunately, the CAP was in the position to request information from me (through a RYSE project member that was in direct contact with both me and the CAP) relating to potential concerns, prior to contacting the participants. In this way the CAP was most likely able to break down potential hierarchies between me and the participants due to my dependence on them to negotiate conditions that were acceptable to my participants. Furthermore, the CAP potentially helped to build trust between me and the participants, as I was in the position to assure the participants (through the CAP) by competently answering their questions or addressing any concerns. As a result, participants might have experienced that their concerns or questions (and thus their voice) were being valued just as much as mine were.

However, a challenge with purposive sampling relates to the selection of participants from whom not enough insight could be gained and whose perspectives may not have led to data saturation (De Vos et al., 2011; Merriam, 2009). To overcome this challenge, I made sure to determine the selection criteria with great care and that the criteria directly reflected the purpose of my study and affected the information-richness of my cases (De Vos et al., 2011; Flick, 2014; Guest et al.; 2013). As is apparent in Chapter 4, I am confident that the data were saturated.

Six participants with an average age of 20 years old generated the data that I used in my study. I have summarised a description of each of the participants in the following table.

Table 1.
Details of Participants

Name of participant [a]	Age of participant	Sex of participant	TEI of participant	Field of study	Year of study	Living in a residence	Bursary/ Financial assistance
Robin	20	Male	Wits University	Chemical Engineering	3rd	Yes	Yes - SASOL
Simphiwe	19	Male	University of Johannesburg	Accounting	2nd	No	Yes - NSFAS
Siphesihle	20	Male	Wits University	Maths and Physics	3rd	Yes	Yes – Allan Gray Orbis Foundation
Thabang	23	Male	Tshwane University of Technology	Information Technology	2nd	Yes	
Nqobili	18	Female	Vaal University of Technology	Mechanical Engineering	2nd	No	Yes - NSFAS
Valencia	23	Female	Vaal University of Technology	Process Instrumenta-tion Engineering	2nd	Yes	Yes - NSFAS

[a] *Note.* All participants chose to use their own name.

All my participants come from eMbalenhle, a township near Secunda in Mpumalanga, in the Govan Mbeki district. Most of them (5) were schooled in eMbalenhle; the sixth participant attended a different school in Mpumalanga that was as poorly resourced as the

schools in eMbalenhle. According to Statistics South Africa (Frith, 2011), eMbalenhle has a population size of 11 8889 and an area of 19.65 km², which means that there are 6 050.25 people per km² (Frith, 2011). Local challenges of eMbalenhle include poor service delivery, such as sewage that run freely into the streets and streams, which causes a lot of pollution; inconsistent and often an overall lack of water supply; and lack of electricity (Van Huyssteen, 2018a). Protests often take place in eMbalenhle because of the poor service delivery and frequently become violent, endangering the lives of residents (Van Huyssteen, 2018b). Challenges at school level include learners bringing dangerous weapons to school, murders that take place at eMbalenhle schools (committed by pupils) and children that go to school hungry (Green, 2014; Mathebula, 2018c; Oosthuizen, 2018b). As explained in Chapter 2, all of the aforementioned can obstruct quality education (Jürgens et al., 2013; Kapp et al., 2014; Mampane & Bouwer, 2011; Ngqela & Lewis, 2012; Nortje, 2017). Photos of the context of eMbalenhle can be seen in Figures 1 to 5 below.

Figure 1. Intersection of the main street of eMbalenhle. Photo credit: RYSE project team.

Figure 2. Businesses and a church in eMbalenhle's main street. Photo credit: RYSE project team.

Figure 3. The outskirts of eMbalenhle. Photo credit: RYSE project team.

Figure 4. Limited eMbalenhle infrastructure. Photo credit: RYSE project team.

Figure 5. Sewage in eMbalenhle. Photo credit: RYSE project team.

3.5.3 Data generation and documentation.

A participatory data generation method was used in my study of limited scope. According to Liebenberg (2018) and Ravitch and Carl (2016), I, as researcher, co-construct and co-generate authentic data with my participants when a participatory data collection method is used. Photo-elicitation was used as the participatory data generation method for my study of

limited scope. According to Bryman (2012), Liebenberg (2018) and Flick (2014), photo-elicitation is an empowering method of data generation in which participants take photos prior to the interview, which are then used to stimulate the production of narratives or answers during the interview with regard to the meaning and significance of the photos. Photo-elicitation was used because visual materials are seen as stimuli to elicit conversation, and can possibly help to collaborate with and empower participants challenged by disadvantage in a non-exploitative way (Shefer, Strebel, Ngabaza, & Clowes, 2017). Photo-elicitation helped reduce some of the power imbalance between me as researcher and them as participants, because potential awkwardness within a conversational interview was lessened by focusing on the photo (Boeije, 2010; Bryman, 2012; Gilbert, 2008). Put differently, making use of photo-elicitation within face-to-face conversational interviews leads to stronger rapport with participants (Aurini, Heath, & Howells, 2016), which was most likely the case in my study.

Photos taken by students from eMbalenhle had the potential to empower them to identify what in their TEI's SE has the potential to enable them to demonstrate resilience, because the photos had probably stimulated interviewees to engage visually with familiar surroundings, and might have helped them become aware of things that they would not have otherwise (Boeije, 2010; Bryman, 2012; Flick, 2014; Marshall & Rossman, 2016). As such, the photos had potentially drawn out meanings that would otherwise not have been found (Boeije, 2010). Photos added to the participants' descriptions of resilience-enabling factors in the SE of TEIs as the participants were invited to share their own interpretation of their photos (Boeije, 2010; Marshall & Rossman, 2016).

According to Flick (2014) and Meo (2010), potential disadvantages when making use of photo-elicitation include framing (with reference to the prompts being used to guide the generation of the visual data) and the challenge to protect the identity of people in the photos. With regard to framing, the disadvantage includes the researcher's challenge to elicit what was shown in the picture, what the picture focused on and what was left out, to consequently elicit rich data applicable to the specific study (Flick, 2014). With regard to the challenge of protecting my participants' identity, they were given a choice in terms of disclosing their identity, as explained in 3.4.2. There were no pictures taken of others and, consequently, I did not have to address the challenge of protecting the identity of people other than my participants in my study of limited scope.

Before I met with the participants, I had asked the participants to take a photo using their cell phones and to bring it to our first meeting (of which a suitable date and time was

decided on by both the participants and me). The following prompt was used: “Take a photo of anything in the environment (SE) of your TEI that helps you to be strong (be resilient) with regard to your studies”. According to Ritchie and Lewis (2003), a prompt is a question or an instruction that guides the content of the visual data that the participants generate. In the case of my study of limited scope, the prompt was asking the participants to reflect more on what in the SE of their TEI potentially enables them to be resilient. I enquired whether the participants had a cell phone with which to take a photo; if not, I was prepared to provide a disposable camera for this purpose.

Furthermore, I explained to the participants (before our meeting as well as upon the start of our interview) that they will participate in a conversational interview in which they will be asked (probed) to reflect on the photos (Aurini et al., 2016). Because the participants chose what images to create and/or photos to take, I had to be aware that each participant was going to discuss a different set of materials and that this was going to affect my data, as outlined by Gilbert (2008). Following methodologists Gilbert (2008) and Richie and Lewis (2003), I made use of probes; probes enable researchers to explore the answers of the participants and encourage participants to expand on their initial answer. Probes refer to inductive and unscripted verbal or non-verbal expressions, which I used while having the conversational interview with participants whenever a participant’s answer to a question was not relevant, clear or complete (Gilbert, 2008; Guest et al., 2013). Probes can thus be follow-up questions, an expectant glance or a direct request, such as “please tell me more about that”, that helps researchers elicit more information in the most neutral way about what the respondent has already said in response to a question (Berg & Lune, 2012; Hesse-Biber & Leavy, 2011).

Documentation of my data took place by means of recordings made of my conversational interviews with my participants. The recordings were made with the consent of my participants and were made on a recording device provided the RYSE team. All of the recordings were then saved on my personal computer before the recording devices were wiped and given back to the RYSE team. The photos provided by the participants were saved on my personal cell phone, as the participants had sent the photos to me from their cell phones to mine during our interviews. The photos were then also saved on my personal computer to potentially be included in my study of limited scope, as seen in Chapter 4.

3.5.4 Data analysis.

I chose inductive thematic content analysis as my data analysis method, and made use of Braun and Clarke's (2006) six-step guide on inductive thematic content analysis. The rationale for my choice of data analysis method lies therein that a thematic data analysis plan enabled me to describe my data in rich detail by identifying themes in a deliberate way through extensive coding (Braun & Clarke, 2006; Houser, 2015). I drew upon the photos as well as the full set of narratives elicited by the photos of all the participants when I analysed and interpreted the data (Shefer et al., 2017). The data analysis process was managed by making use of ATLAS.ti, which is computer-aided software used for qualitative data analysis (Friese, 2012).

Thematic content analysis held a number of advantages: It was flexible in the sense that it is not tied to a particular theoretical or epistemological position; was relatively quick and easy to learn, as the method of analysis does not require technical knowledge; helped me identify what is common and unique in the participants' perspectives of resilience-enabling factors in the SE of their TEIs; and allowed me to summarise key features of a large body of data in a rich way (Braun & Clarke, 2006; Nowell, Norris, White, & Moules, 2017; Javadi & Zarea, 2016). There are (and were), however, some disadvantages of this data analysis method. For instance, underlying themes may not be immediately clear and important themes can consequently be missed (Vaismoradi, Turunen, & Bondas, 2013). Following Vaismoradi et al. (2013), I overcame this potential challenge by being reflective, often reviewing my data (especially after presenting it to my co-researchers, supervisor and the CAP, and receiving feedback on my presentations), and by following the stages of data analysis precisely. Furthermore, had I not allowed my method of analysis to be driven by my research question, I might have found it challenging to decide what aspects of my data to focus on, as themes may have high levels of overlap, resulting in a weak or unconvincing analysis (Braun & Clarke, 2006; Javadi & Zarea, 2016). Had my analyses been poorly conducted, my results might have been a misrepresentation of the data, thus endangering the trustworthiness of my study (Braun & Clarke, 2006). These challenges were overcome by seeking advice from my supervisor and verifying my results through member checking.

I applied Braun and Clarke's (2006) step-by-step guide on the thematic analysis method (consisting of six phases) to my study of limited scope in the following way:

Phase 1 – Familiarising yourself with your data: During this phase the researcher transcribes data if it is necessary, engages in active repeated reading of the data and notes down preliminary ideas. According to Braun and Clarke (2006) and Meredith (2016),

transcription is typically the process in which verbal data are converted to written data, thereby enabling the researcher to analyse the data. Consequently, I transcribed all the interviews that were recorded on the different days I met with the participants. Javadi and Zarea (2016) emphasise the importance of transcribing each word in the content of the interviews exactly as the participant intended his or her answer to be, because even something like the placement of a comma can change the intended meaning attached to the participant's answer. Therefore, after completing the transcription process, I listened to the recordings of the interviews while reading my transcriptions to ensure that I have correctly transcribed the verbal data, as recommended by Braun and Clarke (2006). I subsequently read the transcripts several times to familiarise myself with the data.

Phase 2 – Generating initial codes: Coding is termed by Creswell (2014) as the process of taking the text data that were gathered during data collection and assigning a term (open code) to relevant sentences or paragraphs of the data. Following Liebenberg (2018) I learned that I can also code visual data, such as photographs. Relevant data answer the research question and the open code paraphrases that answer. Heeding Creswell's (2014) observation that qualitative software programs are less time-consuming than coding data by hand, I made use of the ATLAS.ti 8.3 software program to assign open codes to my data. I systematically worked through each interview transcript and its associated photos while assigning open codes and reflected with each code whether the code name adequately paraphrased the essence of that piece of data. I assigned codes to the identified data by making use of the highlight function on ATLAS.ti, as demonstrated in Figures 6.1 to 6.3. On the 24th of May, I met with my co-researchers and our supervisor. During this meeting, we presented our initial codes to each other and received feedback for further refinement.

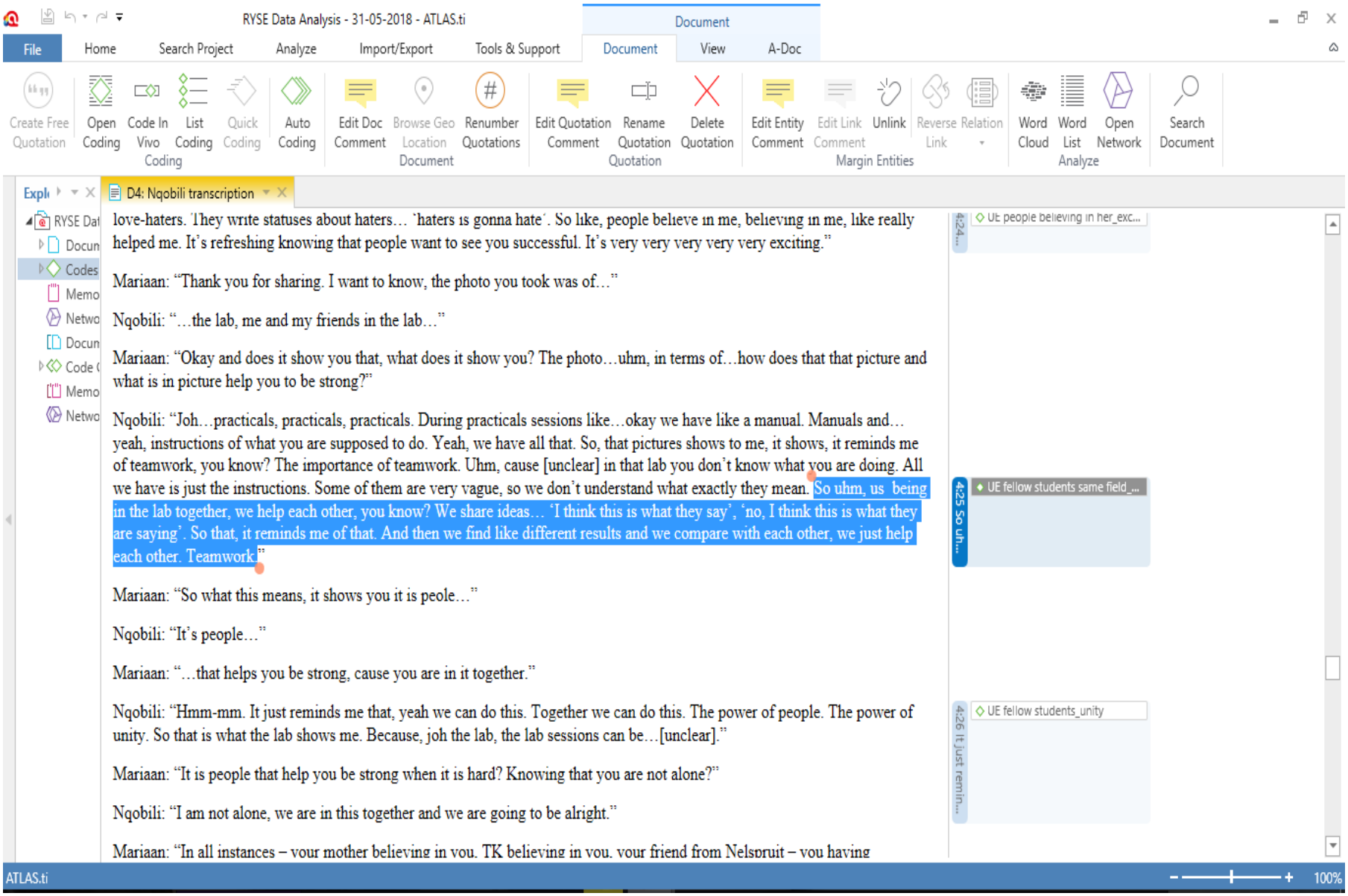


Figure 6.1. Demonstration of my open code *UE fellow students same field_teamwork.*

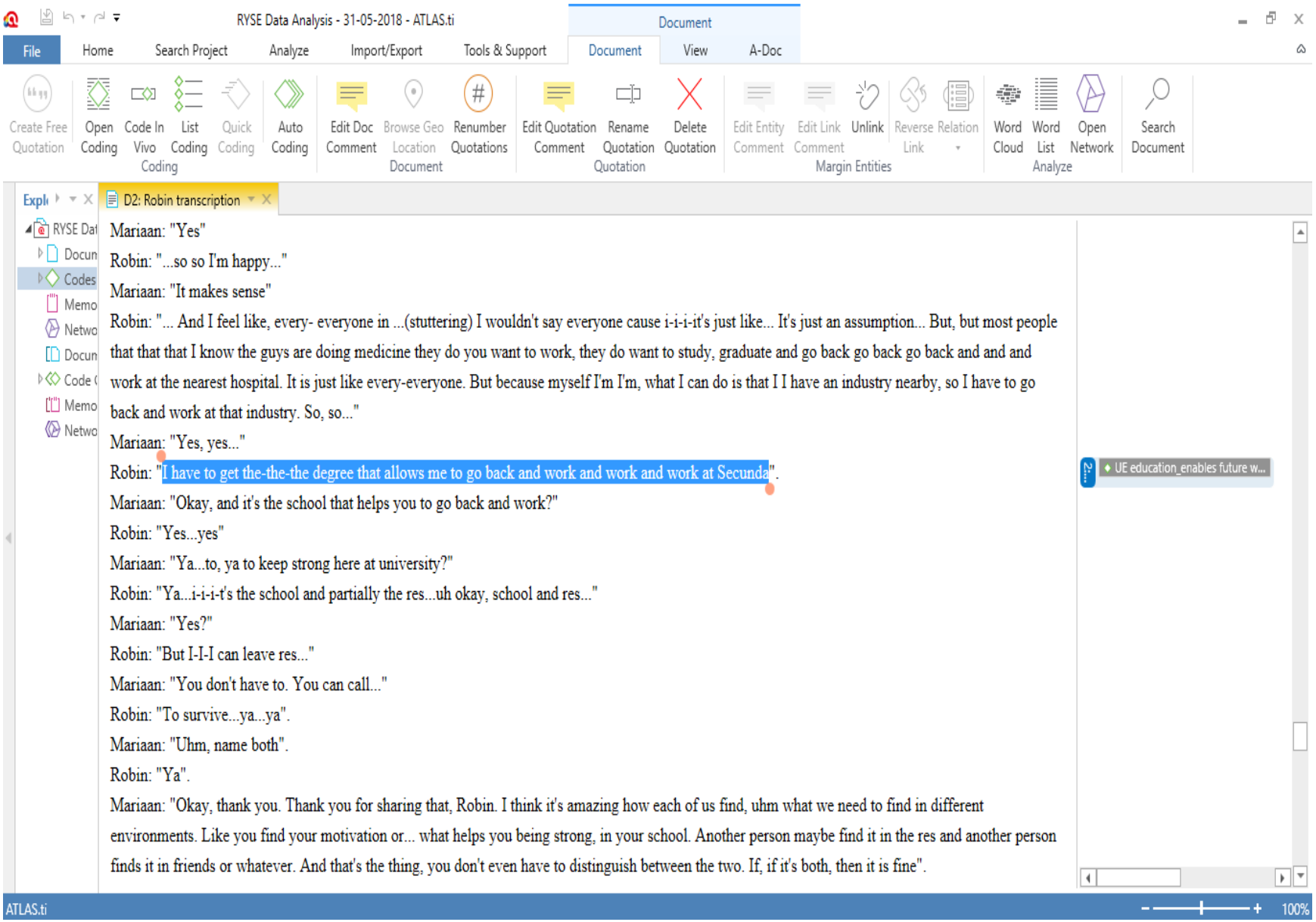


Figure 6.2. Demonstration of my open code UE education_enables future wish.

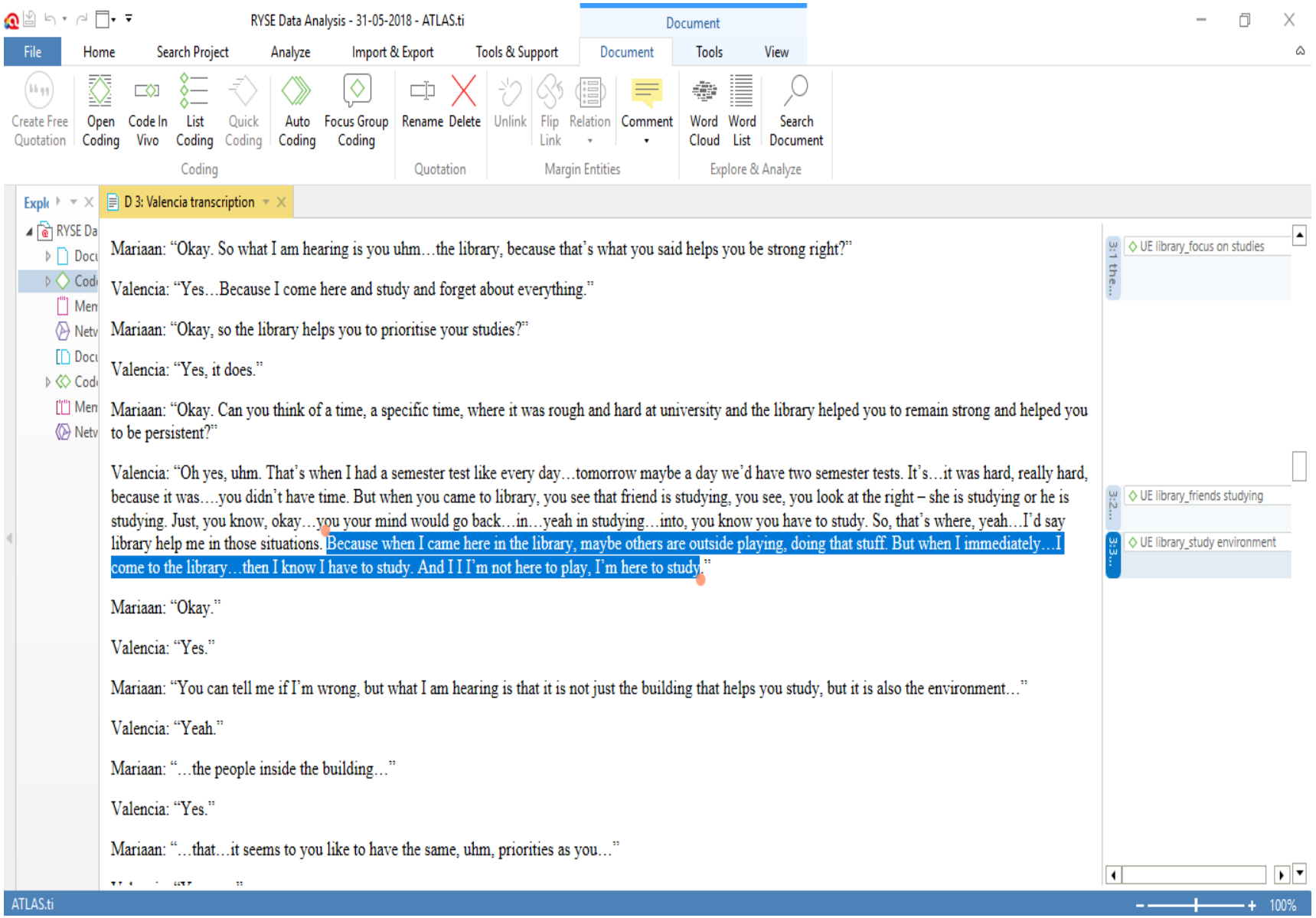


Figure 6.3. Demonstration of my open code UE library_study environment.

Phase 3 – Searching for themes: During the third phase I moved from open codes to candidate themes. According to Creswell (2016), themes are distinct categories of information consisting of several codes that are similar or that fit together. Thus, to identify themes I systematically worked through my codes and grouped all the codes that related on that they were similar. An excerpt demonstrating the inclusion and exclusion criteria for codes regarding my themes can be seen in Addendum 1. Figure 7 shows an example of how I grouped my codes into a theme.

Figure 7. An excerpt illustrating how I grouped relevant codes into the *fellow students* theme.

Phase 4 – Reviewing themes: According to Braun and Clarke (2006), when candidate themes have been identified the refinement of the themes take place during the fourth phase of data analysis. During this phase, it might become apparent that some candidate themes are not actual themes, as there might not be enough evidence in the codes or it might become apparent that two themes should merge. For example, initially I included a theme called 'bursaries' but on review, I concluded that there was insufficient evidence for this theme. After I refined my themes, I presented my candidate themes to my supervisor and co-researchers on the 31st of May for further refinement. Consequently, my themes were not only reviewed by my supervisor, but by my peers as well.

Phase 5 – Defining and naming themes: The fifth phase entails that the essence of each candidate theme is identified, that the names of the themes are revised (if necessary) and that the themes are defined according to the identified essence (Novell et al., 2017).. For example, before the name "sought-after qualification" (see Chapter 4, Section 4.2) was finalised, I considered alternatives starting with "obtaining a university education", then "obtaining a university qualification", before refining my theme name to "sought-after qualification". The theme of *sought-after qualification* included any degree, certificate or diploma that my participant will likely receive because they are enrolled at a (sometimes specific) tertiary education institution.

Phase 6 – Producing the report: According to Braun and Clarke (2006), the final phase of data analysis begins when the establishment of theme names and definitions is completed and the write-up of the report can start. Following Novell et al., (2017), I have included extracts of raw data in my analytic narrative to demonstrate the complex and rich story of my data, as seen in Chapter 4 where I discuss my findings and the linkage of my data to existing literature.

3.6 Quality Criteria

According to Lincoln and Guba (1985), there are five criteria to ensure quality qualitative research. The criteria described by Lincoln and Guba exist out of trustworthiness, which is underlined by five other criteria, namely credibility (confidence in the "truth" of findings), transferability (demonstrating that my research finding are applicable in other contexts), dependability (demonstrating consistent findings that could be repeated),

confirmability (research shaped by participants and not the researcher) and authenticity (relating analysis and interpretation of data to the meanings and experiences as perceived by participants) (Gray, 2009; Lincoln & Guba, 1985).

For my study to be credible and authentic in the sense that it accurately presents the participants' perspectives, I, as far as possible, consistently checked with my participants if I had understood them correctly (Bloomberg & Volpe, 2016; Gray, 2009). I checked with my participants if I had understood correctly by reflecting their answers back to them during the interviews. Furthermore, while writing up my themes I phoned participants to clarify their answers when I realised that I need more clarity to report on their answers in a credible way. Additionally, following Morse (2015), I presented my candidate themes to the CAP on the 12th of October (see Figure 8). According to Morse (2015), a CAP or similar group most likely looks at findings analytically (enabling credibility), whereas a presentation of candidate themes to participants will most likely not be practical, as it is unlikely that participants will recognise their own voice within a synthesised text (i.e. an amalgamation of literature participants data). During the meeting I visually presented my themes to the CAP. The CAP, as well as my co-researchers, had the opportunity to question my account of my findings and/or clarify any uncertainties with regard to the emerged themes. Hereafter the CAP presented feedback that enabled me to reflect on my themes and adjust how I report on my themes where necessary. For example, the CAP helped me understand the contextual relevance of a sought-after qualification (see 5.2).

Figure 8. Meeting for the presentation of candidate themes to the CAP. Left to right: Me (Mariaan Prins) and two other master's students (Marianne Blunden; Katherine Malakou). Photo credit: RYSE project team

With regard to transferability, I described my research methods in detail to enable other researchers to make partial use of my methods to further explore the research phenomenon on which I have focused. Furthermore, following Maree and Hansen (2011) and Nieuwenhuis (2016), I provided extensive descriptions of my participants and the context being studied; this potentially enables other researchers to make connections between the findings of my study of limited scope and their own context of study and potentially build on my findings. As informed by Nieuwenhuis (2016), purposeful sampling as method of sampling further increased the transferability of my study because the careful selection of participants enables researchers to make connections between the data of different studies if the participants represent the population or context that is being studied, contributing to a better understanding of my research phenomenon.

As per Lincoln and Guba (1985), I included the inclusion and exclusion criterion (see Addendum 1) in an attempt to ensure the criteria of dependability. Additionally, I attempted to capture participants' interviews in their natural form as far as possible and consequently tape-recorded the interview, as note-taking would most likely have changed the form of the data (thereby contributing to confirmability) (Richie & Lewis, 2003).

3.7 Ethical Considerations

The RYSE project has ethical clearance from the faculty of Education of the University of Pretoria's ethical committee (UP 17/05/01). Although my study was covered by the RYSE project's ethical clearance, I applied for and was awarded associated ethical clearance for my specific sub-study. The consent process for participants involved in my sub-study was handled by the CAP. It was, however, my responsibility to ensure that my research was ethical by causing no harm during the course of my study (Walliman, 2005). I ensured that my research was ethical as far as possible. In conducting ethical research, I, as researcher, ensured that no participant was harmed in any way. Harm includes inadvertently committing offense towards participants when doing research among students from a background different from my own (Creswell, 2014; Silverman, 2016). Working with students whose background is different can potentially lead to misunderstandings, which can cause harm, because if students' perspectives are not represented authentically their insights are disrespected. This would also diminish the credibility of the research. These challenges were overcome by seeking advice and guidance from the CAP and my supervisor (Ritchie & Lewis, 2003; Walliman, 2005). I negotiated with participants regarding permission to use and reproduce their photos, gave my participants the choice to reveal their identities or not, and I encouraged the participants to not take photos that reveal other people's identities (Boeije, 2010; Marshall & Rossman, 2016). Harm can also be caused when participants are coerced to participate by giving the participants something for their participation (such as a voucher), especially when the participants are vulnerable (e.g. lacking resources) (Boeije, 2010). Following Flick (2014), the potential challenge of coercion was overcome by explicitly stating on the consent form that participation is voluntary. When participants were contacted by the CAP about my study they were not informed about the voucher. Only when participants completed the consent form, did they learn about the voucher. The consent form explained that the voucher is only a token of appreciation. See Addendum 2 for a blank copy of the consent form that was given to my participants prior to our interviews and see Addendum 3 for my ethics clearance certificate.

3.8 Conclusion

By making use of the research methods described in Chapter 3, and ensuring that I conduct my research in an ethical manner, I was able to gain data from participants in order to answer the research question. The themes that emerged from my data suggested three

resilience-enabling factors in the SE of TEIs as seen from the perspectives of my participants. The mentioned themes and what these themes might imply, as well as my process of meaning-making and growth as researcher, are discussed in Chapter 4 and Chapter 5.

CHAPTER 4
REPORTING RESULTS

4.1 Introduction

In answer to the question "Which factors in the SE of TEIs are considered resilience enabling by tertiary students who come from the eMbalenhle community?" three themes emerged. As summarised in Figure 9, these themes are: (a) *a sought-after qualification* (underpinned by a certain view of the future), (b) *university supports* and (c) *enabling fellow students* (with the subthemes *same course* and *different course*). Although these three themes emerged, I acknowledge that self-motivation also enables resilience in older adolescents from eMbalenhle who are enrolled at tertiary education institutions. Although self-motivation is not something in the social ecology of tertiary education institutions, but something within the older adolescents themselves, the adolescents repeatedly referred to self-motivation as resilience enabling; therefore, self-motivation is included in Figure 9. However, I do not elaborate on this in Chapter 4 because I am interested in the resources in the social ecology of tertiary education institutions that are seen as resilience enabling. Although I report my findings in this Chapter, I have extended my reporting on my findings by adding more of the participants voices (see Addendum 5).

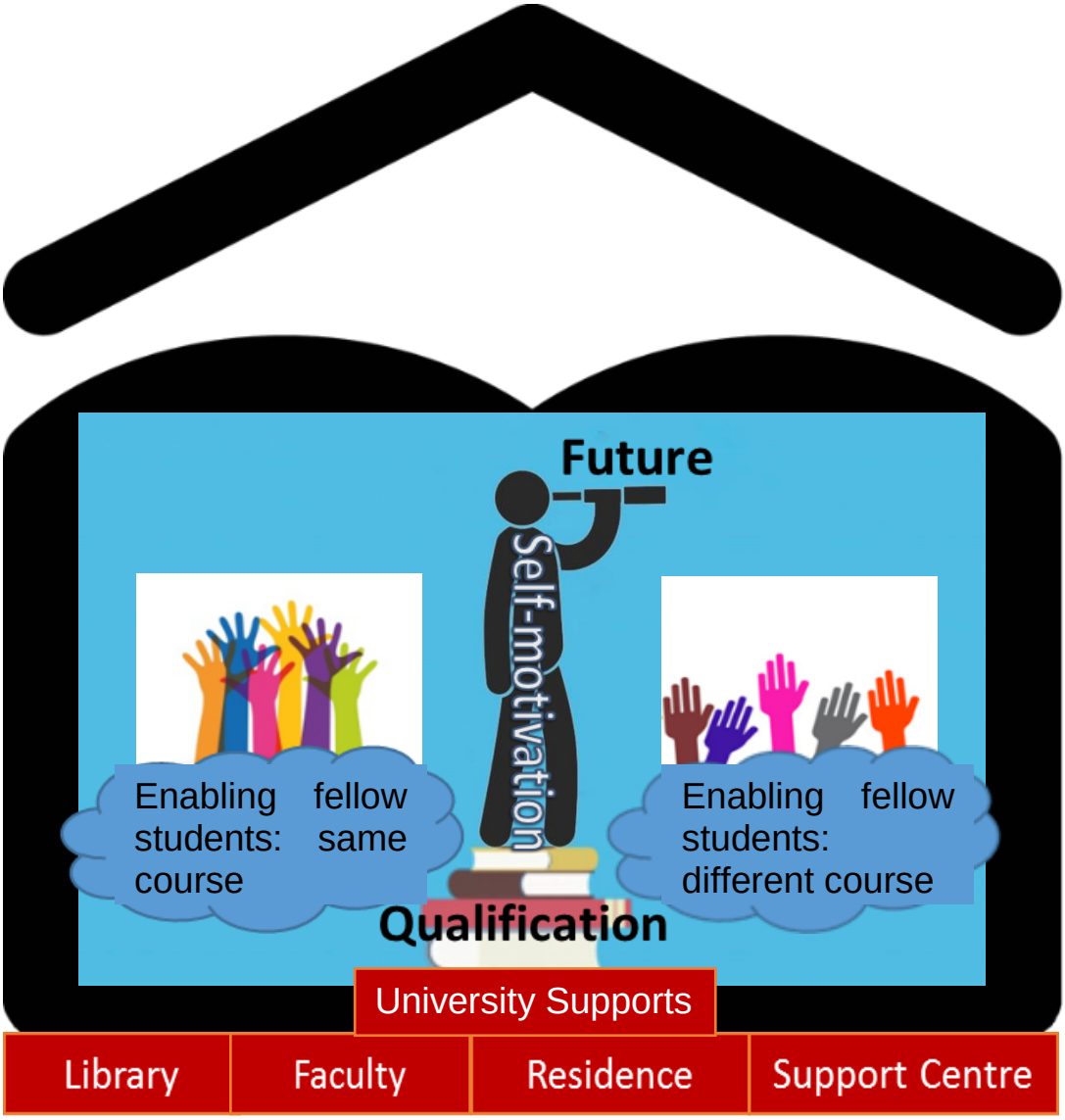


Figure 9. Visual summary of study's findings.

The theme *sought-after qualification* was seen as a resilience-enabling resource by all the participants. The themes *university supports* and *enabling fellow students* were reported by half of the participants (i.e. three of the six participants). Importantly, these themes were related. For example, access to university infrastructure (part of *university supports*) also allowed access to enabling fellow students. Completion of a qualification that was sought-after required emulation of committed or diligent fellow students and space to study (e.g. in the library). The relatedness of these themes is illustrated in Figure 9, which grasps them into a whole. For the sake of clarity on what each resilience-enabling factor contributes to the resilience of my participants, I report each theme separately.

4.2 Theme 1: Sought-After Qualification

The theme *sought-after qualification* refers to the degree, certificate or diploma that the participant will likely receive because they are enrolled at a (sometimes specific) tertiary education institution. Although achieving the qualification requires personal motivation and effort, this motivation and effort would mean little without the TEI crediting and conferring the qualification. Receiving a sought-after qualification holds particular importance for participants in terms of their future. For the participants, a sought-after qualification is associated with a better future in which they will have an opportunity to work (specifically at Sasol), be able to provide for their families and live a higher quality of life (including have more time to spend with their families. Therefore, this theme is underpinned by these young adults' view of their future (including their dreams and wishes), which will be realised because of the qualification they plan to receive. As mentioned, all six participants reported this theme.

For example, Siphesihle (20 years old) explained that what helps him to be resilient at university is remembering his dream of in future becoming the best physicist in South Africa. He believes that getting a degree (at the University of the Witwatersrand specifically) will enable him to be the best physicist in South Africa. According to Siphesihle, a physics degree at Wits University is one of the most prestigious physics degrees a person can obtain in Africa, if not the best.

Similarly, Simphiwe (19 years old) referred to his future qualification as resilience enabling. He explained that he is motivated at university, knowing that he will be able to become an accountant and consequently be an asset to any company (even Sasol, the major employer of eMbalenhle and Secunda residents). Simphiwe sees his qualification as valuable because a company will be dependent on him in the sense that they may benefit from the informed decisions he will make as an accountant. He demonstrated this as follows:

> … I'm still waiting for a call from Sasol for an interview. Like one thing surely they would ask me is, "Why did you choose accounting?" And I would be like, "I want to be an asset to that company". Not for like, self-accomplishment, but for the entire company. 'Cause for me being an accountant, I'm more like … the company, it's in my hands. Because I am taking decisions that will pay dividend to the company. That's more like an asset.

In much the same way, Robin (20 years old) talked about how his degree will enable the perspective (and wish) he has of the future, and how this helps him to be resilient. He said, "I have to get the degree that allows me to go back and work at Secunda, where Sasol

is." He went on to explain how Sasol will be able to provide him with a job opportunity because of his engineering degree. He mentioned that Sasol motivates students to study engineering and then come back to Secunda to work at Sasol, thereby confirming his belief that his degree will provide him with job security when he goes back to Secunda.

Likewise, Valencia (23 years old) explained how knowing that she will have a qualification that will help her in the future enables her to be resilient. She mentioned that "education is the key to everything". For her a tertiary qualification was sought after in that it will potentially "open doors" for her in the future. She referred to the security that she believed would come with a qualification by saying:

> It [qualification] is gonna help me in the future because when I've got my certificate or whatsoever, my degree or my diploma, I know, okay, I have a qualification and even if I suffer from getting a job, I know I have something stable.

Another participant, Thabang (23 years old), mentioned that thinking of his future, in which he will have a sought-after qualification, enables his resilience. He believes that studying hard will contribute to the great future that he envisions for himself. He elaborated on this by referring to how he writes down his goals for the future to motivate him to study and graduate, as he believes achieving a qualification, specifically in information technology, will enable him to go back to eMbalenhle to provide a better life for his family and better his community.

Similarly, Nqobili (18 years old) believes that that graduating will contribute to her having a better future in which she can have a career; this belief enables her to be resilient. She specifically mentioned that she wants to graduate to be able to provide for her family and to achieve a certain kind of lifestyle, such as owning and driving expensive cars.

The theme of a sought-after qualification and the implication it holds for the future, acting as a resilience-enabling factor for students from disadvantaged communities at TEIs, fits with international studies of tertiary education students (Phinney et al., 2006; Reed et al., 2015), which report students' beliefs that a sought-after qualification will contribute to economic opportunities, which, in turn, will enable them to help their families financially.

The theme of *a sought-after qualification* also fits with the South African literature, which reports that a sought-after qualification enables resilience among students challenged by disadvantage because of the belief that the qualification will ensure a better future not only for the students themselves, but also for their families (Cross & Atinde, 2015; Dass-Brailsford, 2005; Firfirey & Carolissen, 2010; Mhlongo & O'Neill, 2013; Sampson, 2011; Van Breda, 2018). In much the same way, participants in my study indicated that their

resilience is intertwined with their hopes for the future, which they have because of their intended qualification. Similar to my study, some of these aforementioned South African studies included black older adolescents challenged by disadvantage who come from communities challenged by disadvantage (Cross & Atinde, 2015; Dass-Brailsford, 2005; Firfirey & Carolissen, 2010; Mhlongo & O'Neill, 2013; Sampson, 2011; van Breda, 2018).

However, as far as I could determine, none of these previous studies focused on black older adolescents coming from a petrochemical-affected community challenged by disadvantage. In this way, my study makes a tentative contribution to the literature. In addition, it was interesting that some (two) participants in my study preferred a qualification that would afford them employment at a petrochemical industry (i.e. Sasol). I wondered whether this might be because of the specific petrochemical-affected community they come from (i.e. eMbalenhle, which is adjacent to a large Sasol plant and typically depends on this petrochemical industry for employment).

4.3 Theme 2: University Supports

University supports can be defined as university infrastructure or services built for or dedicated to addressing the needs of students. Half of the participants supported this theme (i.e. three of the six participants). This theme not only refers to the function of the structures, but also the atmosphere and the resources associated with the structure or space. Infrastructure that was repeatedly mentioned included the "library", "school of study" [faculty building], "residence" [student accommodation on campus], and "campus support centre". Services included counselling and career guidance.

Robin (20 years old) reported his school of study and his on-campus residence as resilience-enabling resources in the social ecology of his university (see Figure 10). He mentioned that both these spaces motivate him to continue with his studies and graduate because, according to Robin, his specific school of study allows him to be exposed to everything that reminds him of his course (chemical engineering); he consequently falls in love with his course, which motivates him to study for prolonged periods. He specifically referred to the chemical engineering-related posters at his school of study and the opportunity to interact with his lecturers when he was in this space. Furthermore, Robin considered the infrastructure of his residence to be resilience enabling because the infrastructure allows him to interact with other students daily. In this opportunity to live in close proximity with other

students, he finds motivation in seeing the seniors at his residence studying hard, because they model how it will be possible to complete a chemical engineering course.

Figure 10. A photo provided by Robin of his on-campus residence

In a similar way, Siphesihle (20 years old) named the CCDU (campus support centre) as a university structure that is a resilience-enabling resource. The CCDU had supported him in such a way that he was able to gain information about the way forward with regard to his studies (for instance, changing courses) in such a sense that it had contributed to him feeling "enlightened". He changed courses between his first and second year of study because he did not think that his first choice of study course would have been able to provide him with the necessary skills he needed to succeed in the corporate world.

Likewise, Valencia (23 years old) indicated the university library (see Figure 11) as a resilience-enabling resource. When she is making use of the library's main function − which, according to her, is studying − she experiences the atmosphere of the library as resilience enabling. She referred to the atmosphere of the library in the following way: "I come to the library … then I know I have to study. And I'm not here to play, I'm here to study."

Figure 11. Valencia's photo of a resilience-enabling university structure – the library.

The theme *university supports* aligns well with several international studies reporting on university infrastructure and university services as a contributing factor to the resilience of university students at risk of discontinuing their studies (Julal, 2013; Knight et al., 2012; Reed et al., 2015; Sommer & Dumont, 2011). However, both international and South African studies (e.g. Dhillon et al., 2008; Paul et al., 2009; Peterson et al., 2009; Sommer & Dumont, 2011) report that some students at risk do not experience university supports as resilience-enabling. Possible reasons for the students' experiences include a discouraging university environment when it comes to seeking help as well as a disconnection between the services provided by university structures and the needs of the students seeking assistance (Peterson et al., 2009; Sommer & Dumont, 2011).

Consequently, some studies contradict what was found in my study with regard to university supports as a resilience-enabling factor in the SE of TEIs. The emergence of the theme of *university supports* as resilience-enabling factor for my participants made me wonder if perhaps the resource-constrained community from which my participants come has contributed to them being inclined to value resources such as infrastructure. However, 50% of my participants (i.e. three of the six participants) were silent about the resilience-enabling value of university supports. This might imply that the value of university supports for students challenged by disadvantage is university-dependent (e.g. more accessible at some institutions than others), as two of the three participants who commented on the value of university structures as a resilience-enabling factor came from the same university.

4.4 Theme 3: Enabling Fellow Students

Enabling fellow students can be defined as any student within the university ecology (UE) of the participant that enables the participant to be resilient. Half of the participants reported this theme (i.e. three of the six participants). The way in which a fellow student enabled the participant to be resilient was oftentimes through the means of an action. Such actions included academic mentoring, motivating and/or caring. Two distinct subthemes emerged, namely *fellow students from the same study course* and *fellow students from a different study course*.

4.4.1 Enabling fellow students: same study course.

Nqobili (18 years old) reported that the action of a fellow student, who was constantly checking up on her, enabled her to be resilient. She mentioned him taking action by talking to her when she forgot about her priorities while being at university. She described her priorities as submitting assignments, staying motivated, staying focused and "pushing". According to Nqobili, when her fellow student (taking the same course as she) talked to her, it helped her to remember her priorities because she experienced him as showing "tough love" by stating facts. She said, "He [fellow student] was constantly checking up on me, so that, you know what … I just needed that. I needed someone who cared," and "Having a friend like that [who checked up on her] really helped me. He showed me tough love, and he stated facts – he stated the fact that I was going to fail."

Similarly, Robin (20 years old), an engineering student, reported that fellow students motivate him when they graduate. Their graduation was tangible proof that it would be possible to achieve his sought-after qualification. He said:

> Most of the time when people graduate, you do get motivated that this thing is possible that I am doing. Especially when the engineering guys were graduating that day. So you do get motivated from just seeing the guys, seeing that one day I must also be graduating like this guys.

In addition, the fact that his residence housed mostly engineering students meant that this motivation was not limited to graduation days. Robin explained:

> When you stay at res it's not like it's just a general random flat where you stay with guys who are doing other courses. When you stay at res you have like 30 people who are doing engineering, which means that all of you speak the same language, all of you are going to motivate each other to study.

The sub-theme *enabling fellow students from the same study course* aligns with international studies on factors that enable students to adjust to and succeed at university, which report that enabling fellow course students rely on each other for support and care for each other (Bhopal, 2011; Knight et al., 2012; Malm, Bryngfors & Mörner, 2015). The sub-theme of *enabling fellow students from the same study course* also fits with the South African literature that reports on fellow course students as a resilience-enabling factor (Cross & Atinde, 2015; Lubben et al., 2010; Nkutu & Seekoe, 2013; Sampson, 2011). Some South African literature (e.g. Lubben et al., 2010; Nkutu & Seekoe, 2013; Sampson, 2011) suggests that fellow course students are resilience enabling because they support each other academically, for example, by forming study groups. This aspect did not emerge in the findings of my study with students challenged by disadvantage at TEIs; instead, my participants reported on caring (in a personal manner, e.g. a fellow student in the same course addressing my participant's problem behaviour) and motivation (e.g. seeing fellow students graduate). In doing so, my study may potentially contribute to existing South African literature with regard to the ways in which fellow course students are seen as a resilience-enabling factor for students from disadvantaged communities such as eMbalenhle.

4.4.2 Enabling fellow students: different study course.

Thabang (23 years old) indicated his fellow students as the resource in the social ecology of his university that enables him to be resilient at university. He explained that his fellow students on campus enable him to be resilient when they motivate him while he sells energy beverages on campus. In Figure 12, Thabang can be seen in the social ecology of his university, where he sells energy drinks to fellow students to secure an income and to develop his entrepreneurial skills. In the course of them transacting with him, they motivate him. He explained:

> So the purpose of me selling these drinks is to make sure that there is no student who is sleeping … It basically makes me strong because each and every time you sell a drink to a person, he [fellow student] or she [fellow student] ask me, "When are you studying?" And you are going to answer … Maybe for myself I'll say, I don't sleep at night and … that particular person [fellow student] can give motivation words for me … those that I get each and every day of my life at campus. They motivate me a lot.

Figure 12. Thabang's photo depicts him selling beverages to fellow students in the social ecology of his university.

The sub-theme *enabling fellow students from a different study course* fits with international and South African studies on fellow students in general acting as a resilience-enabling factor (Fernández-Martínez et al., 2017; Rubin, 2012; Sampson, 2011). An international study (Rubin, 2012) reports on how social integration with students in general may provide social and informational support in much the same way as described by Thabang. The South African study (Sampson, 2011) reports on how tangibles provided by fellow students (such as accommodation) act as a resilience-enabling factor for other students. Four of my six participants are staying in student residences, which might imply that they are not dependent on fellow students for tangibles such as accommodation.

Furthermore, all of the participants who reported on fellow students (same/different course) as resilience-enabling factor referred to their fellow students' contribution of motivation to complete their studies. Therefore, I wondered if fellow students are seen as resilience enabling because they share a vision with my participants with regard to receiving a qualification. However, the fact that 50% of my participants were silent about fellow students being resilience enabling might imply that my participants have learned to rely on resources other than people (e.g. relying on the perceived benefits of receiving a sought-after qualification), as my participants come from a community where a sought-after qualification will potentially be more valuable for them than relying on others to better their lives.

4.5 Conclusion

The themes that emerged demonstrate how resilience-enabling factors in the SE of TEIs for students challenged by disadvantage may potentially vary due to the specific TEI's SE, the individual's background and the individual's perceived idea of the value of the resilience-enabling factor. To this end I have come to certain insights regarding resilience-enabling factors in the SE of TEIs that align with the theory (SERT) that I have applied in this study. The insights that I have potentially gained will be discussed in Chapter 5.

Theme	Quotes from participants
Theme 1: Sought-After Qualification	1. "… I wanted to be a physicist… and getting a degree at Wits is one of the most prestigious physics degrees you can get in Africa. So that is why I chose Wits in the first place… so that I can be one of the best physicists in the country (Siphesihle, 20) 2. "And during all that you want to quit and never come back, you'll want to go back to the community and just stay there, you will like look down on education. You'll just, you'll just ruin your future. You'll just end up being like the average…girl, like girls from the townships, you know? Because I like…one of the things that, motivates me is just that – I don't want to be average. I don't wanna be average! I don't, I just don't. I wanna achieve great things." (Nqobili, 18) 3. "But I'm glad it passed, cause I was motivated by the fact that my mom was relying on my, my little sister, it's like I'm her role model. Because back at home, when you are in varsity, you are more like a superstar. So if they see you fail, that means like you don't give them like that platform for them to go pursue like higher education at varsity and stuff. You are more like a failure. You are more like a failure. So for me failing wasn't an option. Giving up wasn't an option." (Simphiwe, 19). 4. "Allows me to think beyond what I am facing at that time, allows me to think about my future, to…where do I want to see that face in the next ten year? Am I seeing that face still at Wits trying to get that first degree or is that face going to be at The Great Hall getting its master's degree? That is why I always look at the mirror". (Siphesihle, 20).
Theme 2: University Supports	1. "…at university there is things that I do need like…the school just motivates me or being at res motivates me… thinking of it - those are the things that I feel like I can't live without here." (Robin, 20) 2. "But when I went to CCDU, [campus support centre] it sort of enlightened me in the sense that I can still finish my first year in actuarial science and get credits to pursue second year in what I wanted to do." (Siphesihle, 20) 3. "That's when I had a semester test like every day…tomorrow maybe a day we'd have two semester tests. It was hard, really hard, because it was….you didn't have time. But when you came to the library, you see that friend is studying, you see, you look at the right – she is studying or he is studying. Just, you know, okay… your mind would go back…in…yeah in studying…into, you know you have to study. So, that's where, yeah…I'd say library help me in those situations. Because when I came here in the library, maybe others are outside playing, doing

	that stuff. But when I immediately…I come to the library…then I know I have to study. And I'm not here to play, I'm here to study." (Valencia, 23) 4. "I feel like the school on its own, it just motivates me... The posters outside, people that you are going to meet at the schools, lecturers you're going to meet at school. Even the even the lectures, they are structured that even you can study for prolonged hours at that place and there's always someone who you can talk to especially, if you are at the school especially if you have assignments which are due. I feel like because I am at the school I'm going to be interacting with people who also have the same problems so, I feel like academic, when I have academic issues, mostly when I am at the school I feel like I am at a safe environment because I know everyone that I'm going to bump into, I'm going to trust them seeing that... Especiall when I was a first year because now... If I bump into someone, someone who is maybe a first year or second year, they can't answer my question, but when I was first year if I have a problem I'll... If I ask someone at the school I knew that everyone at that place can answer me certain questions." (Robin, 20) 5. "So my existence just became a routine where I just go to the library, solve some problem about some asset and you go back to your room and sleep. There is nothing interesting to do. And I actually wanted to quit, I wanted to just take a break, come back the next year and… But when I went to CCDU it sort of enlightened me in the sense that I can still finish my first year in actuarial science and get credits to persue second year in what I wanted to do. They allowed me to not go home, cause I was already packing my bags. I went to them to to ask about how to deregister towards the end of the year. But we sat there and we spoke of… let me finish my first year in actuarial science at least at the start of second year I get credits for math and I can pick up physics which is what I always wanted to do. So yeah, we had the entire conversation about, if I do physics, I can still go back to the corporate world whenever I want to." (Siphesihle, 20) 6. "I never want to give up physics. So, ya, it is going to the career counsellors and at some point I had to go to the psychiatrist. So, I went to the psychiatrist, I was admitted to a psychiatric centre…never wanna go back there, it wasn't fun at all. But yeah…but going to CCDU…it helps when the mental state is beyond fixable on your own. You have to sit down with someone else and hopefully uh, go through what you are feeling. Cause, calling home it's…for me it's the last resort, cause you call home…everyone starts panicking. It just makes things

	worse. It just makes things worse. So I would rather talk to a total stranger…total stranger that…okay I believe in science so it's to me talking to a total stranger that knows more about my mental state than I do. That is why I go to them rather than call home where everyone would just panic and at some point you are called by your grandmother and she starts crying. Don't wanna do that…so that is why I go to CCDU". (Siphesihle, 20)
Theme 3: Enabling Fellow Students	
Theme 3.1: Enabling fellow students: same study course.	1. "I'm studying with people who understand what I am studying, because if I study at some other libraries, some guy is going to study for 30 minutes, then I'm just going to feel like…just because I did study for 30 minutes that means that everyone is studying for 30 minutes, so let me just join the guys and leave. But when I'm at Rich-Richard Ward I will see that everyone is studying like for 2, 3 hours at least minimum every day. So I know that this is the right thing that I'm supposed to do. So I'm not doing anything wrong... I don't feel like I'm a slow learner if I'm studying for long hours. So it just motivates, because they are in the same environment as you, so they understand you. They are going to do things in a similar way so... Just because I'm at that place, it means that gradually all that motivates me when they do graduate..." (Robin, 20)
Theme 3.2: Enabling fellow students: different study course.	1. "We are assigned pupils that help us with career… with goal setting. So what we do at the beginning of each year is to look back at what happened last year and how can we improve on that and then set our goals. So this in a sense, helps me to get through the tough times." (Siphesihle, 20).

Appendix A. Table with quotes from participants per theme

CHAPTER 5
CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

In this chapter, I will demonstrate that my research question has been answered. Furthermore, my study of limited scope did not only potentially contribute to the research field of the profession of educational psychologists, but also to me as a post-graduate student and an educational psychologist-in-training. Therefore, I will demonstrate what insights I have gained throughout and on completion of my study of limited scope.

5.2 Question Revisited

The primary research question that directed my study of limited scope was: Which factors in the SE of TEIs are considered resilience enabling by tertiary students who come from the eMbalenhle community?

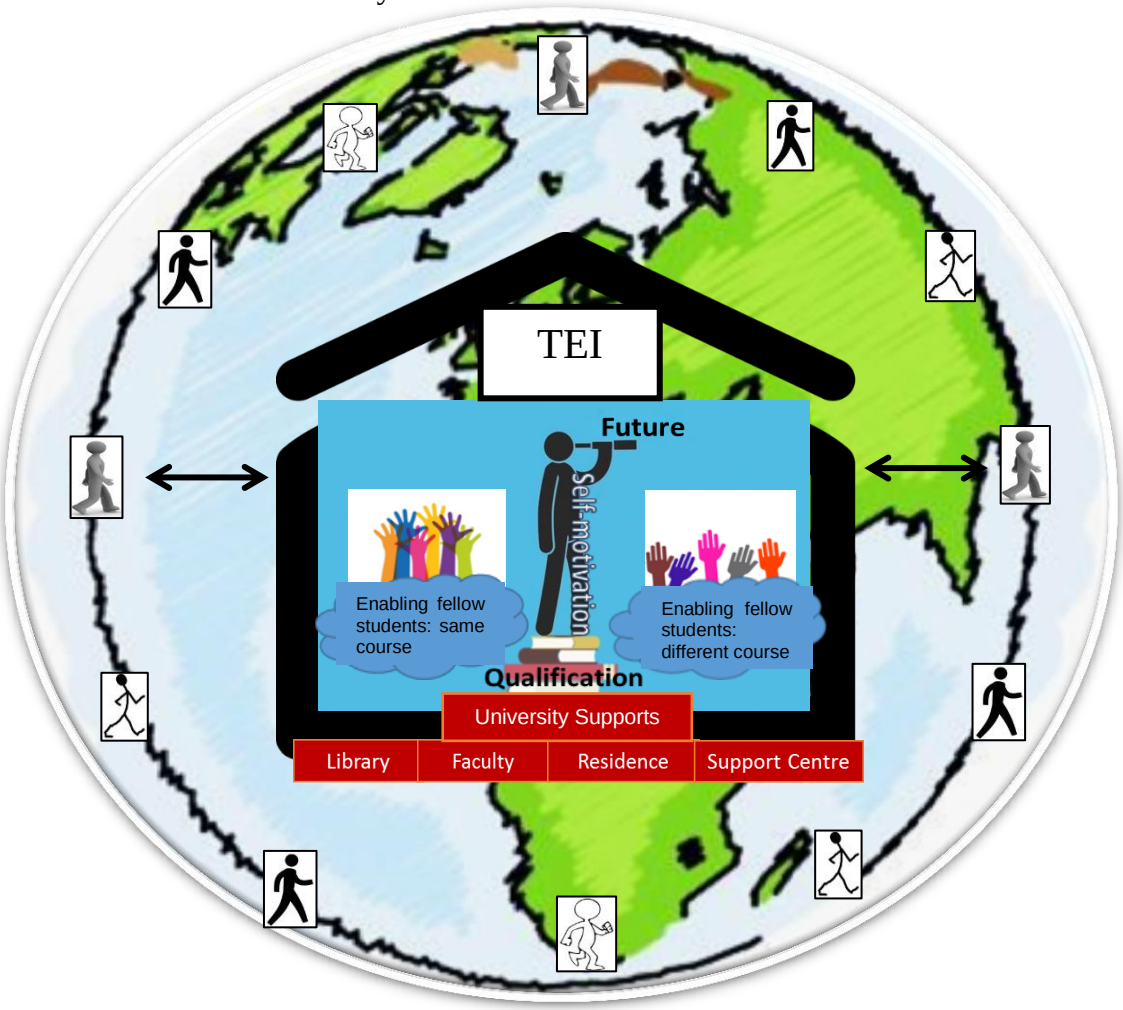


Figure 13. Visual summary of study's findings.

Figure 13 offers a visual summary of the findings of my study of limited scope in a way that includes the question that has directed my study, as well as the theoretical framework that I have used. As explained in Section 4.1, although I reported three discrete themes regarding SE factors in a TEI that facilitate student resilience, they are intertwined. This reinforces SERT's thesis that resilience is a multifaceted phenomenon (Ungar, 2011). Since I have made use of SERT as theoretical framework, I have also demonstrated the four principles of SERT in my visual summary. *Decentrality* is represented as the interaction of the individual student (the small illustrations of people) with the SE of their TEI (represented by a building in the middle of the visual summary). As the principle of decentrality refers to the centring of the SE, the TEI is in the middle of the summary and big in relation to the individuals. The representation of *complexity* (i.e. the potential for resilience processes to vary across contexts and over time) is found in the backdrop of the world (different contexts) and the circle that frames the diagram as representation of a clock (time) with the illustrations of people as the numbers. *Atypicality* is represented by putting the small illustrations of people at places where one would expect numbers; to this end, the placing of the illustrations of people can be seen as unexpected – much in the same way that mainstream society would not associate atypical resilience enablers with resilience. The representation of *cultural relativity* is demonstrated by the difference in appearance of the illustrations of people, i.e. illustrating different beliefs, views and ways of doing people might have.

As per Figure 13, the students challenged by disadvantage who participated in my study indicated that they experience (a) a *sought-after qualification* (underpinned by a certain view of the future), (b) *university supports* and (c) *enabling fellow students* (with the subthemes *same course* and *different course*) as resilience-enabling factors in the SE of their TEIs. All the participants reported a *sought-after qualification* as a resilience-enabling factor, making it the most prominent theme. Half of the participants reported that university supports enabled them to demonstrate resilience, and half of the participants reported that fellow students enabled them to demonstrate resilience. Consequently, *university supports* and *enabling fellow students* both emerged as less prominent themes. I was compelled, therefore, to revise my deduction regarding the prominence of social capital as a resilience-enabling factor in the SE of TEIs (see Section 2.5.4).

Although my participants indicated that self-motivation acts as resilience-enabling factor while being enrolled at their TEIs, I did not discuss self-motivation as a theme because self-motivation is something within the participants themselves and not in the SE of their TEIs. However, I did include self-motivation in my figure to demonstrate that I do

acknowledge that all participants referred to self-motivation as resilience enabling. The inclusion of a personal resilience enabler along with those occurring in the SE of the TEI fits with SERT's understanding that resilience draws on personal and systemic resources (Ungar, 2011; Ungar et al., 2013).

My participants' references to a sought-after qualification as resilience-enabling factor at their TEI fits with what literature tells us about the perceived benefits associated with receiving a tertiary qualification (Cross & Atinde, 2015; Day & Nolde, 2009; Dass-Brailsford, 2005; Firfirey & Carolissen, 2010; Knight et al., 2012). Both my participants and the literature reported on receiving a qualification as a resilience-enabling factor because of perceived benefits, namely financial independence, sense of personal accomplishment when graduating, a better job and quality of life and improved socio-economic status (for both them and their families). However, my participants explicitly reported on a **sought-after** qualification (rather than any qualification, per se) as resilience-enabling factor. I believe that a sought-after qualification as resilience-enabling factor reflects two of the four SERT principles, namely the principles of *complexity* and *cultural relativity*. The qualification that the participants referred to is sought after because it should allow them to beat the socio-economic challenges that are standard for most people from eMbalenhle. Also, for some participants it related to a specific career at the petrochemical company Sasol. Because my participants have lived in eMbalenhle, they have been exposed to Sasol and potential work opportunities at Sasol and, like most residents of eMbalenhle, they aspire to work at Sasol (Ungar & Theron, 2018). Their sought-after qualification will enable them to work at Sasol. As one participant put it, "Because I want to go to Sasol I had to choose a specific branch [course]. I can say that having Sasol at my place [community] did influence me to want to study chemical engineering." To this end, *complexity* is being demonstrated in that the participants' home context (eMbalenhle, close to Sasol) influences what is perceived as resilience-enabling in their current context (the TEI) with regard to their potential future context (Sasol as working environment). What my participants consider resilience enabling is potentially shaped by their contextual experiences over time (moving from the context of eMbalenhle to their TEIs) and by their hopes for themselves over time, which further reflects the principle of complexity.

When my participants reported on reasons why they view a sought-after qualification as resilience-enabling (such as providing for their families), I wondered whether or not it was because they most probably grew up in a township culture where one has to look out for one another in order to survive because of the various risks one is exposed to, as indicated in the

literature by Myroniuk (2016) and Mhlongo and O'Neill (2013). Educational aspirations are often part of a township culture, as the responsibility to provide for the collective family system, as well as the pressure from uneducated and/or low-income parents to enter well-paying careers, often influences the career decisions of learners from townships (Mhlongo & O'Neill, 2013). To this end, I believe that the principle of *cultural relativity* was reflected in participants' aspirations toward specific qualifications.

The principle of *atypicality* was not necessarily reflected per se, as the theme of receiving a qualification might be expected when taking the participants' culture, background and their aspirations for the future into account. However, it might not typically be expected (I did not expect it) that students coming from a community challenged by disadvantage will find a qualification that will most likely enable them to go back to their community to be resilience enabling.

Both international and South African research regarding resilience-enabling factors at TEIs have shown that certain physical environments and services at TEIs enable at-risk students to demonstrate resilience, specifically during times of challenge (as demonstrated in Chapter 2). *University supports* as theme therefore fits with what we know about resilience-enabling factors of at-risk students in this regard (Abreu et al., 2016; Day & Nolde, 2009; Zulu, 2008). *University supports* as emerged theme reflects the principle of *complexity* of SERT. I say this because literature can be found reporting on how university supports are not universally considered to be helpful by students (e.g. seeking psychological help is seen as a western practice that does not resonate with students of African culture). Other studies confirm that university supports can be helpful (Munyaradzi & Addae, 2019; Young, 2009). In short, it is possible that the theme of *university supports* relates to how the two specific universities (that were attended by the three participants who reported this theme) made supportive structures and services available, rather than suggesting that university supports are ubiquitously valued.

Literature has shown that university students who are at risk for discontinuing their studies perceive friends, fellow students and mentors as resilience-enabling factors (Bhopal, 2011; Boehm et al., 2017; Gilardi & Guglielmetti, 2011; Pillay & Ngcobo, 2010; Vincent & Idahosa, 2014). Although my findings fit with the literature in this regard (seeing as the theme of *fellow students* emerged), my participants explicitly referred only to fellow students as resilience-enabling factor, not friends or mentors. I wondered if the resilience of my participants was not potentially championed because fellow students might understand the pressures of a sought-after qualification better than other role players (e.g. friends) might; the

CAP mentioned that, in eMbalenhle, success has become a competition in that people measure their success against those who are unsuccessful (RYSE Community Advisory Committee, 2017). Consequently, my participants might not have been able to rely on friends or mentors back home to motivate them. Furthermore, the theme *enabling fellow students* drew attention to the time dimension of the SERT principle of *complexity*. The phenomenon of fellow students is something that is specific to a certain context at a specific point in time, namely the SE of a TEI. Therefore, the principle of complexity is reflected in that my participants considered a resource (fellow students) in their current context to be resilience enabling. Fellow students might not have been a resilience-enabling factor in a previous context, such as eMbalenhle, or a future context in which there most likely will not be fellow students.

The fact that all my participants reported a sought-after qualification and that, in addition, some of my participants reported fellow students and some reported university structures as resilience-enabling factors, says something (I believe) about the *complexity* of resilience. Although all six of my participants come from the same background (a petrochemical-affected township community) and although their accounts of how their TEIs support their resilience are similar, there is variation. That variation reminds us as educational psychologists that resilience draws on multiple resources and that which resource matters more for which individuals will depend, in part, on how meaningful the individual considers the resource to be (Van Rensburg, Theron & Rothmann, 2018). This insight might potentially contribute to educational psychologists' capacity to promote resilience among students from diverse township communities by considering and exploring (through resource mapping) the multiple resources that an individual might find meaningful.

5.3 Reflexivity

Reflexivity is seen as the explicit self-consciousness and continual reflection through internal dialogue of the researcher regarding her/his experiences, worldviews and biases that may influence her/his interpretation of the participants' perceptions (Berg & Lune, 2012; Bloomberg & Volpe, 2016; Creswell, 2016). Reflexivity can therefore be defined as a strategy to examine how a researcher's subjectivity, biases and values (influenced by their cultural, political and social backgrounds and contexts) potentially impact the research process (Bryman, 2012; Creswell, 2016).

While reflecting on my study of limited scope I realised that, originally, I could not understand why the CAP-identified individuals would want to participate (i.e. I was worried that I might not get participants). When my participants then agreed to participate in my study of limited scope, I thought it might have been because of the voucher. Even though this reward was not initially made known (see Section 3.7), it potentially could have served as motivation or persuasion for my potential participants to participate – as material benefits are something that can easily coerce potential participants, warn Elias and Theron (2012). However, during the course of working with the participants and upon reflection on the process of my study of limited scope, I realised that a researcher–participant relationship might offer one of few (if not the only) opportunities for my participants to tell their story and to feel that they are being heard. I have always taken it for granted that I have people who listen to my story on a daily basis. This could explain why it was initially so difficult for me to grasp why someone would give up their time for my study. Contrasting my experience with that of my participants helped me realise that for most of my life I, as privileged young white female post-graduate student, have been in the fortunate position of being heard. Consequently, through reflection, I came to the insight that my research was most likely providing a unique opportunity for my participants to be listened to and that therein lay the potential value for my participants in participating in my study. This also has value for me as educational psychologist-in-training. I have gained insight into how necessary reflection is, specifically if I want to avoid countertransference when working with clients.

Furthermore, if I could repeat my study or do a similar study I would again meet with my participants over weekends in their preferred environments; in almost all of the cases the participants did not indicate that they have anywhere else to be and seemed relaxed, and because we seemingly had no time restrictions with regard to our interviews I had the opportunity to get to know them a little bit better. As a result, my initial approach to my participants changed to an approach of learning from each individual, rather than learning from the process of writing my dissertation only.

Upon reflection on the findings of my study of limited scope, I gained the insight that my specific findings resonate with what we currently know about resilience: Resilience is about both the social ecology's capacity to provide available resources and the individual's capacity to navigate their way to the available resources (Ungar et al., 2013). My participants could not have structured their accounts of resilience-enabling factors in the SE of their TEIs to fit with current resilience theory because resilience theory is not included in their field of study. Furthermore, participants made reference to their capacity to access TEI resources,

even though I was not interested in anything but resilience-enabling factors in the SE of their TEIs. The findings of this study excite me because, although some of my initial assumptions with regard to my findings have been confirmed (e.g. that getting a qualification is resilience-enabling), other assumptions did not feature in a way that I have assumed at all (e.g. fellow students were considered more resilience enabling than friends). I am excited by this realisation because this most probably means that there are more resilience-enabling factors in the SE of TEIs that educational psychologists are currently unaware of, and that might contribute to the enhancement of resilience of students who come from communities challenged by disadvantage.

5.4 Limitations of This Study

The process of reflexivity helped me to identify specific limitations of my study of limited scope. These limitations include the following: Being part of a larger study over which I had no control, namely the RYSE study, I was in the position to do research with purposefully selected participants without selecting the participants myself. Because community members who are part of the CAP identified my participants, I did not spend time in the community prior to the recruitment. I see this as a limitation because I probably missed the opportunity to gain insight into the possible influence the context (eMbalenhle) might have had on my participants' reasons for identifying the three reported resilience-enabling factors in the SE of their TEIs. This is consistent with Creswell's (2016) recommendation that researchers spend time in the community of marginalised populations (e.g. students who come from a township community such as eMbalenhle) prior to recruitment.

Furthermore, I made use of photo-elicitation as data-collection method. I consider this a limitation because participants sometimes spoke about something else than what was in the photo, after which I had to prompt them to speak more about the photo instead. I find this to be a limitation, as I may potentially have missed valuable information regarding resilience-enabling factors in the SE of TEIs of the participants because I may have been too fixed on the photo in front of me. This supports Bryman (2012) who demonstrates that rich data are not necessarily guaranteed when we make use of visual research methods such as photo-elicitation and, therefore, we should be on the lookout to probe where needed.

5.5 Recommendations

5.5.1 Recommendations relating to future research.

- Upon completion of my study of limited scope I would recommend a follow-up study in which the researcher does not rely only on photo-elicitation as data collection method (thereby not rejecting photo-elicitation as data collection method), but combines it with participants' journal/diary-writing as additional data collection method. I would recommend journal/diary-writing because this method of data collection is nonintrusive for the participant because the participant would be able to fully express and reflect on their perspectives over time, without being (potentially wrongly) prompted by the researcher (Berg & Lune, 2012; Bryman, 2012).
- Furthermore, I would recommend that the researcher of a follow-up study spend some time with the CAP in the community from where the researcher's participants have been recruited. I would further recommend that interviews take place in the community of the participants if the follow-up study were to make use of interviews as data collection method.
- I recommend that the interplay between students' personal motivation and the resilience-enabling factors in the SE of TEIs be considered. As noted by Van Breda and Theron (2018), little researcher attention has been paid to how resilience draws on individuals' capacities to make good use of available resources. My participants' references to their personal motivation could mean that they were motivated to utilise the resilience-enabling factors and so it is important to explore the interplay between personal and social ecological resources in a future study.

5.5.2 Recommendations for educational psychologists.

According to the current understanding of resilience, each context in which an individual functions can be seen as a potential source of protective factors when exposed to adversity (Toland & Carrigan, 2011). Consequently, educational psychologists would identify and prioritise these factors when championing resilience, in collaboration with adolescents. The sources of protective factors that emerged from my study of limited scope suppose the following recommendations for educational psychologists working with TEI students who are challenged by the same risks that probably confronted my participants (as informed by literature):

- I would recommend that educational psychologists work with student clients in ways that encourage the client to map available resources in the SE of their TEIs and to discuss ways of using them. The recommendation is made given that my sample was small. Consequently, student clients would potentially identify other resilience-

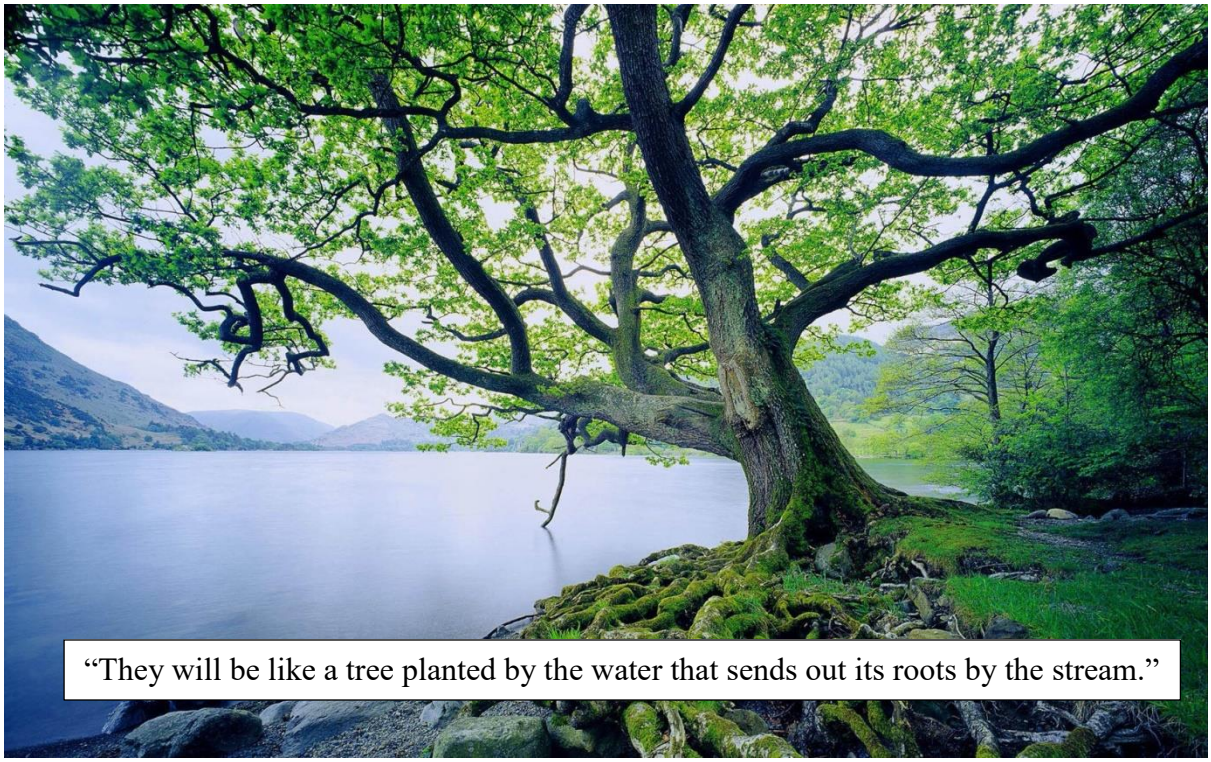
enabling factors in the SE of their TEIs and make use of resilience-enabling factors (such as a sought-after qualification, university structures and fellow students) in different ways.

- I recommend the provision of career guidance, specifically for students from communities challenged by disadvantage, as they often enroll for a certain "sought-after" course without having sufficient knowledge regarding the course, which potentially puts them at risk for discontinuing their studies (Fourie & Gericke, 2009; Maree, 2009; Mhlongo & O'Neill, 2013). Adequate career guidance includes career guidance that is useful in all South African contexts (Maree, 2009). Therefore, I would recommend that educational psychologists respect how contextual realities shape resilience and limit or support career decisions, and that they, as recommended by Maree (2013) apply combined qualitative–quantitative and positivist–constructivist approaches to career counselling in order to make career guidance contextually meaningful. Furthermore, educational psychologists would most likely be better equipped to guide student clients in such a way that they receive culture-specific career counselling (Buthelezi et al., 2009).
- I recommend that educational psychologists who provide career counselling and who champion resilience at TEIs should spend time within the particular SE of the TEI, as resilience is directly moulded by transactions that take place within different meso- and microsystems (Theron & Donald, 2013). Consequently, educational psychologists will be better equipped to champion the resilience of students (such as the participants in my study) when they understand the specific campus context and culture better. When educational psychologists understand the SE of a specific TEI better, they would be in a better position to advocate for resilience-enabling changes within that SE (Theron & Donald, 2013).

5.6 Conclusion

The themes that emerged from my study of limited scope demonstrated how the process of resilience is not only dependent on the individual's ability to navigate her/his way to resources, but also on the individual's environment (social ecology) to provide relevant and meaningful resources (Ungar, 2011). As theorised by Van Breda (2018), students' resilience requires students to interact with their environment (the TEI). This implies that the capacity of the individual (student) to interact with their environment (the TEI) in a way that

is meaningful is important, and that the capacity of the SE matters too. For this reason conclude with the bible verse “They will be like a tree planted by the water that sends out its roots by the stream”.



Verse source: Jeremiah 17:8, New International Version. Image source: https://i.ytimg.com/vi/jcmXEVddzig/maxresdefault.jpg

This verse (and the accompanying visual) demonstrates that student resilience is about students “sending out their roots” **and** about the capacity of the TEI to provide a SE that nurtures student resilience (i.e. a stream). It is my hope that more TEIs will prioritise the provision of resilience-enabling “streams”, more especially for students from challenged contexts.

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ADDENDUM 1

Inclusion/exclusion criteria for themes

Theme	Inclusion criteria	Exclusion criteria
A sought-after qualification	Any reference to the degree, certificate or diploma that the participant will likely receive because they are enrolled at a (sometimes specific) tertiary education institution. Another inclusion criterion is any reference to the participant's view of their future (including their dreams and wishes) that will be realised because of the qualification they are receiving.	Any reference to other factors (e.g. bursaries and/or job opportunities) potentially enabling future dreams and/or wishes.
Enabling fellow students	Any reference to any student within the university ecology (UE) of the participant who enables the participant to be resilient, often through the means of an action.	Any reference to fellow students that do not demonstrate an action contributing to resilience and/or any reference to fellow students who tutor.
University supports	Any reference to university infrastructure or services built for or dedicated to addressing the needs of students. The theme not only refers to the function of the structures, but also the atmosphere and the resources because of the function.	Any reference to resources that are not embodied within a university structure (such as a bursary provided by an industry).

ADDENDUM 2

A blank copy of the participant consent form

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Faculty of Education

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

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

Who are we?

We are researchers from the University of Pretoria (South Africa), Dalhousie University (Canada), Royal Roads University (Canada) and Khulisa Social Solutions (South Africa). Our contact details are at the end of this letter if you need them.

What are we doing in this project?

Broadly, we want to learn from you (and other people from the Secunda area) what makes it possible for people to be OK in life when they come from 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. Come from the Secunda area, Mpumalanga, and
4. Are enrolled at a tertiary education institution,
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: _____ Place: _____		We will ask you (and other young people from eMbalenhle group) to take pictures that help you to answer the following questions: 1. What in your community (eMbalenhle) inspired you to study further? 2. What at your institution enabled you to be strong when things get hard at university? 3. Is there anything else that enabled you to be strong when it is hard at university?

We will ask your permission to audio record the above so that we can write down what you say. We will also use audio recorders 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 on social media and on our websites.

What do you get out of this?

We would like to offer you R100 voucher 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
You will complete the activities on the xx, individually.	Because you will be doing this activity individually, you may become exhausted, because questions will be asked to you for about an hour. To try and minimize you becoming tired, you can ask for a break at any time you feel like it.
We meet at the place of your choice, namely xx. This potentially means that students from this campus will see you talking to the researchers and may ask questions that will lead to other people knowing that you participated in the study.	Anonymity will be provided by me as researcher as far as possible by, for example, not disclosing to anyone why we have met, even when they ask. We can also together decide on a place on campus where you will feel comfortable.

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 have 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 have learnt from you or when we tell others about what we have 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.

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

ADDENDUM 3

Ethics clearance certificate

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Faculty of Education

Ethics Committee

11 April 2018

Ms Mariaan Prins

Dear Ms Prins

REFERENCE: UP 17/05/01 Theron 18-001

This letter serves to confirm that your application was carefully considered by the Faculty of Education Ethics Committee. The final decision of the Ethics Committee is that your application has been **approved** and you may now start with your data collection. The decision covers the entire research process and not only the days that data will be collected. The approval is valid for two years for a Masters and three for Doctorate.

The approval by the Ethics Committee is subject to the following conditions being met:

1. The research will be conducted as stipulated on the application form submitted to the Ethics Committee with the supporting documents.
2. Proof of how you adhered to the Department of Basic Education (DBE) policy for research must be submitted where relevant.
3. In the event that the research protocol changed for whatever reason the Ethics Committee must be notified thereof by submitting an amendment to the application (Section E), together with all the supporting documentation that will be used for data collection namely; questionnaires, interview schedules and observation schedules, for further approval before data can be collected. Non-compliance implies that the Committee's approval is null and void. The changes may include the following but are not limited to:
    - Change of investigator,
    - Research methods any other aspect therefore and,
    - Participants
    - Sites

The Ethics Committee of the Faculty of Education does not accept any liability for research misconduct, of whatsoever nature, committed by the researcher(s) in the implementation of the approved protocol.

Upon completion of your research you will need to submit the following documentations to the Ethics Committee for your Clearance Certificate:

- Integrated Declaration Form (Form D08),
- Initial Ethics Approval letter and,
- Approval of Title.

Please quote the reference number **UP 17/05/01 Theron 18-001** in any communication with the Ethics Committee.

Best wishes

Prof Liesel Ebersöhn
Chair: Ethics Committee
Faculty of Education

ADDENDUM 4
Extract from research journal

On the 21st of April, I met two of the participants of my study. Both of them studies at WITS University, and chose the university as their preferred choice of meeting place. Upon arrival at the campus, I met the first participant at our agreed meeting place. I immediately became aware of his planning for our meeting in terms of being able to have a conversation in a quiet environment. He mentioned that he thought we could meet in a tutoring room of the science building, because he knew that they are open on Saturdays. He was also planning to book a room just before I have arrived, but he did not want to let me wait. This was remarkable to me, seeing that it is my study and he is not only already investing some of his time in it, but now also takes into consideration what would work best for our conversation (my data collection). Him going the extra mile to walk from one side of the campus to the other side to come and collect me at a meeting place that would be easy for me to find (according to him), making sure we have a quiet room for the conversation, and walking back with me to my car, made me realise how much such small gestures can mean to someone. Because of this, the participant's response of absolute gratitude when I gave him the Pick 'n Pay voucher as small token of appreciation for his time, made even more sense to me. It seemed like he saw my visit to his campus to listen to his story and learn from him, as something that I was doing for him, where I was actually the one that was gaining from the experience by learning from him. This made me humble and made the experience an absolute privilege.

During the conversation, I found it interesting how the first participant found other students from eMbalenhle's choice to study further in another direction than engineering or medicine strange and unexplainable. He had his reason for this, the one being that you can't go back to eMbalenhle and find work as a graduate in something else. It became clear to me that he is busy studying with the intention to go back to eMbalenhle and make a living there (and nowhere else). I have realised that before meeting the participants, one of my assumptions were that they were inspired to study further to build a live outside of eMbalenhle. This specific participant has shown me that this weren't necessarily the case. Once again I was taught that assumptions often come from a place of your own frame of reference, and that the only way to stay clear of those assumptions, is to have conversations with other on the topic of your assumption.